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ILTS Congress Headquarters

15000 Commerce Parkway, Suite C
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Telephone: 856-439-0500
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Acknowledgement

The ILTS would like to thank the following companies for support of the Congress with unrestricted educational grants (at time of printing):

Superstar Level



Four Star Level



Two Star Level



One Star Level



Schedule of Activities

July 8-11, 2009
Hilton New York
New York City, USA

On-Site Registration Hours

Tuesday, July 7	2:00 PM – 6:00 PM
Wednesday, July 8	6:30 AM – 7:00 PM
Thursday, July 9	6:30 AM – 7:00 PM
Friday, July 10	6:30 AM – 7:00 PM
Saturday, July 11	6:30 AM – 12:00 PM

Speaker Ready Room Hours

Tuesday, July 7	2:00 PM – 6:00 PM
Wednesday, July 8	6:30 AM – 7:00 PM
Thursday, July 9	6:30 AM – 7:00 PM
Friday, July 10	6:30 AM – 7:00 PM
Saturday, July 11	6:30 AM – 12:00 PM

Exhibit Hours

Wednesday, July 8	5:30 PM – 7:00 PM
<i>Opening of Exhibits, Wine and Cheese Reception</i>	
Thursday, July 9	9:30 AM – 4:45 PM
Friday, July 10	9:00 AM – 4:45 PM

Poster Viewing Hours

Wednesday, July 8	5:30 PM – 7:00 PM
Thursday, July 9	6:30 AM – 7:00 PM
Friday, July 10	6:30 AM – 7:00 PM

Poster Session (Presenters in Attendance)

<i>Poster Session I</i>	
Wednesday, July 8	5:30 PM – 7:00 PM
<i>Poster Session II</i>	
Thursday, July 9	9:30 AM – 10:00 AM 4:00 PM – 4:45 PM
<i>Poster Session III</i>	
Friday, July 10	9:00 AM – 9:30 AM 4:00 PM – 4:45 PM

ILTS Business Meeting

Friday, July 10	6:15 PM – 6:30 PM
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Reception at Rockefeller Center

Friday, July 10	7:30 PM – 10:30 PM
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Rising Star Awards

**Supported by an Unrestricted Educational Grant from Novartis Pharma AG.*

The Rising Star Award is given to the best combinations of youth and wisdom working in the clinical and basic science of liver transplantation research today. This award is based upon abstract submissions by a young investigator and their designated mentor. Rising Star Award winner presentations will take place on Thursday, July 9, 10:30 AM – 12:30 PM, on Level 3, Grand Ballroom of the Hilton New York.

Team # 1

Yoichiro Uchida, MD, PhD

-Young Investigator

University of California, Los Angeles
Los Angeles, CA, USA

Jerzy Kupiec-Weglinski, PhD

-Mentor

University of California, Los Angeles
Los Angeles, CA, USA

Team # 2

Deepak Joshi, MD

-Young Investigator

Kings College Hospital
London, United Kingdom

Kosh Agarwal, MD

-Mentor

Kings College Hospital
London, United Kingdom

Team # 3

Gebhard Wagener, MD

-Young Investigator

Columbia University
New York, NY, USA

HT Lee, MD, PhD

-Mentor

Columbia University
New York, NY, USA

Team # 4

Qiuwei Pan, MSc

-Young Investigator

Erasmus Medical Center
Rotterdam, The Netherlands

Luc van der Laan, PhD

-Mentor

Erasmus Medical Center
Rotterdam, The Netherlands

Team # 5

Jason Rhee, MD

-Young Investigator

Tufts Medical Center
Boston, MA, USA

Richard B. Freeman, Jr., MD

-Mentor

Tufts Medical Center
Boston, MA, USA

Team # 6

Emer Fitzpatrick, MD

-Young Investigator

Kings College Hospital
London, United Kingdom

Anil Dhawan, MD

-Mentor

Kings College Hospital
London, United Kingdom

Travel Awardees

Angela Tjon

INCREASED RISK OF EARLY DE NOVO
CANCER IN LIVER GRAFT RECIPIENTS
TRANSPLANTED IN MORE RECENT YEARS.
(Abstract P-86)

Michael Ma

POST-TRANSPLANT HEMODIALYSIS
DRASTICALLY REDUCES ONE-YEAR
SURVIVAL IN PATIENTS ENTERING LIVER
TRANSPLANTATION WITHOUT RENAL
DYSFUNCTION.
(Abstract P-124)

Matteo Ravaioli

PORTAL VEIN THROMBOSIS AND LIVER
TRANSPLANTATION: EVOLUTIONS DURING
10-YEARS EXPERIENCE AT THE UNIVERSITY
OF BOLOGNA.
(Abstract P-171)

Izabel Alfany-Fernandez

ANGIOTENSIN II RECEPTOR ANTAGONISTS
AS USEFUL STRATEGIES IN STEATOTIC AND
NON-STEATOTIC LIVERS IN CONDITIONS OF
PARTIAL HEPATECTOMY UNDER ISCHEMIA-
REPERFUSION.
(Abstract P-193)

Allessandro Vitale

THE SURVIVAL BENEFIT OF LIVER
TRANSPLANTATION IN PATIENTS WITH
HEPATOCELLULAR CARCINOMA.
(Abstract P-258)

Cecilia Ortiz

DOWNREGULATION OF T-LYMPHOCYTE
ACTIVATION AND CO-ACTIVATION MARKERS
IN HEPATITIS C VIRUS (HCV) INFECTION
BEFORE AND AFTER LIVER TRANSPLANTION.
(Abstract P-386)

Ilona Pereboom

FACTOR V LEIDEN MUTATION IS ASSOCIATED
WITH HEPATIC ARTERY THROMBOSIS AFTER
ORTHOTOPIC LIVER TRANSPLANTATION.
(Abstract P-475)

Stefano Gitto

SEVEN SCORE SYSTEMS TO EVALUATE
CANDIDATES TO ORTHOTOPIC LIVER
TRANSPLANTATION: WHICH IS THE WINNER?
(Abstract P-499)

Tobias Eckle

EXTRACELLULAR ADENOSINE PRODUCTION
BY ECTO-5'-NUCLEOTIDASE PROTECTS
DURING MURINE HEPATIC ISCHEMIC
PRECONDITIONING.
(Abstract O-1)

Yan Liu

THE DISTINCT REGENERATION PATTERN
OF SMALL-FOR-SIZE FATTY LIVER GRAFT-
THE SIGNIFICANCE OF ALDOSE REDUCTASE
SIGNALING ON OVAL CELL ACTIVATION.
(Abstract O-6)

Lorenzo Micco

LIVER TRANSPLANTATION UTILIZING
HBsAg-POSITIVE GRAFTS: AN UNEXPECTED
OUTCOME FOR MARGINAL LIVERS.
(Abstract O-44)

Francesca Ponziani

GENOTYPE 2 AND 3 RECURRENT HEPATITIS
C AFTER LIVER TRANSPLANTATION:
EXCELLENT RESULTS WITH SUBOPTIMAL
DOSES OF ANTIVIRAL THERAPY.
(Abstract O-73)

Haofeng Ji

ACTIVATION OF PD-1 NEGATIVE T CELL CO-
STIMULATION SIGNALING AMELIORATES
LIVER INJURY INDUCED BY ISCHEMIA AND
REPERFUSION.
(Abstract O-79)

Feng Ren

GLYCOGEN SYNTHASE KINASE (GSK)-3
IS A KEY REGULATOR OF LIVER IMMUNE
RESPONSES AGAINST ISCHEMIA AND
REPERFUSION INJURY.
(Abstract O-88)

Travel Awardees

Viviana Moroso

NK CELL CHIMERISM IS A UNIQUE FEATURE OF LIVER TRANSPLANTATION AND MAY MODULATE RECIPIENT'S RESPONSE AGAINST THE GRAFT.

(Abstract O-90)

Volker Benseler

SUICIDAL EMPERIOPOLESI: A NOVEL MECHANISM CONTRIBUTING TO THE T CELL TOLERANCE EFFECT IN LIVER TRANSPLANTATION.

(Abstract O-93)

Rachel Westbrook

AN EVALUATION OF MORTALITY IN ADULTS AND CHILDREN WHO HAVE SURVIVED IN EXCESS OF 5 AND 10 YEARS SINCE LIVER TRANSPLANTATION.

(Abstract O-100)

Ahlan Mustafa

MECHANISMS OF HEPATOCELLULAR DEATH IN ACUTE LIVER FAILURE OF INDETERMINATE AETIOLOGY IN CHILDREN.

(Abstract O-102)

Nienke Warnaar

LONG-TERM OUTCOME AFTER URGENT REVASCULARIZATION FOR HEPATIC ARTERY THROMBOSIS AFTER PEDIATRIC LIVER TRANSPLANTATION.

(Abstract O-112)

Naresh Shanmugam

AGE AND ETIOLOGY RELATED OUTCOME OF ACUTE LIVER FAILURE IN PAEDIATRIC AGE GROUP.

(Abstract O-114)

Geir Nedredal

SPLEEN STIFFNESS BY MAGNETIC RESONANCE ELASTOGRAPHY (MRE) CORRELATES WITH PORTAL HYPERTENSION IN A LARGE ANIMAL MODEL OF CIRRHOSIS.

(Abstract O-128)

Timothy Schmitt

ENDOVASCULAR THERAPY FOR HEPATIC ARTERY STENOSIS AND OCCLUSION FOLLOWING LIVER TRANSPLANTATION.

(Abstract O-130)

Marieke Van Rhijn

ROUTINE ULTRASONOGRAPHY HAS LIMITED VALUE IN PATIENTS LONG AFTER LIVER TRANSPLANTATION.

(Abstract O-135)

B. Lenin

DECISION-ANALYSIS FOR SELECTION OF GRAFT TYPE IN RIGHT LOBE LIVING RELATED LIVER TRANSPLANTATION.

(Abstract O-145)

**The International Liver Transplantation Society
15th Annual International Congress
July 8-11, 2009
Hilton New York
New York, NY
United States of America**

The 2009 International Congress of ILTS Day-at-a-Glance, Wednesday, July 8, 2009

6:30 AM – 7:00 PM Registration Open

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Room: Grand Ballroom Foyer, Level 3

**8:30 AM – 5:30 PM Astellas Sponsored Symposium -
The State of Liver Transplantation:
Current Problems, Future Solutions**

Page 11

Room: Grand Ballroom, Level 3

5:30 PM – 7:00 PM Opening of Exhibits

Page 11

Room: America's Hall I, Level 3

5:30 PM – 6:15 PM Poster Grand Rounds I

Page 11

Room: America's Hall I, Level 3

5:30 PM – 7:00 PM Poster Session I

Page 11

Room: America's Hall I, Level 3

Wednesday, July 8, 2009

Registration Open

6:30 AM – 7:00 PM

Room: Grand Ballroom Foyer, Level 3

Astellas Sponsored Symposium - The State of Liver Transplantation: Current Problems, Future Solutions

8:30 AM – 5:30 PM

Room: Grand Ballroom, Level 3

Opening of Exhibits

5:30 PM – 7:00 PM

Room: America's Hall I, Level 3

Poster Grand Rounds I

5:30 PM - 6:15 PM

Presenters in Attendance

Room: America's Hall I, Level 3

Categories:

- Hepatitis C
- Malignancies
- Patient Selection/Organ Allocation
- Pediatrics

Poster Session I

5:30 PM - 7:00 PM

† Those posters identified as a Poster of Distinction by this symbol have received review scores that place them in the top 10% of their category. The Planning Committee encourages you to make them a priority when you visit the poster session.

Anesthesia/Critical Care Medicine

- P-1 MOLECULAR ADSORBENT RECIRCULATING SYSTEM: A BRIDGE TO LIVER TRANSPLANTATION. (Abstract # P-1)**
Zalak Patel, Haran Fisher, Ernesto Pretto. Miami, FL, USA.
- P-2 POSTOPERATIVE PULMONARY CARE OF THE HEPATOPULMONARY SYNDROME: A SURVEY REPORT. (Abstract # P-2)**
Yoogoo Kang, Vincent Franze, Cataldo Doria. Philadelphia, PA, USA.
- P-3 PACKED RED BLOOD CELLS TRANSFUSION DURING LIVER TRANSPLANTATION IN A SINGLE BRAZILIAN CENTER: 1030 TRANSPLANTS FROM 1985 TO 2008. (Abstract # P-3)**
Thomson M. Palma, Carlos E. S. Baia, Rafael Pecora, Alexandre Teruya, Flavio Takaoka, Alexandre P. Oliveira, Ana Olga N. G. F. Mies, Eloisa H. D. Quintela, Leonardo R. Ferraz, Margaret P. Lallée, Sergio Mies. Sao Paulo, SP, Brazil.

- P-4 THE IMPACT OF UW AND HTK PRESERVATION SOLUTIONS ON CHANGES IN THE SERUM POTASSIUM LEVELS OF PATIENTS UNDERGOING LIVING DONOR LIVER TRANSPLANTATION. (Abstract # P-4)**
Bruno Jawan, Chao-Long Chen, Chih-Hsien Wang, Chia-Jung Huang, Allan M. Concejero. Kaohsiung, Taiwan.
- P-5 † IMMEDIATE TRACHEAL EXTUBATION OF LIVING DONOR LIVER TRANSPLANT RECIPIENTS IN THE OPERATING ROOM. (Abstract # P-5)**
Takashi Matsusaki, Hiroshi Morimatsu, Masao Hayashi, Tetsufumi Sato, Junya Matsumi, Ryuji Kaku, Masaki Matsumi, Kiyoshi Morita, Takahito Yagi. Okayama, Japan.
- P-6 EVALUATION OF CORRECTED LVET IN ESOPHAGEAL ECHO-DOPPLER AS A PREDICTOR OF EARLY OUTCOME IN LIVER TRANSPLANTATION. PRELIMINARY REPORT. (Abstract # P-6)**
V. Perilli, A. W. Avolio, P. P. Ciochetti, D. Eleuteri, A. Rundo, I. Marusco, S. Magalini, S. Agnes, L. Sollazzi. Rome, Italy.
- P-7 COMPARISON OF STROKE VOLUME VARIATIONS DERIVED FROM RADIAL AND FEMORAL ARTERIAL PRESSURE WAVEFORM DURING LIVER TRANSPLANTATION. (Abstract # P-7)**
Hee Yeong Kim, Seung Hye Sung, Won Jung Shin, Young Kug Kim, Gyu Sam Hwang. Seoul, Korea.
- P-8 EXPERIENCE OF TORSADE DE POINTES IN NEOHEPATIC STAGE OF LIVER TRANSPLANTATION: A CASE REPORT. (Abstract # P-8)**
Jun Young Park, Sung Hoon Kim, Young Kug Kim, Gyu Sam Hwang, Pyong Hwan Park. Seoul, Korea.
- P-9 POST-REPERFUSION SYNDROME (PRS) DEFINED BY THERAPEUTIC INTERVENTION. (Abstract # P-9)**
Nicola J. Pert, Alistair Lee, Dermot W. McKeown. Edinburgh, United Kingdom.
- P-10 HOW OFTEN SHOULD LIVER TRANSPLANT CANDIDATES BE SCREENED FOR PULMONARY HYPERTENSION? (Abstract # P-10)**
Michael A. E. Ramsay, Kate B. Newman, Edmund Q. Sanchez, Goran B. Klintmalm. Dallas, TX, USA.
- P-11 ALPROSTIDIL (Prostin®) HAS LIMITED UTILITY IN THE IMMEDIATELY POST-OPERATIVE LIVER TRANSPLANT RECIPIENT. (Abstract # P-11)**
Neha Patel, David J. Taber, Nicole A. Weimert, Jenna L. Scheffert, Brie L. Dunn, Michael G. Hughes, John W. McGillicuddy, Charles F. Bratton, Angello Lin, Prabhakar K. Baliga, Kenneth D. Chavin. Charleston, SC, USA.
- P-12 SUCCESSFUL RECOVERY OF CENTRAL PONTINE MYELINOLYSIS AFTER LIVER TRANSPLANTATION. (Abstract # P-12)**
R. Gaspari, A. W. Avolio, G. Della Marca, I. Melchionda, S. Agnes. Rome, Italy.

P-13 **MULTIDISCIPLINARY MANAGEMENT OF PEDIATRIC FULMINANT HEPATIC FAILURE. (Abstract # P-13)**
Chiaki Karaki, Satoshi Nakagawa, Takuya Kimura, Akinari Fukuda, Atuko Nakagawa, Mureo Kasahara. Setagaya City, Tokyo, Japan.

Basic Sciences

P-14 **ALPHA-1-ACID GLYCOPROTEIN CONCENTRATION AND PROTEIN BINDING OF TACROLIMUS IN LIVER TRANSPLANT RECIPIENT. (Abstract # P-14)**
Satoshi Kishino, Nobuo Mochizuk, Keiko Ohno, Tsuyoshi Shimamura, Hiroyuki Furukawa, Satoru Todo. Kiyose, Tokyo, Japan; Sapporo, Hokkaido, Japan.

P-15 **DETECTION OF Val30Met MUTATION BY REAL-TIME PCR IN BRAZILIAN FAMILIES. (Abstract # P-15)**
 Vanessa F. D. Castro, Roberta Sitnik, Marcio D. Almeida, João R. R. Pinho, Bianca Della-Guardia, Rogerio C. Afonso, Ben-Hur Ferraz-Neto. Sao Paulo, SP, Brazil.

P-16 **ANTI-HIGH MOBILITY GROUP Box-1 ANTIBODY IMPROVED FULMINANT HEPATIC FAILURE IN A RAT MODEL. (Abstract # P-16)**
Kiminori Takano, Masahiro Shinoda, Minoru Tanabe, Go Oshima, Taku Miyasho, Shingo Yamada, Hiroya Takeuchi, Koichi Fukunaga, Hideaki Obara, Shigeyuki Kawachi, Yasushi Fuchimoto, Ken Hoshino, Yasuhide Morikawa, Ikuro Maruyama, Akitoshi Ishizaka, Yuko Kitagawa. Tokyo, Japan; Hokkaido, Japan; Kanagawa, Japan; Kagoshima, Japan.

P-17 **CYP450 AMINOPYRINE BREATH TEST: A NOVEL TOOL FOR EVALUATION OF GRAFT FUNCTION FOLLOWING RAT OLT. (Abstract # P-17)**
Martin Veit, Edouard Matevossian, Wolf Otto Bechstein, Christian Moench. Frankfurt, Germany; München, Germany.

P-18 † **BELATACEPT DOES NOT INDUCE DIRECT GENE EXPRESSION CHANGES IN ANTIGEN PRESENTING CELLS. (Abstract # P-18)**
Julie A. Carman, Patricia M. Davis, Jun Zhu, Han Chang, Aiqing He, Amy Truong, Suzanne J. Suchard, Michael Heifets, Steven G. Nadler. Princeton, NJ, USA.

P-19 **USE OF A HANGING-WEIGHT SYSTEM FOR LIVER ISCHEMIC PRECONDITIONING IN MICE. (Abstract # P-19)**
M. Susan Mandell, Melanie L. Hart, Tobias Eckle, Holger E. Eltzhig. Aurora, CO, USA; Tübingen, Germany.

P-20 **COULD MONOCYTE DERIVED NEO-HEPATOCYTES FUNCTION AS AN ALTERNATIVE TO HEPATOCYTE OR LIVER TRANSPLANTATION IN ACUTE LIVER FAILURE? (Abstract # P-20)**
Maren Schulze, James Hutchinson, Hendrik Ungefroren, Andreas Nüssler, Fred Fandrich, Jan Hengstler. Kiel, Germany; München, Germany; Leipzig, Germany.

P-21 **OUTCOME OF PATIENTS WITH HEPATORENAL SYNDROME TYPE 1 AFTER LIVER TRANSPLANTATION: HANGZHOU EXPERIENCE. (Abstract # P-21)**
 Xiao Xu, Qi Ling, Min Zhang, Feng Gao, Shusen Zheng. Hangzhou, Zhejiang, China.

P-22 **ANALYSIS OF GENE EXPRESSION PROFILE BEFORE AND AFTER LIVER TRANSPLANTATION IN PATIENTS WITH ALCOHOLIC CIRRHOSIS. (Abstract # P-22)**
 Carmen Olmedo-Martin, Karim Muffak-Granero, Fernando Garcia-Alcalde, Ana Comino-Pardo, Javier Martin Cano, Jesus Villar del Moral, Daniel Garrote-Lara, Armando Blanco-Morón, Pablo Bueno-Laraño, Jose-Antonio Ferrón-Orihuela. Granada, Spain.

P-23 **MOBILIZATION, IMMUNOMODULATION AND HEPATIC DIFFERENTIATION OF HUMAN GRAFT MESENCHYMAL STEM CELLS IN LIVER TRANSPLANTATION. (Abstract # P-23)**
Qiuwei Pan, Suomi M. G. Fouraschen, Fatima S. F. Aerts-Kaya, Antoine van der Sloot, Geert Kazemier, Jaap Kwekkeboom, Herold J. Metselaar, Hugo W. Tilanus, Gerard Wagemaker, Harry L. A. Janssen, Luc J. W. van der Laan. Rotterdam, Netherlands.

P-24 **PRELIMINARY STUDY OF THE EFFECT ON PROLIFERATION OF CELL LINE HEPG2 AND HL7-702 BY METHYLPREDNISOLONE. (Abstract # P-24)**
Li Hong Song, Ping., Wei Zheng, Yang Zhong Shen. Tianjin, China.

P-25 **SYSTEMIC NORMOTHERMIC HTK INFUSION OF DONORS REDUCES ISCHEMIA/REPERFUSION INJURY IN RAT LIVER TRANSPLANTATION. (Abstract # P-25)**
Gero Puhl, Peter Olschewski, Wenzel Schöning, Volker Schmitz, Veeravorn Ariyakhagorn, Peter Neuhaus. Berlin, Germany; Chiangmai, Thailand.

P-26 **SURAMIN PROTECTS LIVER FROM ISCHEMIA/REPERFUSION INJURY IN MICE. (Abstract # P-26)**
Tadahiro Uemura, Lucy X. Lou, John Liang, Zakiyah Kadry, Samuel S. M. Zhang. Hershey, PA, USA.

P-27 RELATIONSHIP BETWEEN GH/IGF-1 AXIS, GRAFT RECOVERY AND EARLY SURVIVORSHIP IN PATIENTS UNDERGOING LIVER TRANSPLANTATION. (Abstract # P-27)
Luca Toti, Tommaso M. Manzia, Leonardo Baiocchi, Linda De Luca, Andrea Monaco, Irene Bellini, Alessandro Anselmo, Giuseppe Iaria, Giuseppe Tisone. Rome, Italy.

Extended Criteria Donors/Disease Transmission

P-28 LIVER PROCUREMENT AND TRANSPLANT IN "CALCULATED RISK" DONORS IN ITALY. (Abstract # P-28)
Carlo De Cillia, Paolo Grossi, Lucia Rizzato, Andrea Ricci, Francesca D'Alessandro, Sante Venettoni, Alessandro Nanni Costa. Roma, Italy; Varese, Italy.

P-29 SEROLOGICAL PROFILE IN PRETRANSPLANTATIONS LIVER PATIENTS. (Abstract # P-29)
Yuri L. Botteon, Raquel S. B. Stucchi, Marilia I. Leonardi, Ilka F. S. F. Boim. Campinas, Sao Paulo, Brazil.

P-30 † SCHISTOSOMIASIS AND LIVE DONOR LIVER TRANSPLANTATION. (Abstract # P-30)
Joao Seda-Neto, Eduardo Carone, Eduardo Fonseca, Vincenzo Pugliese, Andre Godoy, Vera Baggio, Irene Miura, Gilda Porta, Renata Pugliese, Katia Ramos, Teresa Guimaraes, Adriana Porta, Paulo Chapchap. Sao Paulo, SP, Brazil.

P-31 TRANSMISSION OF COAGULATION FACTOR XII DEFICIENCY THROUGH LIVER TRANSPLANTATION. (Abstract # P-31)
Matej Kocik, Milos Adamec, Libor Janousek, Martin Oliverius, Libuse Pagacova, Pavel Trunecka. Prague, Czech Republic.

P-32 USE OF EXPANDED CRITERIA LIVER DONORS IN ITALY AND THEIR ALLOCATION ACCORDING TO PATIENT DISEASE SEVERITY: CROSS-SECTIONAL RESULTS OF THE LIVER-MATCH STUDY. (Abstract # P-32)
Mario Angelico, Tania Marianelli, Andrea Ricci, The Liver Match Investigators. Rome, Italy.

P-33 ARE EXPANDED CRITERIA DONOR LIVERS ASSOCIATED WITH INCREASED BLEEDING COMPLICATIONS AFTER GRAFT REPERFUSION DURING LIVER TRANSPLANTATION? (Abstract # P-33)
Marieke T. de Boer, Andrie C. Westerkamp, Herman G. Hendriks, Wojciech G. Polak, Paul M. Peeters, Koert P. de Jong, Robert J. Porte. Groningen, Netherlands.

P-34 LIVERS WITH GREATER THAN THIRTY PERCENT MACROVESICULAR STEATOSIS ARE AT SIGNIFICANTLY GREATER RISK FOR GRAFT FAILURE – RESULTS FROM A LARGE DATABASE. (Abstract # P-34)
Stephen C. Rayhill, David Scott, Susan Orloff, Jordana Gaumond, Jonathan Schwartz, Atif Zaman, Michael Chang, Scott Naugler, Anna Susaki, John Ham. Portland, OR, USA.

P-35 A CRITICAL LOOK AT DISCARDED LIVERS IN DONATION AFTER CARDIAC DEATH (DCD). (Abstract # P-35)
Jason Y. Rhee, Robin Ruthazer, Kevin O'Connor, Francis L. Delmonico, Richard Lusk, Richard B. Freeman. Boston, MA, USA; Newton, MA, USA.

P-36 LIVER TRANSPLANTATION WITH HEPATITIS B CORE ANTIBODY-POSITIVE GRAFTS UNDER HEPATITIS B IMMUNOGLOBULIN AND LAMIVUDINE PROPHYLAXIS. (Abstract # P-36)
Luigi L. Lupo, Piercarmino P. Panzera, Francesco F. Tandoi, Michele M. Colasuonno, Angela Daniela A. D. Di Franco, Riccardo R. Memeo, Roberta R. Gialò, Andrea A. Cesana, Rosamaria R. Notarnicola, Onofrio O. Caputi Jambrenghi, Maria M. Rendina, Teresa T. Santantonio, Vincenzo V. Memeo. Bari, Italy.

P-37 BILIARY COMPLICATIONS AFTER USING LIVERS FROM DONATION AFTER CARDIAC DEATH DONORS. (Abstract # P-37)
Abdaal W. Khan, Ibrahim Alsarraj, Osama Nafea, Ali N. Khan, Wael Ohali, Khalid O. Abdullah, Abdulmajeed Al-Abdulkareem. Riyadh, Saudi Arabia.

Hepatitis C

P-38 PROSPECTIVE RANDOMIZED STUDY OF ANTIVIRAL THERAPY POST-TRANSPLANTATION: EFFECT OF THE TYPE OF PEGYLATED IFN AND BASELINE IMMUNOSUPPRESSION. (Abstract # P-38)
Cecilia Ortiz, F. Xavier Lopez-Labrador, Raquel Cañada, Blas Rialde, Victoria Aguilera, Martin Prieto, Marina Berenguer. Valencia, Spain.

P-39 DONOR LIVER STEATOSIS OF >30% HAS NO IMPACT ON HEPATITIS C VIRUS RECURRENCE FOLLOWING LIVER TRANSPLANTATION. (Abstract # P-39)
Mahesh S. Gopasetty, David Taber, Michel Hughes, Angello Lin, John McGillicuddy, Charles Bratton, Prabhakar Baliga, Kenneth Chavin. Charleston, SC, USA; Charleston, SC, USA.

P-40 EARLY VIROLOGICAL RESPONSE AND ABSENCE OF DIABETES ARE ASSOCIATED WITH SUSTAINED VIROLOGICAL RESPONSE TO HCV TREATMENT AFTER LIVER TRANSPLANTATION IN PATIENTS WITH CYCLOSPORINE A BASED IMMUNOSUPPRESSION. (Abstract # P-40)
M. Hurtova, M. Fourni, N. Medjahed, D. Samuel, M. Neau-Cransac, Y. Calmus, G. Pageaux, R. Lorho, C. Vanlemmens, A. Laurent, T. Decaens, C. Duvoux. Créteil, France; Villejuif; Bordeaux; Paris; Montpellier; Rennes; Besançon; Creteil.

- P-41** **ROLE OF ANGIOTENSINOGEN (AGT) AND HEMOCHROMATOSIS (HFE) GENE MUTATIONS FOR THE DEVELOPMENT OF FIBROSIS AFTER HCV REINFECTION FOLLOWING LIVER TRANSPLANTATION. (Abstract # P-41)**
Volker Schmitz, Heiko Witt, Marcus Bahra, Forian Spies, Ruth Neuhaus, Tobias Müller, Juliane Harlank, Ulf P. Neumann, Peter Neuhaus, Thomas Berg. Berlin, Germany.
- P-42** **TREATMENT FOR RECURRENT HCV INFECTION AFTER LIVER TRANSPLANTATION. (Abstract # P-42)**
Cassia Guedes, Fernanda Pousa, Joyce Roma, Ana Carolina Gonzalez, Luciana Agolia, Marcelo Enne, José Manoel Martinho, Luciana Cariús, Elizabeth Balbi, Lúcio Pacheco-Moreira. Rio de Janeiro, Brazil.
- P-43** **SPONTANEOUS CLEARANCE OF HCV VIRUS AFTER CADAVERIC LIVER TRANSPLANTATION: A PREPORT OF 3 CASES. (Abstract # P-43)**
Mohamed El-Saadany. Mansoura, Egypt.
- P-44** **HCV ALLOGRAFT RECURRENCE and LIVER TRANSPLANTATION (LT): THE ROLE OF MINIMAL TACROLIMUS (TAC) BASED IMMUNOSUPPRESSION (MIS). (Abstract # P-44)**
Eliano Bonaccorsi-Riani, Nicolas Piette, Benoît Kabamba, Olga Ciccarelli, Francine Roggen, Chantal De Reick, Jacques Rahier, Christine Sempoux, Ziad Hassoun, Jan Lerut. Brussels, Belgium.
- P-45** **SIROLIMUS HAS A POSITIVE EFFECT ON VIRAL RECURRENCE IN HCV POSITIVE LIVER TRANSPLANTED PATIENTS. (Abstract # P-45)**
Doris Wagner, Daniela Kniepeiss, Silvia Schaffellner, Estrella Jakoby, Helmut Mueller, KarlHeinz Tscheliessnigg, Florian Iberer. Graz, Austria.
- P-49** **SERUM CYSTATIN C IS A HIGHLY SENSITIVE PREDICTOR OF RENAL IMPAIRMENT IN PATIENTS UNDERGOING ORTHOTOPIC LIVER TRANSPLANTATION. (Abstract # P-49)**
Doris Wagner, Daniela Kniepeiss, Gerhard Wirnsberger, Estrella Jakoby, Regina Roller, Helmut Mueller, Florian Iberer, KarlHeinz Tscheliessnigg. Graz, Austria, Austria.
- P-50** **EVEROLIMUS AS RESCUE THERAPY IN IMPENDING KIDNEY FAILURE IN LIVER TRANSPLANTATION. (Abstract # P-50)**
Sabina C. Magalini, Erida Nure, Gilda Pepe, Alfonso W. Avolio, Francesco Frongillo, Gabriele Sganga, Salvatore Agnes. Rome, Italy.
- P-51** **MINIMIZATION OF IMMUNOSUPPRESSION IN PRIMARY ADULT LIVER TRANSPLANTATION WITH STEROID-FREE REGIMEN USING LOW DOSE OF TACROLIMUS WITH MYCOPHENOLATE MOFETIL AFTER DACLIZUMAB INDUCTION. (Abstract # P-51)**
Olivier Boillot, Gabriella Pittau, Jérôme Dumortier, Thomas Gelas, Olivier Guillaud, Yves Bouffard, Catherine Boucaud, Charles Ber. Lyon, France.
- P-52 †** **MEASURING ADHERENCE IN ADULT LIVER TRANSPLANT PATIENTS. (Abstract # P-52)**
Paolo De Simone, Juri Ducci, Gabriela Schmid-Moehler, Lidiana Baldoni, Paola Carrai, Massimo Elisei, Stefania Petrucci, Fabienne Dobbels, Sabina De Geest, Franco Filipponi. Pisa, Italy; Basel, Switzerland; Leuven, Belgium.
- P-53** **CONVERSION TO ADVAGRAF IN LIVER TRANSPLANTATION. “12 DE OCTUBRE” UNIVERSITY HOSPITAL EXPERIENCE. MADRID, SPAIN. (Abstract # P-53)**
Yiliam Fundora, Vanessa Barra, Juan Carlos Meneu, Baltasar Perez, Manuel Abradelo, Alberto Gimeno, Carlos Jiménez, Vanessa Lopez, J. I. Salvador Serrano, Manuel O. Salinas, Enrique Moreno. Madrid, Spain.

Immunosuppression

- P-46** **PROLIFERATIVE ALLORESPONSE OF T-CYTOTOXIC CELLS IDENTIFIES REJECTION-PRONE CHILDREN WITH STEROID-FREE LIVER TRANSPLANTATION. (Abstract # P-46)**
Chethan Ashokkumar, Ali Abdulla, Qing Sun, Ankit Gupta, Rakesh Sindhi. Pittsburgh, PA, USA.
- P-47 †** **CONVERSION FROM PROGRAF TO ADVAGRAF IN PATIENTS AFTER LIVER TRANSPLANTATION. (Abstract # P-47)**
Marta M. Wawrzynowicz-Syczewska. Szczecin, Poland.
- P-48** **BENEFICIAL EFFECT OF INDUCTION THERAPY BY BASILIXIMAB IN LIVER TRANSPLANT HIGH RISK RECIPIENTS WITH POOR RENAL FUNCTION. (Abstract # P-48)**
E. Saliba, V. Delvart, P. Ichai, M. Kouassi, T. M. Antonini, B. Roche, D. Azoulay, R. Adam, D. Castaing, D. Samuel. Villejuif, France.
- P-54** **A PHASE 2b, OPEN-LABEL, MULTI-CENTER, PROSPECTIVE, RANDOMIZED STUDY TO COMPARE THE PHARMACOKINETICS AND SAFETY OF LCP-TACRO™ TABLETS ONCE-A-DAY TO PROGRAF® CAPSULES TWICE-A-DAY IN DE NOVO LIVER TRANSPLANT PATIENTS. (Abstract # P-54)**
Derek A. DuBay, Rita R. Alloway, Angel E. Alsina, William C. Chapman, Eliezer Katz, H. Eugene Griffin, Robert D. Gordon, Karin J. Hamberg, Lawrence Chodoff. Birmingham, AL, USA; Cincinnati, OH, USA; Tampa, FL, USA; St. Louis, MO, USA; New York, NY, USA.

- P-55** **SUCCESSFUL ORTHOTOPIC LIVER TRANSPLANTATION AFTER TREATMENT WITH ANTI-CD20 MONOCLONAL ANTIBODY (RITUXIMAB) FOR SEVERE STEROID-RESISTANT AUTOIMMUNE HAEMOLYTIC ANAEMIA. (Abstract # P-55)**
Brigida E. Annicchiarico, Massimo Siciliano, Alfonso W. Avolio, Salvatore Agnes, Bombardieri Giuseppe. Rome, Italy.
- P-56 †** **RENAL FUNCTION IS WELL MAINTAINED FOLLOWING CONVERSION FROM TWICE-DAILY TO ONCE-DAILY TACROLIMUS IN LIVER TRANSPLANT RECIPIENTS. (Abstract # P-56)**
P. Wolf, L. Paczek, O. Boillot. Strasbourg, France; Warsaw, Poland; Lyon, France.
- P-57** **LONG TERM SURVIVAL AFTER DE NOVO USE OF mTOR INHIBITOR EVEROLIMUS (ELR) IN COMBINATION WITH MYCOPHANOLATE SODIUM (MPS) IN PATIENTS UNDERGONE ORTHOTOPIC LIVER TRANSPLANTATION (OLTx). (Abstract # P-57)**
Efstathios A. Antoniou, Dimitris Dimitroulis, Katerina Labathariou, Dimitris Karoussos, Dimitris Mantas, Nikolaos Nikitakis, Panorea Paraskeva, Konstantinos Konstantoudakis, Anastasios Smyrnis, Kaliopi Tsinari, Alkiviadis J. Kostatkis. Athens, Greece.
- P-58** **THE PATOPHYSIOLOGIC FUNDAMENTALS OF THE INFLUENCE OF IMMUNOSUPPRESSIVE DRUGS ON THE SMALL BOWEL FUNCTION. (Abstract # P-58)**
Maciej Malinowski, Martus Peter, Neuhaus Peter, Stockmann Martin. Berlin, Germany.
- P-59 †** **SYMPTOMS PREVALENCE AND BELIEFS IN MAINTENANCE LIVER TRANSPLANT PATIENTS. (Abstract # P-59)**
Paolo De Simone, Juri Ducci, Gabriela Schmid-Moehler, Lidiana Baldoni, Stefania Petruccelli, Beatrice Magni, Francesca Meocci, Paola Carrai, Fabienne Dobbels, Sabina De Geest, Franco Filippini. Pisa, Italy; Basel, Switzerland; Leuven, Belgium.

Living Donor

- P-60** **EVOLUTION OF TECHNIQUE AND OUTCOME IN 284 CONSECUTIVE RIGHT LOBE LIVING DONOR LIVER TRANSPLANTS. (Abstract # P-60)**
A. Soin, V. Kumaran, R. Mohanka, N. Mehta, S. Saigal, N. Saraf, N. Mohan, S. Nundy. New Delhi, India.
- P-61** **LEFT LATERAL SEGMENT DONOR HEPATECTOMY ASSOCIATED WITH VERY LOW DONOR MORBIDITY AND EXCELLENT RECIPIENT RESULTS: THE COLUMBIA EXPERIENCE. (Abstract # P-61)**
Benjamin Samstein, Michael Goldstein, Steve LoBritto, Dominique Jan, Jean Emond. New York, NY, USA.
- P-62** **PRELIMINARY RESULTS OF PATIENTS WITH HEPATITIS B AND C CO-INFECTION UNDERGOING LIVING DONOR LIVER TRANSPLANT. (Abstract # P-62)**
Jee K. Low, Chao L. Chen, Chih C. Wang, Shih H. Wang, Yeuh W. Liu, Chee C. Yong, Chin H. Yang, Allan M. Concejero, Yu F. Cheng, Bruno Jawan, Hock L. Eng. Kaohsiung, Taiwan.
- P-63** **STUDY OF DYNAMIC CHANGES OF POSTOPERATIVE LIVER RESERVE FUNCTION AND LIVER VOLUME RECOVERY IN BOTH RECIPIENTS AND DONORS UNDERWENT LIVING DONOR LIVER TRANSPLANTATION. (Abstract # P-63)**
Bo Li, Jie Yin, Yonggang Wei, Lunan Yan, Tianfu Wen. Chengdu, Sichuan, China.
- P-64** **TOLERANCE OF THE LIVING DONORS AND RECIPIENTS OF TRANSPLANTATION TO INTENSIVE PHYSICAL ACTIVITIES IN HIGH ALTITUDE. (Abstract # P-64)**
Tae-hoon Kim, Kyung-Suk Suh, Joohyun Kim, Woo Young Shin, Nam-Joon Yi, Kuhn Uk Lee. Seoul, Republic of Korea.
- P-65** **SURGICAL MANAGEMENT OF AN ARTERIAL ANOMALY IN RIGHT LOBE LIVING DONOR LIVER TRANSPLANTATION. (Abstract # P-65)**
Fernando Rotellar, Fernando Pardo, Fernando Martinez-Regueira, Ignacio Herrero, Bruno Sangro, Mercedes Iñarrairaegui, Gabriel Zozaya, Pablo Martí-Cruchaga, Javier A.-Cienfuegos. Pamplona, Spain.
- P-66** **LONG-TERM RENAL OUTCOME IN PEDIATRIC LIVING DONOR LIVER TRANSPLANTATION PATIENTS. (Abstract # P-66)**
Feng-Rong Chuang, Chao-Long Chen, Yu-Fan Cheng, Chih-Chi Wang, Chin-Hsiang Yang, Chih-Cheng Chen, Chih-Hsiung Lee. Kaohsiung Hsien, Taiwan.
- P-67** **LIVING DONOR LIVER TRANSPLANTATION FOR FOREIGN PATIENTS – A SINGLE ASIAN CENTER EXPERIENCE. (Abstract # P-67)**
Jee K. Low, Allan M. Concejero, Chao L. Chen, Chih C. Wang, Shih H. Wang, Yueh W. Liu, Chee C. Yong, Chin H. Yang, Yu F. Cheng, Bruno Jawan, Hock L. Eng. Kaohsiung, Taiwan.
- P-68** **THE IMPACT OF GRAFT WEIGHT/BODY WEIGHT RATIO (GWBWR) ON OUTCOME AFTER LIVE DONOR ADULT LIVER TRANSPLANT (LDALT). (Abstract # P-68)**
Mohamed Akoad, Khayyar Vakili, Yee Lee Cheah, James J. Pomposelli, Khalid Khwaja, Frederic Gordon, Roger L. Jenkins, Elizabeth A. Pomfret. Burlington, MA, USA.
- P-69** **EXPERIENCE OF LAPAROSCOPIC DONOR LEFT LATERAL SECTIONECTOMY. (Abstract # P-69)**
DongHwan Jung, KiHun Kim, SoJin Seok, KyoungA Park, SungGyu Lee, Shin Hwang. Seoul, Korea.

- P-70** **DUAL GRAFT LIVER TRANSPLANTATION WITH COMBINED ABO-COMPATIBLE AND INCOMPATIBLE GRAFTS TO OVERCOME ABO BLOOD TYPE BARRIER AND SMALL-FOR-SIZE GRAFT. (Abstract # P-70)**
Gi-Won Song, Sung-Gyu Lee, Hwang Shin, Gi-Young Ko, Ki-Hun Kim, Chul-Soo Ahn, Deok-Bog Moon, Tae-Yong Ha, Dong-Hwan Jung. Seoul, Korea.
- P-71** **LIVING DONOR LIVER TRANSPLANTATION – A DELICATE BALANCE. (Abstract # P-71)**
Burckhardt Ringe. Philadelphia, PA, USA.
- P-72 †** **INTENTIONAL PORTAL PRESSURE CONTROL IS A KEY TO IMPROVE THE OUTCOME OF ADULT LIVING DONOR LIVER TRANSPLANTATION (A-LDLT). (Abstract # P-72)**
Yasuhiro Ogura, Tomohide Hori, Walid Elmoghazy, Shinji Uemoto. Kyoto, Japan.
- P-73** **PROSPECTIVE COMPARATIVE STUDY OF LIVER REGENERATION IN RIGHT LOBE LIVING DONOR LIVER TRANSPLANTATION. (Abstract # P-73)**
Murat Dayangac, Cemal B. Taner, Onur Yaprak, Koray Bas, Levent Ulusoy, Cihan Duran, Baris E. Akin, Yildiray Yuzer, Yaman Tokat. Istanbul, Turkey; Jacksonville, FL, USA.
- P-74** **GRAFT SALVAGE FOR HEPATIC ARTERY THROMBOSIS USING ILIO-COLIC ARTERY IN LIVING DONOR LIVER TRANSPLANTATION: CASE REPORT. (Abstract # P-74)**
Chih-Chi Wang, Tsan-Shiun Lin, Chao-Long Chen, Allan Concejero, Shih-Ho Wang, Yueh-Wei Liu, Chee-Chien Yong, Chin-Hsiang Yang. Kaohsiung, Taiwan, Taiwan.
- P-75** **MULTIPLE BILE DUCT ANASTOMOSES WITHOUT STENT IN LIVING-DONOR LIVER TRANSPLANT. (Abstract # P-75)**
Mehmet Haberal, Gokhan Moray, Sinasi Sevmis, Hamdi Karakayali, Adnan Torgay, Gulnaz Arslan. Ankara, Turkey.
- P-77 †** **IS HCC RECURRENCE DIFFERENT FOLLOWING PARTIAL GRAFT VS FULL SIZE GRAFT LIVER TRANSPLANTATION? (Abstract # P-77)**
Lakhbir Sandhu, Markus Selzner, Arash Kafshi, Derek Dubai, Nazia Selzner, Paul Greig, Mark S. Cattral, Gary A. Levy, Les Lilly, George Therapondos, Lesley E. Adcock, Ian D. McGilvray, Eberhard L. Renner, David R. Grant. Toronto, ON, Canada.
- P-78** **OUTCOME AFTER LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA: A COMPARISON BETWEEN MILAN AND UCSF CRITERIA BASED ON PATHOLOGY SPECIMENS. (Abstract # P-78)**
Guillermo Kiss, Maria Lucia Zanotelli, Cantisani P. C. Guido, Claudio A. Marroni, Ajácio B. M. Brandão, Eduardo S. Schlindwein, Ian Leipnitz, Mario H. M. M. Meine, Marcos Mucenic, Marcus V. Osório. Porto Alegre, RS, Brazil.
- P-79** **EFFICACY OF PRE-TRANSPLANT TRANS-ARTERIAL CHEMO-EMBOLIZATION IN PATIENTS WITH HEPATOCELLULAR CARCINOMA. (Abstract # P-79)**
Vincent Peyregne, Ahmed Fahmy, Devon John, Thomas Diflo, Glyn Morgan, Lewis Teperman. New York, USA.
- P-80** **LIVER TRANSPLANT (LTx) IN PATIENT WITH HISTORY OF NON-HEPATIC MALIGNANCY. (Abstract # P-80)**
Ashokkumar B. Jain, Omer Faiz, Rajeev Sharma, Saman Safadjou, Baber Sheikh, Leah Bryan, Pam Batzold, Randeep Kashyap, Mark Orloff. Philadelphia, PA, USA; Rochester, NY, USA.
- P-81** **PREDICTORS OF TUMOR RECURRENCE IN LIVER TRANSPLANTATION FOR HCC. (Abstract # P-81)**
Ivaylo Mitsiev, Ahmed Fahmy, Vincent Peyregne, Devon John, Thomas Diflo, Glyn Morgan, Lewis Teperman. New York, NY, USA.
- P-82** **LIVER RESECTION VERSUS TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA WITHIN THE MILAN CRITERIA: AN INTENTION-TO-TREAT ANALYSIS. (Abstract # P-82)**
Yang Won Nah, Chang Woo Nam, Jung Woo Shin, Neung Hwa Park. Ulsan, Korea.
- P-83** **INDICATION OF LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA-RISK FACTOR OF RECURRENCE FROM OUR EXPERIENCE. (Abstract # P-83)**
Masatoshi Ishigami, Yoshiaki Katano, Hideya Kamei, Taro Nakamura, Tetsuya Kiuchi, Hidemi Goto. Nagoya, Japan.

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- P-76** **LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA: ONE CENTER'S EXPERIENCE IN THE NORTHEAST OF BRAZIL. (Abstract # P-76)**
Jose H. Garcia, Katia F. Vasconcelos, Marcos A. Barros, Joao B. Vasconcelos, Jose T. Valenca, Jr., Douglas H. Filho, Paulo E. Costa, Ivelise R. Brasil, Gleydson C. Borges, Cinthya F. Viana, Tarciso D. Rocha, Denissa F. Mesquita, Dirk Sherenkenn, Gustavo R. Coelho. Fortaleza, CE, Brazil.

- P-84 LONG-TERM SURVIVAL ANALYSIS OF LIVING DONOR LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA ACROSS MILAN CRITERIA. (Abstract # P-84)**
Kelvin K. Ng, Chung-Mau Lo, Sheung-Tat Fan. Hong Kong, Hong Kong.
- P-85 COINCIDENTAL OCCURRENCE OF BOTH HEPATOCELLULAR CARCINOMA AND CHOLANGIOCARCINOMA AFTER LIVER TRANSPLANTATION “COLLISION TUMORS”: CASE REPORT. (Abstract # P-85)**
Hatem Khalaf, Yasser Kamel, Hazem Mohamed, Walid Al-Hamoudi, Ayman Abdo, Mohammed Al-Sofayan, Mohammed Al-Sebayel. Riyadh, Saudi Arabia.
- P-86 INCREASED RISK OF EARLY DE NOVO CANCER IN LIVER GRAFT RECIPIENTS TRANSPLANTED IN MORE RECENT YEARS. (Abstract # P-86)**
Angela S. W. Tjon, Jerome Sint Nicolaas, Jaap Kwekkeboom, Hugo W. Tilanus, Geert Kazemier, Rob A. de Man, Luc J. van der Laan, Bettina E. Hansen, Thanya Tha-In, Herold J. Metselaar. Rotterdam, Netherlands.
- P-87 LONG TERM RESULTS OF EXTENDED BILE DUCT RESECTION FOLLOWED BY LIVER TRANSPLANTATION FOR HILAR CHOLANGIOCARCINOMA. (Abstract # P-87)**
Daniel Seehofer, Armin Thelen, Ulf P. Neumann, Carsten Kamphues, Winfried Veltzke-Schlieker, Sven Jonas, Peter Neuhaus. Berlin, Germany.
- P-88 SURVIVAL AFTER LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA EXCEEDING MILAN CRITERIA IS BETTER WITH PRETRANSPLANT RADIOFREQUENCY ABLATION THAN WITH CHEMOEMBOLIZATION OR NO NEOADJUVANT TREATMENT. (Abstract # P-88)**
Nicholas Onaca, Gary L. Davis, Linda W. Jennings, Robert M. Goldstein, Goran B. Klintmalm. Dallas, TX, USA.
- P-89 PREDICTING RECURRENCE AFTER LIVER TRANSPLANTATION IN PATIENTS WITH HEPATOCELLULAR CARCINOMA EXCEEDING THE UP-TO-SEVEN CRITERIA. (Abstract # P-89)**
Francesco D’Amico, Myron Schwartz, Alessandro Vitale, Parissa Tabrizian, Sasan Roayaie, Swan Thung, Maria Guido, Juan del Rio Martin, Thomas Schiano, Umberto Cillo. Padova, Italy; New York, USA.
- P-90 † THE IMPORTANCE OF PATHOLOGICAL CONFIRMATION OF CHOLANGIOCARCINOMA PRIOR TO NEOADJUVANT THERAPY AND LIVER TRANSPLANTATION. (Abstract # P-90)**
Justin M. Burns, Charles B. Rosen, Julie K. Heimbach, Scott L. Nyberg, Gregory J. Gores. Rochester, MN, USA.

- P-91 IMPACT OF SUCCESSFUL RADIOFREQUENCY ABLATION ON PATIENTS AWAITING LIVER TRANSPLANTATION. (Abstract # P-91)**
Robert M. Eisele, Guido Schumacher, Ulf Neumann, Johann Pratschke, Peter Neuhaus. Berlin, Germany.
- P-92 † EXTENSION OF THE CONCEPT OF SALVAGE LIVER TRANSPLANTATION FOR PATIENTS WITH HEPATOCELLULAR CARCINOMA. (Abstract # P-92)**
Alessandro Vitale, Enrico Gringeri, Francesco D’Amico, Michele Valmasoni, Amedeo Carraro, Pasquale Bonsignore, Domenico Bassi, Francesco E. D’Amico, Marina Polacco, Martina Gambato, Patrizia Burra, Daniele Neri, Umberto Cillo. Padova, Italy.
- P-93 IMMUNOLOGIC FUNCTION IN PATIENTS WITH HEPATOCELLULAR CARCINOMA. (Abstract # P-93)**
Jiunn-Chang Lin, Pei-Ju Chien, Chien-Liang Liu, Jee-Jen Lee, Tsan-Pai Liu, Wen-Ching Ko, Chwen-Ming Shih. Taipei, Taiwan.
- P-94 DE NOVO MALIGNANCIES IN LIVER TRANSPLANTED PATIENTS: A LONG-TERM FOLLOW-UP CASE-CONTROL STUDY AND RETROSPECTIVE ANALYSIS. (Abstract # P-94)**
Enzo Andorno, Giuliano Bottino, Chiara Ferrari, Filippo Piaggio, Gregorio Santori, Arcangelo Nocera, Stefano Di Domenico, Marco Casaccia, Nicola Morelli, Giorgio Gasloli, Enrico Bocci, Maximilano Gelli, Umberto Valente. Genoa, Italy.

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- P-95 PREGNANCY IN PRIMARY SCLEROSING CHOLANGITIS. (Abstract # P-95)**
Bjoern E. Wellge, Martina Sterneck, Christian Rust, Peter Galle, Ansgar W. Lohse, Christoph Schramm. Hamburg, Germany; Mainz, Germany; Munich, Germany.
- P-96 SINGLE-CENTER “LEARNING CURVES” IN LIVER TRANSPLANTATION: FROM 1985 TO 2007. (Abstract # P-96)**
Leonardo Weissmann, Carlos E. S. Baía, Marilia I. Leonardi, Thomson M. Palma, Rafael Pecora, Ana Suely C. N. Zan, Leonardo J. R. Ferraz, Osvaldo I. Pereira, Ana Olga N. G. F. Mies, Eloiza H. D. Quintela, Margareth P. Lallee, Fabricio G. Souza, Maira S. C. dos Santos, Edna A. F. S. Pedro, Marcio M. Paredes, Sergio Mies. Sao Paulo, SP, Brazil.
- P-97 BILIARY-LESION-FREE-SURVIVAL AFTER LIVER TRANSPLANTATION FOR PRIMARY SCLEROSING CHOLANGITIS. (Abstract # P-97)**
Olaf Guckelberger, Kathrin Albert, Martina T. Mogl, Thomas Rösch, Andreas Pascher, Peter Neuhaus. Berlin, Germany.

- P-98** **PERSISTENT INCIDENCE OF RENAL INSUFFICIENCY FOLLOWING LIVER TRANSPLANTATION. (Abstract # P-98)**
W. Ray Kim, Michael D. Leise, Rachel A. Pedersen, Terry M. Therneau, Charles B. Rosen, Julie K. Heimbach. Rochester, MN, USA.
- P-99** **EVOLUTION AND RESULTS OF LIVER RETRANSPLANTATION IN A 20 YEAR PERIOD. (Abstract # P-99)**
Bilbao Itxarone, Dopazo Cristina, Lazaro Jose, Castells Luis, Sapisochin Gonzalo, Caralt Mireia, Blanco Laia, Charco Ramón. Barcelona, Spain.
- P-100** **LONG TERM SURVIVAL AFTER LIVER TRANSPLANTATION IN PATIENTS WITH NEUROENDOCRINE LIVER METASTASES: GERMAN SINGLE CENTER EXPERIENCE. (Abstract # P-100)**
Kia Homayounfar, Armin Goralczyk, Heinz Becker, Giuliano Ramadori, Thomas Lorf, Aiman Obed. Goettingen, Germany.
- P-101 †** **PRESERVATION/REPERFUSION INJURY IS ATTENUATED BY HYPOTHERMIC MACHINE PERFUSION IN HUMAN LIVER TRANSPLANTATION. (Abstract # P-101)**
Scot D. Henry, Sean W. C. Chen, H. Thomas Lee, Jean C. Emond, James V. Guarrera. New York, NY, USA.
- P-102** **LIVER TRANSPLANTATION AT A SINGLE BRAZILIAN CENTER: 22 YEARS FOLLOW-UP. (Abstract # P-102)**
Leonardo Weissmann, Carlos E. S. Baía, Marília I. Leonardi, Thomson M. Palma, Rafael Pecora, Ana Sueily C. N. Zan, Leonardo J. R. Ferraz, Osvaldo I. Pereira, Ana Olga N. G. F. Mies, Eloiza H. D. Quintela, Margareth P. Lallee, Fabricio G. Souza, Maira S. C. Santos, Edna A. F. S. Pedro, Marcio M. Paredes, Sergio Mies. Sao Paulo, SP, Brazil.
- P-103** **ALLOIMMUNIZATION TO RED BLOOD CELL ANTIGENS IN LIVER TRANSPLANT PATIENTS IN STATE UNIVERSITY OF CAMPINAS. (Abstract # P-103)**
Fabrício B. Pereira, Ângela C. M. Luzo, Rosana C. de Oliveira, Patrícia R. Azevedo, Regiane D. Cunha, Marília I. Leonardi, Luiz S. Leonardi, Ilka F. S. F. Boin. Campinas, Sao Paulo, Brazil.
- P-104** **LEFT HEART CATHETERIZATION PROVEN CORONARY ARTERY DISEASE IN OLT PATIENTS: MID-TERM POST-TRANSPLANT SURVIVAL. (Abstract # P-104)**
Christopher Wray, Cecilia Canales, Antoine Hage, Jennifer Lau, Ronald Busuttil, Randolph Steadman. Los Angeles, CA, USA; Los Angeles, USA.
- P-105** **PRIMARY BILIARY CIRRHOSIS IS A MORE COMMON INDICATION FOR ORTHOTOPIC LIVER TRANSPLANTATION AMONG WOMEN THAN MEN. (Abstract # P-105)**
Alastair D. Smith, Judith W. Gentile. Durham, NC, USA.
- P-106** **CHRONIC BUDD-CHIARI SYNDROME AS A RARE COMPLICATION OF CROHN'S DISEASE: CASE REPORT. (Abstract # P-106)**
Davor Radic, Marko Brinar, Irena Hrstic, Silvija Cukovic Cavka, Silva Zupancic-Salek, Ognjan Deban, Mate Skegro, Rajko Ostojic. Zagreb, Croatia.
- P-107** **DELAYED ONSET OF HUMORAL REJECTION AFTER LIVER TRANSPLANTATION. (Abstract # P-107)**
Marek J. Pacholczyk, Beata Lagiewska, Tomasz Cieciora, Wojciech Lisik, Leszek Adadynski, Agnieszka Perkowska-Ptasinska, Andrzej Chmura. Warsaw, Poland.
- P-108 †** **SINGLE CENTER OUTCOME OF LEFT LATERAL SEGMENT LIVER TRANSPLANTATION WITH A MINIMUM OF 10-YEARS FOLLOW-UP. (Abstract # P-108)**
Walid G. Faraj, Adam Bartlett, Faisal Dar, Hector Vilca Melendez, Gabriele Marangoni, Georgina Mieli-Vergani, Alistair Baker, Anil Dhawan, Mohamed Rela, Nigel D. Heaton. London, United Kingdom.
- P-109** **OUTCOMES OF LIVER TRANSPLANTATION FOR SARCOIDOSIS: RETROSPECTIVE ANALYSIS OF THE UNOS DATA. (Abstract # P-109)**
Jason M. Vanatta, Amanda Dean, Luis Campos, Nosratollah Nezakatgoo, Satheesh Nair, Sharad Sharma, Rakesh Rai, James D. Eason. Memphis, TN, USA.
- P-110** **IMPACT OF TRANSPLANT ROTATION ON SURGICAL RESIDENTS TRAINING. (Abstract # P-110)**
Naveed Ahmed, Cristiano Quintini, Koji Hashimoto, Bijan Eghtesad.
- P-111** **OUTCOME OF PATIENTS WITH ISCHEMIC-LIKE CHOLANGIOPATHY WITH SECONDARY SCLEROSING CHOLANGITIS (IN CRITICALLY ILL PATIENTS, SC-CIP) AFTER LIVER TRANSPLANTATION. (Abstract # P-111)**
Marcus N. Scherer, Gabi I. Kirchner, Aiman Obed, Petra Ruemmele, Reiner Wiest, Matthias Froh, Martin Loss, Andreas A. Schnitzbauer, Hans Jürgen Schlitt, Jürgen Schoelmerich, Cornelia M. Gelbmann. Regensburg, Germany.
- P-112 †** **IMPACT OF ILOPROST ON EARLY GRAFT VIABILITY AFTER LIVER TRANSPLANTATION: A PILOT STUDY. (Abstract # P-112)**
Erik Bärthel, Falk Rauchfuß, Olaf Habrecht, Alexander Koch, Michael Heise, Utz Settmacher. Jena, Germany.
- P-113** **PROPHYLAXIS AND TREATMENT EFFICACY FOR TUBERCULOSIS IN PATIENTS SUBMITTED TO LIVER TRANSPLANTATION. (Abstract # P-113)**
Luciana Agoglia, Lúcio Filgueiras-Pacheco, José Manoel Martinho, Elizabeth Balbi, Márcia Halpern, Ana Carolina Gonzales, Joyce Roma, Luciana Cairús, Cassia Guedes. Rio de Janeiro, Brazil.

- P-114 PREVALENCE OF CLOSTRIDIUM DIFFICILE-ASSOCIATED DIARRHEA AFTER LIVER TRANSPLANTATION AND RISK FACTORS FOR DEVELOPMENT: A SINGLE CENTRE CASE CONTROL STUDY. (Abstract # P-114)**
Iona Coltart, Nicole Stoesser, Amit Gera, Anita Verma, Elizabeth Sizer, Georg Auzinger, William Bernal, Julia Wendon. London, United Kingdom.
- P-115 EFFECT OF LIVER TRANSPLANT ON PULMONARY FUNCTIONS IN ADULT PATIENTS WITH ALPHA 1 ANTITRYPSIN (A1A) DEFICIENCY. (Abstract # P-115)**
Ashokkumar B. Jain, Vishali Patel, Michael Apostolakis, Baber Sheikh, Randeep Kashyap, Mark Orloff. Philadelphia, PA, USA; New York, Rochester, USA.
- P-116 INDICATIONS OF LIVER TRANSPLANTATION FOR POLYCYSTIC LIVER DISEASE: ABOUT 16 CASES AT A SINGLE INSTITUTION. (Abstract # P-116)**
G. Pascal, D. Azoulay, R. Adam, D. Samuel, D. Castaing. Villejuif, France.
- P-117 ADVANCED DONOR AGE IS ASSOCIATED WITH INCREASED BILIARY COMPLICATIONS IN LIVER TRANSPLANT PATIENTS RECEIVING ORGANS DONATED AFTER CARDIAC DEATH. (Abstract # P-117)**
Vikesh K. Singh, Ranjan C. Mascarenhas, Devi M. Krishnamurthy, Zoe Stewart, Andrew L. Singer, Andrew M. Cameron, Ahmet Gurakar. Baltimore, MD, USA.
- P-118 PRETRANSPLANTATION RENAL FUNCTION AFFECTS SURVIVAL AFTER LIVER TRANSPLANTATION. (Abstract # P-118)**
Vasilis Papanikolaou, Georgios Tsoulfas, George Imvrios, Dimitris Giakoustidis, Nikolaos Antoniadis, Ioannis Fouzas, Evangelos Akriviadis, Ioannis Goulis, Themistokles Vasiliadis, Eleni Katsika, Andreas Papagiannis, Dionysis Vrochides, Nikolaos Ouzounidis, Achilleas Ntinis, Sofia Iosifidou, Polyxeni Agorastou, Alexandros Giakoustidis, Dimitrios Takoudas. Thessaloniki, Greece.
- P-119 PERIOPERATIVE MANAGEMENT OF COMBINED HEART LIVER TRANSPLANTATION. (Abstract # P-119)**
Daniel Eyraud, Jean Christophe Vaillant, Pascal Lebray, Pierre Coriat, Alain Pavie, Laurent Hannoun. Paris, France.
- P-120 IMPACT OF MELD ALLOCATION SYSTEM ON THE OUTCOME OF CADAVERIC ADULT LIVER TRANSPLANTATION IN A SOUTHERN STATE OF BRAZIL. (Abstract # P-120)**
Mauro R. Igreja, Julio C. Wiederkehr, Marcelo S. Nogara, Nelson D. Souza. Blumenau, Santa Catarina, Brazil.
- P-121 300 LIVER TRANSPLANTATION AT A UNIVERSITY HOSPITAL OF THE NORTHEAST OF BRAZIL. (Abstract # P-121)**
Jose H. Garcia, Gustavo R. Coelho, Douglas H. Filho, Katia F. Vasconcelos, Marcos A. Barros, Paulo E. Costa, Ivelise R. Brasil, Gleydson C. Borges, Tarciso D. Rocha, Cinthya F. Viana, Denissa F. Mesquita, Dirk Sherenken, Joao B. Vasconcelos. Fortaleza, Ceara, Brazil.
- P-122 GASTROINTESTINAL COMPLICATIONS ASSOCIATED WITH POST-TRANSPLANTATION LYMPHOPROLIFERATIVE DISORDERS IN LIVER TRANSPLANT PATIENTS. (Abstract # P-122)**
Ruy Cruz, Vivek Sharma, Michael DeVera, Eisaburo Sasatomi, Roberto Lopez, Paulo Fontes, Wallis Marsh. Pittsburgh, PA, USA.
- P-123 STEATOSIS OF THE HEPATIC GRAFT AS A RISK FACTOR FOR POST-TRANSPLANT BILIARY COMPLICATIONS. (Abstract # P-123)**
Gian Luigi Adani, Dario Lorenzin, Claudio Avellini, Miriam Isola, Anna Rossetto, Pierluigi Toniutto, Vittorio Bresadola, Andrea Risaliti, Umberto Baccarani. Udine, Italy.
- P-124 † POST-TRANSPLANT HEMODIALYSIS DRASTICALLY REDUCES ONE-YEAR SURVIVAL IN PATIENTS ENTERING LIVER TRANSPLANTATION WITHOUT RENAL DYSFUNCTION. (Abstract # P-124)**
Michael Ma, Todd Brennan, Isabel Reyes, Manjula Tamura, Sandy Feng. San Francisco, CA, USA; Palo Alto, CA, USA.
- P-125 IS IT POSSIBLE TO CURE A PATIENT FROM HAEMOPHILIA TYPE A WITH OLT? CASE REPORT. (Abstract # P-125)**
Janina Andrzejewska, Konrad Jarosz, Maria Czuprynska, Michal Wasilewicz, Agata Andrzejewska, Maciej Wójcicki. Szczecin, Poland.

Patient Selection/Organ Allocation

- P-126 ANALYSE OF PREDICTIVE FACTORS OF MORTALITY OF HIV/HCV INFECTED PATIENTS ON THE WAITING LIST OF LIVER TRANSPLANTATION. (Abstract # P-126)**
D. Carmona, V. Delvart, T. M. Antonini, R. Sobesky, B. Roche, E. Teicher, D. Vittecoq, R. Adam, D. Azoulay, D. Castaing, D. Samuel, J. C. Duclos-Vallee. Villejuif, France.
- P-127 † “RESCUE ALLOCATION OFFERS” IN LIVER TRANSPLANTATION: IS THERE ANY REASON TO REJECT “UNWANTED” ORGANS? (Abstract # P-127)**
Axel Doenecke, Marcus N. Scherer, Andreas A. Schnitzbauer, Ayman Obed, Hans-Jürgen Schlitt. Regensburg, Bavaria, Germany; Göttingen, Niedersachsen, Germany.

- P-128 CLINICAL RISK MANAGEMENT IN EVALUATION OF PATIENTS TO REFER IN WAITING LIST FOR LIVER TRANSPLANTATION. (Abstract # P-128)**
Daniele Neri, Piera Poletti, Alessandro Vitale, Francesco D'Amico, Michele Valmasoni, Marina Polacco, Umberto Cillo. Padova, PD, Italy.
- P-129 EFFECT OF THE INTERACTION BETWEEN EXTENDED CRITERIA DONOR VARIABLES AND THE MELD-SCORE ON ISCHEMIA-REPERFUSION INJURY AND PRIMARY GRAFT DYSFUNCTION. (Abstract # P-129)**
Ruben Ciria, Javier Briceño, Juan-Manuel Sanchez-Hidalgo, Antonio Luque, Alvaro Naranjo, Manuel de la Mata, Sebastian Rufian, Pedro Lopez-Cillero. Cordoba, Spain.
- P-130 DEFINING TRANSPLANTATION SUCCESS – A PROPOSAL FOR A QUALITY PERFORMANCE INDICATOR FOR TRANSPLANT PROGRAMS. (Abstract # P-130)**
Alexander J. C. IJtsma, Christian S. Van der Hilst, Danielle M. Nijkamp, Jan T. Bottema, Maarten J. H. Slooff. Groningen, Netherlands.
- P-131 NATREMIA AND CHILD-TURCOTTE-PUGH (CTP) MAY IMPROVE THE SELECTION OF CANDIDATES FOR LIVER TRANSPLANTATION (LT) WITH LOW MODEL FOR END-STAGE LIVER DISEASE (MELD). (Abstract # P-131)**
Stefano Gitto, Maurizio Biselli, Annagiulia Gramenzi, Giovanni Vitale, Stefania Lorenzini, Roberto Di Donato, Lucia Brodosi, Maria Cristina Morelli, Gian Luca Grazi, Antonio Daniele Pinna, Mauro Bernardi, Pietro Andreone, Bologna Liver Transplantation Group (BLTG). Bologna, Italy.
- P-132 † LIVER DONATION AND ETHNIC GROUPS. (Abstract # P-132)**
Massimo Asolati, Dev Desai, Meely Debroy, Ingemar Davidson, Juan Arenas. Dallas, TX, USA.
- P-133 HEMOLYTIC ANEMIA DUE TO ABO OR Rh ANTIBODIES IN RECIPIENTS OF SOLID ORGAN TRANSPLANTS. (Abstract # P-133)**
Isabel Ferrer Bradley, Victoria Aguilera Sancho Tello, Ángel Rubín Suarez, Marina Berenguer Haym, Francisco Arriaga, Martín Prieto. Valencia, Spain.
- P-134 IMPACT OF THE MODEL OF END-STAGE LIVER DISEASE (MELD) IN THE NETHERLANDS: A SINGLE CENTRE EXPERIENCE. (Abstract # P-134)**
R. Garritsen, H. J. Metselaar, R. A. de Man, H. W. Tilanus, G. Kazemier. Rotterdam, Netherlands.
- P-135 OPTIMIZING DONOR-RECIPIENT MATCHING WITH D-MELD (THE PRODUCT OF DONOR AGE AND RECIPIENT MELD) IMPROVES SURVIVAL, DECREASES COMPLICATIONS AND REDUCES COSTS AFTER LIVER TRANSPLANTATION, A SINGLE CENTER EXPERIENCE. (Abstract # P-135)**
Jeffrey B. Halldorson, Robert Carithers, B. Ramasamy, Andre Dick, Kay Wicks, Renuka Bhattacharya, Paolo Salvalaggio, Iris Liou, Jorge Reyes, James Perkins. Seattle, WA, USA.
- ## Pediatrics
- P-136 INFECTIONS AFTER LIVING DONOR LIVER TRANSPLANTATION IN CHILDREN. (Abstract # P-136)**
Kang Won Rhee, Jeong Eun Kim, Joo Young Jang, Kyung Mo Kim, Dae Yun Kim, Young Joo Lee, Sung Gyu Lee. Seoul, Korea.
- P-137 THE RESULTS OF OUR HEPATIC ARTERIAL RECONSTRUCTION TECHNIQUE FOR PEDIATRIC LIVING-DONOR LIVER TRANSPLANTATION. (Abstract # P-137)**
Mehmet Haberal, Sinasi Sevmis, Hamdi Karakayali, Gokhan Moray, Sema Pehlivan, Adnan Torgay, Gulnaz Arslan. Ankara, Turkey.
- P-138 † ORTHOTROPIC LIVER TRANSPLANTATION FOR UNRESECTABLE HEPATOCARCINOMA IN CHILDREN – SINGLE CENTER EXPERIENCE. (Abstract # P-138)**
Ruy J. Cruz, George Mazariegos, Kyle Soltys, Geoffrey Bond, Rakesh Sindhi. Pittsburgh, USA.
- P-139 EVOLUTION OF POST TRANSPLANT LYMPHOPROLIFERATIVE DISORDER MANAGEMENT IN PEDIATRIC LIVER TRANSPLANT RECIPIENTS. A SINGLE CENTRE EXPERIENCE. (Abstract # P-139)**
Anita Verma, Zahra Ahmadienjad, Dino Hadzic, Alastair Baker, Giorgia Miele-Vergani, Nigel Heaton, Mohamad Rela, Mark Zuckerman, Sue Height, Anil Dhawan. London, United Kingdom.
- P-140 LIVER TRANSPLANTATION FOR UNRESECTABLE LIVER TUMORS IN CHILDREN. (Abstract # P-140)**
Gustavo R. Bianco, Esteban T. Halac, Guillermo L. Cervio, Marcelo F. Dip, Luis D. Rojas, Oscar C. Imventarza. Buenos Aires, Argentina.
- P-141 HISTOPLASMA CAPSULATUM ARTHRITIS OF THE KNEE AFTER LIVER TRANSPLANTATION IN ADOLESCENT: CASE REPORT. (Abstract # P-141)**
Christiane A. C. Leite, Ivana J. N. Souza, Robério D. Leite, José H. P. Garcia, Francisco A. C. Rocha. Fortaleza, Ceará, Brazil.

P-142 **OUTCOME OF LIVER TRANSPLANTATION IN CHILDREN WEIGHTING LESS THAN 10 KILOGRAMS WITH REFERENCE TO VASCULAR COMPLICATIONS: THE LYON EXPERIENCE. (Abstract # P-142)**
Thomas Gelas, Christine Rivet, Gabriella Pittau, Catherine Boucaud, Yves Bouffard, Pierre Sagnard, Alain Lachaux, Olivier Boillot. Lyon, France.

P-143 **ASSOCIATED FACTORS IN THE POST-TRANSPLANT LYMPHOPROLIFERATIVE DISEASE (PTLD) IN PEDIATRIC LIVER RECIPIENTS AT PEQUENO PRÍNCIPE HOSPITAL IN CURITIBA, BRAZIL. (Abstract # P-143)**
Julio C. Wiederkehr, Izabel M. Coelho, Sylvio A. Avilla, Daniela Ouno, Barbara Wiederkehr, Carolina Talini, Raphael Mourato, Flavia N. Kingerski, Giovana Marioto, Julyanna H. Kaminski, Mariana Polimeri, Denise P. Feniman. Curitiba, PR, Brazil.

Surgical Techniques/Complications

P-144 **DUCT TO DUCT BILIARY RECONSTRUCTION IN ORTHOTOPIC LIVER TRANSPLANTATION FOR PRIMARY SCLEROSING CHOLANGITIS PATIENTS: A VIABLE AND SAFE ALTERNATIVE. (Abstract # P-144)**
Osama Damrah, Dinesh Sharma, Brian Davidson, Keith Rolles. London, United Kingdom.

P-145 † **LIVER RESECTION AS DOWNSTAGING TREATMENT FOR HCC BEFORE LIVER TRANSPLANTATION DOES NOT AFFECT TRANSPLANT LONG TERM RESULTS. (Abstract # P-145)**
Alessandro Giacomoni, Abdallah Slim, Stefano Di Sandro, Andrea Lauterio, Awad Aldumour, Plamen Mihaylov, Luciano De Carlis. Milano, Italy.

P-146 **OUTCOME OF ADULT LIVER TRANSPLANT PATIENTS WITH PREEXISTING PORTAL VEIN THROMBOSIS, A SINGLE INSTITUTION EXPERIENCE. (Abstract # P-146)**
George Rofaiei, Alan Langnas. Omaha, NE, USA.

P-147 **RESULTS OF SPLIT-LIVER TRANSPLANTATION IN SÃO PAULO, BRAZIL – IN THE MELD/PELD ERA. (Abstract # P-147)**
Vincenzo Pugliese, Eduardo Carone, Eduardo A. Fonseca, João Seda-Neto, André L. Godoy, Gilda Porta, Renata S. Pugliese, Irene K. Miura, Vera B. Danesi, Paulo Chapchap. São Paulo, Brazil.

P-148 **SUCCESSFUL EXTRACORPOREAL MEMBRANE OXYGENATION SUPPORT IN LIVER TRANSPLANTATION PATIENTS. (Abstract # P-148)**
Namkyu Choi. Seoul, Republic of Korea.

P-149 **HEPATIC ARTERY RECONSTRUCTION WITH INFERIOR MESENTERIC ARTERY GRAFT IN LIVING DONOR LIVER TRANSPLANTATION. (Abstract # P-149)**
Hüseyin Astarcioglu, Tarkan Ünek, Sedat Karademir, Tufan Egeli, Serhan Derici, Çigdem Arslan, Ibrahim Astarcioglu. Izmir, Turkey.

P-150 **LIVER SURGERY IN LIVER TRANSPLANT RECIPIENTS. (Abstract # P-150)**
Daniele Sommacale, Ganesh Nagarajan, Fédérica Dondéro, Safi Dokmak, Alain Sauvanet, Claire Francoz, Francois Durand, Jacques Belghiti. Clichy, France.

P-151 **ANALYSIS OF THE BILIARY COMPLICATIONS OF LIVER TRANSPLANTATION. (Abstract # P-151)**
Karim Muffak Granero, Jesús Villar del Moral, Trinidad Villegas, Daniel Garrote Lara, Jose Antonio Ferron Orihuela, Carmen Navarro Rivera, Antonio Becerra, Ana Garcia Navarro, Ana Garcia Navarro, Maria Jesus Alvarez Martín, Flor Noguera. Granada, Spain.

P-152 † **IMMUNOSUPPRESSION REGIMENS UTILIZED IN SUCCESSFUL SIMULTANEOUS HEART-LIVER TRANSPLANTS. (Abstract # P-152)**
Thomas A. Aloia, Erin Elliott, Samir Patel, Jerry Estep, Joseph Galati, Ahmed O. Gaber, Leamon Blanton, Matthias Loebe, R. M. Ghobrial, John Goss, Guillermo Torre-Amione. Houston, TX, USA.

P-153 **BILIARY RECONSTRUCTION USING A SIDE TO SIDE CHOLEDOCHO-CHOLEDOCHOSTOMY WITH OR WITHOUT T-TUBE IN DECEASED DONOR LIVER TRANSPLANTATION – A RANDOMIZED TRIAL. (Abstract # P-153)**
Sven C. Schmidt, Sascha Weiss, Andreas Pascher, Martin Stockmann, Gero Puhl, Olaf Guckelberger, Ulf Neumann, Peter Neuhaus, Johann Pratschke. Berlin, Germany.

P-154 **BILIARY TRACT COMPLICATIONS FOLLOWING LIVER TRANSPLANTATION – ROMANIAN EXPERIENCE. (Abstract # P-154)**
Bogdan Dorobantu, Mihnea Ionescu, Vlad Brasoveanu, Doina Hrehoret, Emil Matei, Simona Dima, Irinel Popescu. Bucharest, Romania.

P-155 **PATENT UMBILICAL VEIN AND BOWEL EDEMA DURING LIVER TRANSPLANTATION. USEFULNESS OF PORTOUMBILICAL SHUNT. (Abstract # P-155)**
Ignacio M. Gonzalez-Pinto, Carmen Garcia-Bernardo, Lino Vazquez, Alberto Miyar, Luis Barneo, Emilia Cortes, Maria Moreno, Pedro Picatto. Oviedo, Spain.

P-156 † **IMMUNOHISTOCHEMICAL DETECTION OF MRP2 AS AN EARLY POSTOPERATIVE MARKER FOR PREDICTION OF PERSISTENT BILIARY STRICTURE AFTER LIVER TRANSPLANTATION. (Abstract # P-156)**
Joohyun Kim, Kyung-Suk Suh, Taehoon Kim, Woo Young Shin, Nam-Joon Yi, Ja-June Jang, Kuhn Uk Lee. Seoul, Republic of Korea.

P-157 **DIAGNOSIS AND TREATMENT OF FUNGAL INFECTIONS IN ORGAN TRANSPLANTATION. (Abstract # P-157)**
Kefeng Dou, Kaishan Tao, Zhenyu Ti, Dayong Cao, Lin Wang, Wei Zhang. Xi'an, Shaanxi Province, China.

- P-158 POLYCYSTIC LIVER DISEASE AND LIVER TRANSPLANTATION: A SINGLE CENTER EXPERIENCE. (Abstract # P-158)**
Burcin Taner, Darrin L. Willingham, [Lena Sibulesky](#), Hani P. Grewal, Justin H. Nguyen. Jacksonville, FL, USA.
- P-159 † POST-TRANSPLANT ALTERATION OF IL-6/STAT3 EXPRESSION AND BILIARY EPITHELIAL CELL PROLIFERATION IN RAT LIVER GRAFTS IN DIFFERENT COLD PRESERVING CONDITIONS. (Abstract # P-159)**
[Jiahong Dong](#), Liping Chen. Beijing, Colombia; Chongqing, China.
- P-160 ORTHOTOPIC LIVER TRANSPLANTATION FOR HEPATIC ADENOMA IN A PATIENT WITH COMPLETE PORTAL VEIN AGENESIS. (Abstract # P-160)**
[Lena Sibulesky](#), Burcin C. Taner, Raj Satyanarayana, Justin H. Nguyen. Jacksonville, FL, USA.
- P-161 EARLY BILIARY COMPLICATIONS IN 128 CONSECUTIVE LIVING DONOR LIVER TRANSPLANT RECIPIENTS PERFORMED IN ONE YEAR: A NEW SURGICAL TECHNIQUE. (Abstract # P-161)**
[Vedat Kirmilioglu](#), Sezai Yilmaz, Mehmet Yilmaz, Cunezt Kayaalp, Burak Isik, Bulent Unal, Hale Kirmilioglu. Malatya, Turkey.
- P-162 A NEW CHAPTER IN LIVER TRANSPLANTATION: CONTRAST ENHANCED ULTRASOUND AND HEPATIC ARTERY THROMBOSIS. (Abstract # P-162)**
[Umberto Maggi](#), Roberto Lauro, Gianni Paone, Paolo Bertoli, Giorgio Rossi. Milano, Italy.
- P-163 THE SIDE-TO-SIDE CAVOCAVOSTOMY TECHNIQUE ELIMINATES HEPATIC VENOUS OUTFLOW STENOSIS IN ORTHOTOPIC LIVER TRANSPLANTATION. (Abstract # P-163)**
[Christopher J. Sonnenday](#), Amit Mathur, Dennis S. Lee, Michael J. Englesbe, David G. Heidt, John C. Magee, Jeffrey D. Punch, Randall S. Sung, Theodore H. Welling, Kenneth J. Woodside, Shawn J. Pelletier. Ann Arbor, MI, USA.
- P-164 OVERALL RESULTS OF A LIVER TRANSPLANTATION PROGRAM AFTER SIX YEARS OF EXPERIENCE. (Abstract # P-164)**
[Karim Muffak Granero](#), Jesús Villar del Moral, Carmen Navarro Rivera, Trinidad Villegas Herrera, Ana Garcia Navarro, Antonio Becerra, Maria Jesús Alvarez Martin, Daniel Garrote Lara, Jose Antonio Ferron Orihuela. Granada, Spain.
- P-165 HEPATIC VEIN RECONSTRUCTION FOR EXTENDED RIGHT LOBE GRAFT IN LIVING DONOR LIVER TRANSPLANTATION. (Abstract # P-165)**
[Chul Soo Ahn](#), Sung Gyu Lee, Shin Hwang, Ki Hun Kim, Deok Bog Moon, Tae Yong Ha, Gi Won Song, Dong Hwan Jung, Kwan Woo Kim, Nam Kyu Choi. Seoul, Korea.
- P-166 MORBIDITY OF BILIARY COMPLICATION IN LDLT IS ENHANCED BY DUCTOPLASTY IRRESPECTIVELY OF THE OPERATIVE APPROACH: A COMPARISON BETWEEN TWO DIFFERENT INSTITUTIONAL EXPERIENCES. (Abstract # P-166)**
[Roberto Troisi](#), Alessandro Giacomoni, Roberto Montalti, Andrea Lauterio, Abdallah O. Slim, Luciano De Carlis, Bernard de Hemptinne. Ghent, Belgium; Milan, Italy; Modena, Italy.
- P-167 LIVING DONOR LIVER TRANSPLANTATION FOR HEPATOPULMONARY SYNDROME. (Abstract # P-167)**
[N. Mehta](#), S. Saigal, V. Kumaran, R. Mohanka, N. Saraf, S. Nundy, A. Soin. New Delhi, India.
- P-168 RESCUE APPROACH FOR UNEXPECTED PORTAL VEIN THROMBOSIS DURING ORTHOTOPIC LIVER TRANSPLANTATION. (Abstract # P-168)**
[Daniela Kniepeiss](#), Helmut Mueller, Doris Wagner, Silvia Schaffellner, Estrella Jakoby, Florian Iberer, Karl-Heinz Tscheliessnigg. Graz, Austria.
- P-169 VASCULAR COMPLICATIONS AFTER PEDIATRIC SPLIT LIVER TRANSPLANTATION: DIAGNOSIS, TREATMENT AND RISK FACTORS. (Abstract # P-169)**
[Marco Spada](#), Pieralba Catalano, Fabrizio Di Francesco, Angelo Luca, Silvia Riva, Davide Cintorino, Settimo Caruso, Bruno Gridelli. Palermo, Italy.
- P-170 † PNEUMATOSIS INTESTINALIS AFTER LIVER TRANSPLANTATION: SINGLE CENTER EXPERIENCES. (Abstract # P-170)**
[Ja Young Cho](#), Sung-Gyu Lee, Heon-Ju Kwon, Kyoung Won Kim, Gi-Won Song, Shin Hwang, Ki-Hun Kim, Chul-Soo Ahn. Seoul, Korea.
- P-171 PORTAL VEIN THROMBOSIS AND LIVER TRANSPLANTATION: EVOLUTIONS DURING 10-YEARS EXPERIENCE AT THE UNIVERSITY OF BOLOGNA. (Abstract # P-171)**
[Matteo Ravaioli](#), Matteo Zanello, Gian Luca Grazi, Giorgio Ercolani, Matteo Cescon, Massimo Del Gaudio, Alessandro Cucchetti, Gaetano Vetrone, Alessandro Dazzi, Francesco Tuci, Chiara Zanfi, Paolo Di Gioia, Giovanni Ramacciato, Cristina Morelli, Antonio Daniele Pinna. Bologna, Italy.
- P-172 RIGHT SUBCOSTAL INCISION IN LIVER TRANSPLANTATION. (Abstract # P-172)**
Matteo Donataccio, [Giorgio Dalle Ore](#), Dino Donataccio. Verona, VR, Italy.
- P-173 ABDOMINAL CUTANEOUS NUMBNESS IN THE SUPRAUMBILICAL REGION POST LIVER TRANSPLANT (LTx) PATIENT AND ITS COMPLICATIONS. (Abstract # P-173)**
[Ashokkumar Jain](#), Pauline Nemitz, Rajeev Sharma Sharma, Marry Vetter, Leah Brayan, Baber Sheikh, Pam Batzold, Randeep Kashyap, Mark Orloff. Philadelphia, PA, USA; Rochester, NY, USA.

The 2009 International Congress of ILTS Day-at-a-Glance, Thursday, July 9, 2009

6:30 AM – 7:00 PM	Registration Open <i>Room: Grand Ballroom Foyer, Level 3</i>	4:45 PM – 6:15 PM	Concurrent Sessions
		<i>Page 41</i>	Extended Criteria Donors/Disease Transmission <i>Room: Sutton Center, Level 2</i>
8:00 AM – 9:30 AM	Plenary Session I <i>Page 24</i> <i>Room: Grand Ballroom, Level 3</i>	<i>Page 42</i>	Anesthesia/Critical Care Medicine <i>Room: Sutton North, Level 2</i>
9:30 AM – 10:00 AM	Coffee Break <i>Room: America's Hall I, Level 3</i>	<i>Page 43</i>	Living Donor <i>Room: Grand Ballroom, Level 3</i>
		<i>Page 43</i>	Hepatitis C <i>Room: Regeant Parlor, Level 2</i>
9:30 AM – 10:00 AM	Poster Session II <i>Page 24</i> <i>Room: America's Hall I, Level 3</i>		
10:00 AM – 10:30 AM	State of the Art Lecture <i>Page 38</i> Liver Transplantation around the World <i>Room: Grand Ballroom, Level 3</i>		
10:30 AM – 12:30 PM	Rising Star Symposium <i>Page 38</i> <i>Room: Grand Ballroom, Level 3</i>		
12:30 PM – 12:45 PM	Break <i>Room: Grand Ballroom, Level 3</i>		
12:45 PM – 2:15 PM	Novartis Pharma AG Sponsored Lunch Symposium <i>Room: Grand Ballroom, Level 3</i>		
2:15 PM – 2:30 PM	Break		
2:30 PM – 4:00 PM	Concurrent Sessions		
<i>Page 39</i>	Immunosuppression <i>Room: Sutton North, Level 2</i>		
<i>Page 40</i>	Patient Selection/Organ Allocation <i>Room: Regeant Parlor, Level 2</i>		
<i>Page 40</i>	Malignancies <i>Room: Grand Ballroom, Level 3</i>		
2:30 PM – 4:00 PM	Video Submission Session #1 <i>Page 41</i> <i>Room: Sutton Center, Level 2</i>		
4:00 PM – 4:45 PM	Coffee Break <i>Room: America's Hall I, Level 3</i>		
4:00 PM – 4:45 PM	Poster Session II, Poster Grand Rounds II <i>Page 41</i> <i>Room: America's Hall I, Level 3</i>		

Thursday, July 9

Thursday, July 9, 2009

Registration Open

6:30 AM – 7:00 PM

Room: Grand Ballroom Foyer, Level 3

Plenary Session I

8:00 AM - 9:30 AM

Room: Grand Ballroom, Level 3

Moderators: Ronald W. Busuttil, MD, PhD, University of California, Los Angeles, CA, USA & Richard B. Freeman, Jr., MD, Tufts Medical Center, Boston, MA, USA

8:00 AM EXTRACELLULAR ADENOSINE PRODUCTION BY ECTO-5'-NUCLEOTIDASE PROTECTS DURING MURINE HEPATIC ISCHEMIC PRECONDITIONING. (Abstract # O-1)

Tobias Eckle, Melanie L. Hart, Susan Mandel, Holger K. Eltzschig. Denver, CO, USA; Tuebingen, Baden Wurttemberg, Germany.

8:10 AM OUTCOMES OF SEVERE PREGNANCY RELATED LIVER DISEASE – SHOULD STANDARD TRANSPLANT LISTING CRITERIA BE APPLIED? (Abstract # O-2)

Rachel H. Westbrook, Andrew D. Yeoman, Deepak Joshi, Mohamed Rela, Alberto Quaglia, John G. O'Grady, William Bernal, Nigel D. Heaton, Julia A. Wendon, Michael A. Heneghan. London, United Kingdom.

8:20 AM ¹⁸F-FDG-UP TAKE OF HEPATOCELLULAR CARCINOMA ON PET INDEPENDENTLY PREDICTS TUMOR RECURRENCE AFTER LIVER TRANSPLANTATION. (Abstract # O-3)

Arno Kornberg, Bernadett Küpper, Katharina Thrum, Olaf Habrecht, Martin Freesmeyer, Kathrin Katenkamp, Annette Sappeler. Jena, Germany; Bad Berka, Germany.

8:30 AM CONVERSION FROM PROGRAF TO ADVAGRAF IN ADOLESCENTS WITH NORMAL GRAFT FUNCTION AFTER LIVER TRANSPLANTATION: BIOEQUIVALENCE ON 1:1 DAILY DOSE. (Abstract # O-4)

Paloma Jara, Loreto Hierro, Enrique Piñana, Carmen Camarena, Angela de la Vega, Esteban Frauca, Gema Muñoz Bartolo, Carmen Díaz, Francisco Hernandez, Nuria Leal, Javier Murcia, Manuel Gámez, Manuel López Santamaría, Antonio J. Carcas. Madrid, Spain.

8:40 AM LAPAROSCOPY-ASSISTED LIVE DONOR HEPATECTOMY – ITS SIGNIFICANCE AND INITIAL RESULTS. (Abstract # O-5)

Go Wakabayashi, Hiroyuki Nitta, Takeshi Takahara, Minoru Tanabe, Ken Hoshino, Motohide Shimazu. Morioka, Japan; Tokyo, Japan.

8:50 AM THE DISTINCT REGENERATION PATTERN OF SMALL-FOR-SIZE FATTY LIVER GRAFT-THE SIGNIFICANCE OF ALDOSE REDUCTASE SIGNALING ON OVAL CELL ACTIVATION. (Abstract # O-6)

Yan Liu, Kwan Man, Qiao Cheng, Kevin T. Ng, Xiao-Bing Liu, M. V. H. de Villa, Chung-Mau Lo. Hong Kong, China, Hong Kong.

9:00 AM EXPLANTED LIVER INFLAMMATORY GRADE PREDICTS FIBROSIS PROGRESSIVE IN HEPATITIS C RECURRENCE. (Abstract # O-7)

M. Ghabril, R. C. Dickson, M. Kishna, V. Machicao, J. Aranda-Michel, H. Bonatti, J. Nguyen. Indianapolis, IN, USA; Jacksonville, FL; Gainesville, FL; Charlotte, VA.

9:10 AM GENE-EXPRESSION PROFILES OF HUMAN LIVER BIOPSIES CORRELATE WITH POST-TRANSPLANT ALLOGRAFT FUNCTION AND ARE DETERMINED BY DONOR TYPE. (Abstract # O-8)

C. Fondevila, J. Muñoz, J. J. Lozano, M. A. Loera, S. Jimenez-Galanes, O. Sanchez, J. Fuster, P. Taura, A. Rimola, J. C. Garcia-Valdecasas. Barcelona, Spain.

9:20 AM LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA WITH GRAFT COMING FROM DECEASED OR LIVING DONORS. A COMPARATIVE ANALYSIS. (Abstract # O-9)

Alessandro Giacomoni, Abdallah Slim, Andrea Lauterio, Stefano Di Sandro, Luciano De Carlis. Milano, Italy.

Coffee Break

9:30 AM – 10:00 AM

Room: America's Hall I, Level 3

Poster Session II

9:30 AM - 10:00 AM

Presenters in Attendance

Room: America's Hall I, Level 3

† Those posters identified as a Poster of Distinction by this symbol have received review scores that place them in the top 10% of their category. The Planning Committee encourages you to make them a priority when you visit the poster session.

Anesthesia/Critical Care Medicine

P-174 LIVER TRANSPLANTATION IN A PATIENT WITH HEMOLYTIC ANEMIA. (Abstract # P-174)

Haran Fisher, Vadim Shatz, Ernesto Pretto. Miami, FL, USA.

- P-175 PERIOPERATIVE ADMINISTRATION OF THE RECOMBINANT FACTOR VII IN PATIENTS UNDERGOING HIGH URGENCY LIVER TRANSPLANTATION FOR FULMINANT WILSON'S DISEASE – EIGHT YEARS OF EXPERIENCE OF TWO POLISH CENTERS. (Abstract # P-175)**
Maria M. Czuprynska, Lidia Jureczko, Janina Andrzejewska, Konrad Jarosz, Marta Wawrzynowicz-Syczewska, Janusz Trzebicki, Beata Blaszczyk, Marek Pacholczyk, Maciej Wojcicki. Szczecin, Poland; Warsaw, Poland.
- P-176 USE OF PROTHROMBIN COMPLEX CONCENTRATE IN ACUTE HEPATIC FAILURE. (Abstract # P-176)**
Jasmeet Kaur, Nicola Jones, Susan Mallett. London, United Kingdom.
- P-177 † RISK FACTORS OF ACUTE RENAL INJURY IN THE IMMEDIATE POSTOPERATIVE PERIOD AFTER OLT. (Abstract # P-177)**
Amy Robertson, Ricky Sierra-Anderson, Ann Walia. Nashville, USA.
- P-178 INDOCYANINE-GREEN-PLASMA-DISAPPEARANCE-RATE IN ANHEPATIC PATIENTS. (Abstract # P-178)**
Falk Rauchfuß, Martin Brauer, Erik Bärthel, Michael Heise, Utz Settmacher. Jena, Germany.
- P-179 THE CVP ZERO REFERENCE AND HEPATIC SURGERY. (Abstract # P-179)**
Chris R. Giordano, Nik Gravenstein, Mark Rice. Gainesville, FL, USA.
- P-180 BLOOD PRODUCTS REQUIREMENTS AFTER ADOPTION OF MELD SCORE AS GRAFT ALLOCATION CRITERIA. (Abstract # P-180)**
Alexandre Teruya, Alexandre P. Oliveira, Rogério P. Barbosa, Diná M. H. Nowak, Marcel V. Vitoreli, Raffael C. P. Zamper, Rogério Carballo, Maria Paula V. C. Zurstrassen, Marcelo B. Rezende, Sérgio P. Meira-Fº, Ben-Hur Ferraz-Neto, Flávio Takaoka. Sao Paulo, Brazil.
- P-181 † CARDIAC RESPONSE TO LIVER TRANSPLANT IN PATIENTS WITH ALCOHOLIC CIRRHOSIS. (Abstract # P-181)**
Bibiana Escobar, Pilar Taura, Joan Beltran, Jaume Balust, Graciela Martinez-Palli, Elizabeth Zabala, Constantino Fondevila, Juan Carlos Garcia-Valdecasas. Barcelona, Catalunya, Spain.
- P-182 THE IMPACT OF RESTRICTIVE FLUID REPLACEMENT ON CARDIAC FUNCTION DURING LIVER TRANSPLANT IN ALCOHOLIC CIRRHOTIC PATIENTS. (Abstract # P-182)**
Pilar Taura, Bibiana Escobar, Joan Beltran, Jaume Balust, Graciela Martinez-Palli, Annabel Blasi, Constantino Fondevila, Juan Carlos Garcia-Valdecasas. Barcelona, Spain; Barcelona, Catalunya, Spain.

- P-183 SIMULTANEOUS LIVER AND KIDNEY TRANSPLANTATION AND ABDOMINAL AORTIC ANEURYSMAL REPAIR: A CASE REPORT. (Abstract # P-183)**
Lalitha V. Sundararaman, Venkata Sampathi, Aharon Avramovich, Yehuda Raveh, Ernesto A. Pretto. Miami, FL, USA.
- P-184 † BILIARY INDOCYANINE GREEN EXCRETION – AN ADDITIONAL USEFUL TOOL FOR THE ASSESSMENT OF ALLOGRAFT FUNCTION AFTER LIVER TRANSPLANTATION. (Abstract # P-184)**
Falk Rauchfuss, Andreas Kortgen, Martin Siering, Erik Bärthel, Rigo Voigt, Michael Heise, Michael Bauer, Utz Settmacher. Jena, Germany.
- P-185 COMPARISON OF THE EFFICIENCY OF THE EXTRACORPOREAL LIVER SUPPORT SYSTEMS MARS AND SPAD IN ACUTE AND ACUTE-ON-CHRONIC LIVER FAILURE. (Abstract # P-185)**
C. Sponholz, A. Kortgen, F. Rauchfuss, U. Settmacher, M. Bauer. Jena, Germany.
- P-186 A LIVER TRANSPLANT MAY NOT PREVENT THE PROGRESSION OF PULMONARY HYPERTENSION. (Abstract # P-186)**
Michael A. E. Ramsay, Goran B. Klintmalm, Edmund Q. Sanchez, Kate B. Newman. Dallas, TX, USA.

Basic Sciences

- P-187 ARTIFICIAL HEMOGLOBIN BASED OXYGEN CARRIERS FOR MACHINE PRESERVATION OF THE LIVER. (Abstract # P-187)**
Peter Olschewski, Veeravorn Aryjakhagorn, Martin Mentzel, Peter Neuhaus, Gero Puhl. Berlin, Germany.
- P-188 REGENERATION OF THE HUMAN EXTRAHEPATIC BILE DUCT AND THE ROLE OF PROGENITOR CELLS. (Abstract # P-188)**
Michael E. Sutton, Ton Lisman, Dorien S. Visser, Annette S. H. Gouw, Robert J. Porte. Groningen, Netherlands.
- P-189 ROLE OF HIPOXIA INDUCIBLE FACTOR (HIF) IN FATTY LIVER PRESERVATION: AN EX VIVO APPROACH USING IGL-1 SOLUTION. (Abstract # P-189)**
Amine Zaouali, Ismail Ben Mosbah, Hassen Ben Abdennebi, Olivier Boillot, Joan Rosello-Catafau, Carmen Peralta. Barcelona, Spain; Monastir, Tunisia; Lyon, France.
- P-190 † THERAPEUTIC SIGNIFICANCE OF AUTOANTIBODY AGAINST HISTONE H1 IN A RAT MODEL OF T-CELL MEDIATED AUTOIMMUNE HEPATITIS. (Abstract # P-190)**
Toshiaki Nakano, Shigeru Goto, Chia-Yun Lai, Li-Wen Hsu, Jin-Long Wong, Yen-Chen Chang, Chin-Hsiang Yang, Chih-Chi Wang, Bruno Jawan, Yu-Fan Cheng, Chao-Long Chen. Kaohsiung, Taiwan; Yufuin, Japan.

- P-191** **TARGETED QUANTITATIVE METABOLOMICS IN RATS DURING EARLY REPERFUSION. (Abstract # P-191)**
Kim Dang, Marc L. Melcher, Yeonho Park, Natalie J. Serkova, Claus U. Niemann. Stanford, CA, USA; San Francisco, CA, USA; Incheon, Korea; Denver, CO, USA.
- P-192** **HEPATOPROTECTIVE EFFECTS OF MARINE AND KUHANG IN LIVER TRANSPLANT RECIPIENTS. (Abstract # P-192)**
Xiao Xu, Qi Ling, Feng Gao, Hai-Yang Xie, Shu-Sen Zheng. Hangzhou, Zhejiang, China.
- P-193 †** **ANGIOTENSIN II RECEPTOR ANTAGONISTS AS USEFUL STRATEGIES IN STEATOTIC AND NON-STEATOTIC LIVERS IN CONDITIONS OF PARTIAL HEPATECTOMY UNDER ISCHEMIA-REPERFUSION. (Abstract # P-193)**
Izabel Alfany-Fernandez, Fernando S. Ramalho, Araní Casillas-Ramírez, Marta Massip-Salcedo, Anna Serafin, Antoni Rimola, Vicente Arroyo, Juan Rodés, Joan Roselló-Catafau, Carmen Peralta. Barcelona, Spain.
- P-194** **TISSUE ENGINEERING OF PRIMARY RAT HEPATOCYTES USING NANO-FIBROUS 3D POLYMERIC SCAFFOLDS FOR APPLICATION IN ADME STUDIES IN PHARMACEUTICAL RESEARCH. (Abstract # P-194)**
Jeanette Bierwolf, Johannes P. Erbes, Steffen Deichmann, Christina Stieglitz, Eva Toronyi, Marc Luetgehetmann, Bjoern Nashan, Kai Feng, Peter X. Ma, Joerg M. Pollok. Hamburg, Germany; Ann Arbor, MI, USA.
- P-195** **CHOLEHEPATIC SHUNTING AFTER ORTHOTOPIC LIVER TRANSPLANTATION: AN ATTEMPT TO PREVENT BILE DUCT INJURY. (Abstract # P-195)**
Harm Hoekstra, Bruno Stieger, Robert J. Porte, Pierre A. Clavien. Zurich, Switzerland; Groningen, Netherlands.
- P-196** **THE EFFECT OF FISH OIL TO END STAGE LIVER DISEASE. (Abstract # P-196)**
Chih-Cheng Chen, Li-Tung Huang, Hsio-Chi Chaung, Allan Concejero, Chih-Chi Wang, Shih-Ho Wang, Chao-Long Chen. Kaohsiung, Taiwan; Pingtung, Taiwan.
- P-197** **A NEW MODEL OF HEPATIC ENCEPHALOPATHY IN RATS. (Abstract # P-197)**
Antonio Roberto Teixeira, Marta B. Privato, Nilza T. Molan, Marcia Kubrusly, Ana Maria Coelho, Wellington Andraus, Meirelles Roberto, Telesforo Bacchella, Marcel C. C. Machado, Luiz A. C. D. Albuquerque. Sao Paulo, Brazil.
- P-198** **ACTIVATED src FAMILY KINASE LYN AS SIGNALING MOLECULE FOR MITOCHONDRIA IN EARLY LIVER REGENERATION. (Abstract # P-198)**
Francesco E. D'Amico, Enrico Gringeri, Amedeo Carraro, Pagano Mario, Tibaldi Elena, Maurizio Buggio, Brunati Anna Maria, Cillo Umberto. Padova, Italy.
- P-199** **CYP2C19 SEQUENCE IN LIVING DONOR LIVER TRANSPLANTATION. (Abstract # P-199)**
King-Wah Chiu, Wei-Chen Tai, Toshiaki Nakano, Wei-Pang Chang, Chao-Long Chen. Kaohsiung, Taiwan.
- P-200** **TOPICAL HYPOTHERMIA PLUS ISCHEMIC PRECONDITIONING: LIVER INJURIES AND OXIDANT DEFENSES IN A MODEL OF ISCHEMIA AND REPERFUSION IN RATS. (Abstract # P-200)**
Tomaz J. M. Grezzana, Carlos O. Corso, Cleber D. P. Kruel, Tais B. Mendonça. Porto Alegre, RS, Brazil.

Extended Criteria Donors/Disease Transmission

- P-201** **LIVER TRANSPLANTATION FROM A DECEASED DONOR WITH SEVERE RHABDOMYOLYSIS. (Abstract # P-201)**
Hae Won Lee, Seong-Hwan Chang, Youn Jin Kim, Ik Jin Yun. Seoul, Republic of Korea.
- P-202** **TRANSMISSION OF IDIOPATHIC THROMBOCYTOPENIC PURPURA DURING ORTHOTOPIC LIVER TRANSPLANTATION. (Abstract # P-202)**
Ilona T. A. Pereboom, Marieke T. de Boer, Elizabeth B. Haagsma, Frans van der Heide, Leendert Porcelijn, Ton Lisman, Robert J. Porte. Groningen, Netherlands; Amsterdam, Netherlands.
- P-203** **DISSEMINATED NOCARDIOSIS: A RARE INFECTIOUS COMPLICATION FOLLOWING NON-HEART-BEATING DONOR LIVER TRANSPLANTATION. (Abstract # P-203)**
Santos Jiménez-Galanes, Juan Carlos Meneu Diaz, Baltasar Perez-Saborido, Almudena Moreno Elola-Olaso, Yiliam Fundora Suarez, Manuel Abradelo Usera, Alberto Gimeno Calvo, Enrique Moreno González. Madrid, Spain.
- P-204** **POSSIBLE ERRORS IN HBC AND HCV TESTING DUE TO FLUID IMBALANCE IN DECEASED POTENTIAL LIVER DONORS. (Abstract # P-204)**
J. Czerwinski, A. Pszeny, M. Laba, K. Ostrowski, M. Pacholczyk, D. Wasiak, M. Kosieradzki, A. Chmura, P. Malkowski. Warsaw, Poland.
- P-205** **APPLICATION AND MODIFICATION OF THE DONOR RISK INDEX FOR DONATION AFTER CARDIAC DEATH. (Abstract # P-205)**
Jason Y. Rhee, Robin Ruthazer, Kevin O'Connor, Francis L. Delmonico, Richard Luskin, Richard B. Freeman. Boston, MA, USA; Newton, MA, USA.

- P-206 LIVER TRANSPLANTATION FROM CONTROLLED DONATION AFTER CARDIAC DEATH (DCD) DONORS: A SINGLE CENTER EXPERIENCE. (Abstract # P-206)**
Olivier Detry, Caroline Veys, Benoît Seydel, Emmanuel Decker, Séverine Lauwick, Pierre Damas, François Damas, Arnaud De Roover, Pierre Honoré, Michel Meurisse. Liège, Belgium.
- P-207 EVALUATION OF FACTORS RELATED TO PRIMARY GRAFT DYSFUNCTION AND NONFUNCTION IN THE LIVER TRANSPLANTATION. (Abstract # P-207)**
Gustavo R. Coelho, Katia F. Vasconcelos, Jose T. Valenca, Jr., Joao B. Vasconcelos, Douglas H. Filho, Tarciso D. Rocha, Cinthya F. Viana, Clovis R. Coelho, Paulo E. Costa, Ivelise R. Brasil, Gleydson C. Borges, Denissa F. Mesquita, Dirk Sherenken, Marcos A. Barros, Jose H. Garcia. Fortaleza, Ceara, Brazil.
- P-208 SPLIT LIVER TRANSPLANTATION IN PEDIATRICS RECIPIENTS. "12 DE OCTUBRE" UNIVERSITY HOSPITAL EXPERIENCE. MADRID, SPAIN. (Abstract # P-208)**
Yiliam Fundora, Almudena Moreno, Juan C. Meneu, Javier Manzanares, Manuel Abradelo, Pedro Urruzuno, Alberto Gimeno, Baltasar Pérez, Carlos Jiménez, Enrique Medina, Enrique Moreno. Madrid, Spain.
- P-209 † KINGS COLLEGE SCORE FOR PREDICTING DEATH IN DONATION AFTER CARDIAC DEATH (DCD) LIVER DONORS. (Abstract # P-209)**
Paul J. Marriott, Adam Bartlett, Mark McPhail, Amy Dukoff-Gordon, William Bernal, Nigel Heaton. London, United Kingdom.

Fulminant Liver Failure

- P-210 VANISHING BILE DUCT AND STEVEN-JOHNSON SYNDROMES ASSOCIATED WITH AZITHROMYCIN SUCCESSFULLY TREATED BY LIVER TRANSPLANTATION – A CASE REPORT. (Abstract # P-210)**
Mate Skegro, Ognjan Deban, Irena Hrstic, Davor Radic, Danica Juricic, Bosko Romic, Ante Gojevic, Tomislav Baotic, Igor Petrovic. Zagreb, Croatia.
- P-211 LIVER TRANSPLANTATION FOR ORALLY ADMINISTERED AMIODARONE-INDUCED HEPATIC FAILURE. (Abstract # P-211)**
Dong Lak Choi, Young Seok Han, Mi Kyung Kim, Su Hee Jin. Daegu, Republic of Korea.
- P-212 ACUTE LIVER FAILURE IN BRAZIL: TWENTY TWO YEARS OF A SINGLE CENTER EXPERIENCE. (Abstract # P-212)**
Leonardo Ferraz, Alexandre Teruya, Thomsom Palma, Margareth Lalle, Carlos Baia, Eloisa Quintela, Ana Olga Mies, Ana Sueli Zan, Osvaldo Pereira, Sergio Mies. Sao Paulo, Brazil.

- P-213 A RANDOMIZED OPEN LABEL CLINICAL TRIAL WITH PREGABALIN IN THE TREATMENT REGIME WITH INTERFERON THERAPY FOR CHRONIC HEPATITIS C. (Abstract # P-213)**
P. Patrick Basu, Krishna Rayapudi, Tommy Pacana, Syed A. Hussain, Sindhu Ramamurthy, Robert Brown, Jr.. New York, NY, USA; Flushing, NY, USA; Forest Hills, NY, USA; Newcastle upon Tyne, United Kingdom.
- P-214 SUCCESSFUL TREATMENT OF FULMINANT WILSON'S DISEASE BY PLASMA EXCHANGE. (Abstract # P-214)**
Anwar Jarrad, Saeb Hammoudi, Reyad Saed, Aiman Obed, Abdulla Al Bashir. Amman, Jordan.
- P-215 TWO CASES OF LIVING DONOR LIVER TRANSPLANTATION FOR ACUTE LIVER FAILURE CAUSED BY REACTIVATION OF HEPATITIS B VIRUS AFTER CHEMOTHERAPY FOR HEMATOLOGIC MALIGNANCY. (Abstract # P-215)**
Yoon Jin Hwnag, Sang Geol Kim, Young Kook Yun, Seung Jae Lee, Jae Beom Seo. Daegu, Republic of Korea.
- P-216 † LIVING DONOR LIVER TRANSPLANTATION FOR ACUTE LIVER FAILURE. (Abstract # P-216)**
Shih-Ming Kuo, Ming-Hsin Yang, Teng-Wei Chen, Chung-Bao Hsieh. Taipei, Taiwan.
- P-217 IMATINIB INDUCED ACUTE LIVER FAILURE – FIRST REPORT OF A SUCCESSFUL LIVER TRANSPLANTATION. (Abstract # P-217)**
Marcio D. Almeida, Bianca Della-Guardia, Maria P. V. C. Zurstrassen, Rogerio C. Afonso, Nelson Hamerschlag, Ben-Hur Ferraz-Neto. Sao Paulo, SP, Brazil.

Hepatitis C

- P-218 VARIABLES ASSOCIATED WITH SUSTAINED VIROLOGICAL RESPONSE IN LIVER TRANSPLANT RECIPIENTS TREATED FOR RECURRENT HEPATITIS C. (Abstract # P-218)**
Anjana A. Pillai, Victoria S. Lee, Mary E. Rinella, Josh Levitsky. Chicago, IL, USA.
- P-219 A RETROSPECTIVE ANALYSIS OF THE SAFETY OF OUTPATIENT PERCUTANEOUS LIVER BIOPSY IN PATIENTS WITH VON WILLEBRAND DISEASE. (Abstract # P-219)**
P. Patrick Basu, Krishna Rayapudi, Tommy Pacana, Sindhu Ramamurthy, Robert Brown, Jr.. New York, NY, USA; Forest Hills, NY, USA; New Castle upon Tyne, UK.
- P-220 HEPATITIS C RECURRENCE FOLLOWING DECEASED DONOR LIVER LIVER TRANSPLANTATION VERSUS LIVING DONOR LIVER TRANSPLANTATION. (Abstract # P-220)**
Samy M. Kashkoush, Khalid O. Abdullah, Mohammed F. Shaheen, Abdulrahman Aljumah, Ibrahim H. Altraif, Abduljaleel Alalwan, Sherif Elhanafi, Wael A. O'Hali. Riyadh, Saudi Arabia.

- P-221 PREDICTION OF ACUTE CELLULAR REJECTION POST LIVER TRANSPLANTATION FOR HEPATITIS C. (Abstract # P-221)**
M. Ghabril, R. C. Dickson, M. Krishna, R. Nakhleh, J. Aranda-Michel, H. Bonatti, J. Nguyen. Indianapolis, IN, USA; Jacksonville, FL; Charlotte, VA.
- P-222 LEUKOCITY-APHERESIS ADACOLUMN TREATMENT IN KIDNEY TRANSPLANT PATIENTS WITH HEPATITIS C VIRUS. PRELIMINARY STUDY. (Abstract # P-222)**
Gilardo Novelli, Massimo Rossi, Giancarlo Ferretti, Francesco Pugliese, Vincenzo Morabito, Pasquale Berloco. Rome, Italy.
- P-223 THE EFFICACY OF RETHERAPY WITH PEGYLATED INTERFERON ALFA-2a AND RIBAVIRIN IN LIVER TRANSPLANT RECIPIENTS WITH RECCURENCE OF CHRONIC HEPATITIS C – PRELIMINARY DATA. (Abstract # P-223)**
Tomasz Cieciora, Emil Blazik, Olga Tronina, Ewa Nowacka-Cieciora, Marek Pacholczyk, Beata Lagiewska, Andrzej Chmura, Magdalena Durlak. Warsaw, Poland.
- P-224 INCREASED LFTs/CLINICAL LIVER FAILURE IN POST OLT PATIENTS BEING TREATED WITH PEG-IFN ALFA-2B PLUS RIBAVIRIN FOR RECURRENT HEPATITIS C. (Abstract # P-224)**
Reem Ghalib, Cheryl Levine, Blaine Hollinger, Rise Stribling, Terry Box, William Hutson, Anthony Post, Shobha Joshi, Jeffrey Weinstein, Praveena Lammata, Alejandro Mejia, Stephen Cheng. Dallas, TX, USA; Houston, TX, USA; Salt Lake City, UT, USA; Cleveland, OH, USA; New Orleans, LA, USA.
- P-225 † HEPATITIS C (HCV)-3 STUDY: DECREASED INCIDENCE OF SEVERE HCV RECURRENCE (R) POST LIVER TRANSPLANTATION (OLT) IN PATIENTS (pt) TREATED WITH MYCOPHENOLATE MOFETIL (MMF), PARTICULARLY, IN THE ABSENCE OF STEROIDS (Pred). (Abstract # P-225)**
Goran B. Klintmalm, Carlos G. Fasola, Linda Jennings, Hepatitis C. Study Group. Dallas, TX, USA; Atlanta, GA, USA.
- P-227 EVALUATION OF FACTORS THAT HAVE INFLUENCE ON ADHERENCE TO IMUNOSSUPPRESSION THERAPY AFTER LIVER TRANSPLANTATION. (Abstract # P-227)**
Marcelo S. Nogara, Julio C. Wiederkehr, Mauro R. Igreja, Ana C. Barros, Tatiane L. Bonfanti, Ernani T. Helena, Maria Manfredi, Maria B. Rocha, Barara A. Wiederkehr. Blumenau, Santa Catarina, Brazil.
- P-228 RESULTS OF THE PHASE 4 TRIAL OF TACROBELL® IN LIVER TRANSPLANTATION PATIENTS – A MULTICENTER CENTER STUDY IN KOREA. (Abstract # P-228)**
Young Dong Yu, Chul Su Ahn, Ki Hun Kim, Shin Whang, Sung Gyu Lee. Seoul, Korea.
- P-229 IS MYCOPHENOLATE MOFETIL (MMF) REQUIRED IN RENAL SPARING DELAYED CALCINEURIN INHIBITOR (CI) REGIMENS IN LIVER TRANSPLANTATION (LTX)? (Abstract # P-229)**
Neha Patel, David J. Taber, Nicole A. Weimert, Brianna L. Dunn, Jenna L. Scheffert, Michael G. Hughes, John W. McGillicuddy, Charles F. Bratton, Angello Lin, Kenneth D. Chavin, Prabhaker K. Baliga. Charleston, SC, USA.
- P-230 ROLE OF IMMUNOSUPPRESSIVE THERAPY ON HISTOLOGICAL HEPATITIS-C VIRUS (HCV) RECURRENCE AFTER LIVER TRANSPLANTATION (LT): A RETROSPECTIVE COHORT DATA. (Abstract # P-230)**
Mario H. M. M. Meine, Maria Lucia Zanotelli, Guido P. C. Cantisani, Claudio A. Marroni, Ajácio B. M. Brandão, Eduardo S. Schlindwein, Ian Leipnitz, Guillermo Kiss, Marcos Mucenic, Marcus V. Osório. Porto Alegre, RS, Brazil.
- P-231 COMPARISON OF OUTCOMES BETWEEN THREE IMMUNOSUPPRESSANT REGIMENS IN ADULT LIVER TRANSPLANT (LTX) RECIPIENTS. (Abstract # P-231)**
Neha Patel, David J. Taber, Nicole A. Weimert, Jenna L. Scheffert, Brianne L. Dunn, Michael G. Hughes, John W. McGillicuddy, Charles F. Bratton, Angello Lin, Kenneth D. Chavin, Prabhakar K. Baliga. Charleston, SC, USA.
- P-232 IMPACT OF AN STEROID-FREE REGIMEN (TACROLIMUS + MYCOPHENOLATE MOFETIL) VERSUS A CONVENTIONAL REGIMEN (TACROLIMUS + STEROIDS) IN CARDIOVASCULAR RISK FACTORS AFTER LIVER TRANSPLANTATION: PRELIMINARY RESULTS. (Abstract # P-232)**
Valentin Cuervas-Mons, Jose I. Herrero, Miguel A. Gomez, Ignacio Gonzalez, Trinidad Serrano, Manuel de la Mata, Joan Fabregat, Javier Bustamante, Mikel Gastaca, Itxarone Bilbao, Evaristo Varo, Gloria Sánchez, Miguel Jimenez, Rafael Martin-Vivaldi. Madrid, Spain; Pamplona, Spain; Sevilla, Spain; Asturias, Spain; Zaragoza, Spain; Cordoba, Spain; Barcelona, Spain; Bilbao, Spain; Santiago de Compostela, Spain; Granada, Spain.

Immunosuppression

- P-226 SAFE OUTCOME IN PREGNANCY WITH A TACROLIMUS BASED REGIMEN FOR LIVER TRANSPLANTATION IN WILSON'S DISEASE. (Abstract # P-226)**
Guilherme Macedo, Susana Lopes, Costa Maia. Braga, Portugal; Porto, Portugal.

- P-233 †** **COMPARISON BETWEEN PRIMARY SIROLIMUS AND PRIMARY TACROLIMUS IN LIVER TRANSPLANTATION AFTER STEROID FREE RABBIT ANTITHYMOCYTE GLOBULIN (RATG) INDUCTION. (Abstract # P-233)**
Jason M. Vanatta, Brandi Liggins, Amanda Dean, Donna Bogard, Nosratollah Nezakatgoo, Luis Campos, Olexandra Dryn, Satheesh Nair, James D. Eason. Memphis, TN, USA.
- P-234** **COMPARATIVE STUDY OF RABBIT ANTITHYMOCYTE GLOBULIN (RATG) INDUCTION VERSUS STEROIDS ON OUTCOMES IN PATIENTS UNDERGOING ORTHOTOPIC LIVER TRANSPLANTATION (OLT) FOR HEPATITIS C (HCV). (Abstract # P-234)**
Sharad Sharma, Jason M. Vanatta, Nosratollah Nezakatgoo, Sateesh P. Nair, Luis Campos, Rakesh Rai, Amanda G. Dean, James D. Eason. Memphis, TN, USA.
- P-235** **EXPERIENCE WITH THE USE OF ENTERIC COATED MYCOPHENOLATE SODIUM IN A STEROID-FREE IMMUNOSUPPRESSIVE REGIMEN IN ADULT LIVER TRANSPLANTATION. (Abstract # P-235)**
Carlo B. Ramirez, D. Cataldo, Adam M. Frank, Victor Navarro, Steven Herrine, Simona Rossi, Mark Chaballa, Silvia Vaccino, Stephen T. Armenti, Yoogoo Kang, Ignazio R. Marino. Philadelphia, PA, USA; New York, NY, USA.
- P-236** **THE IMPACT OF EVEROLIMUS ON RENAL FUNCTION IN MAINTENANCE LIVER TRANSPLANTATION. (Abstract # P-236)**
Paolo De Simone, Stefania Petruccelli, Arianna Precisi, Paola Carrai, Emanuele Balzano, Juri Ducci, Lidiana Baldoni, Daniela Campani, Franco Filipponi. Pisa, Italy.
- P-237** **USE OF MYCOPHENOLATE MOFETIL IN LIVER TRANSPLANT PATIENTS. ANDALUSIAN LIVER REGISTRY. (Abstract # P-237)**
Gomez M. A. Bravo, L. Barrera, M. de la Mata, Nuñez F. Garcia, M. Jimenez, J. Rodrigo, D. Marin, M^a. D. Espinosa, F. Noguera, M^a. A. Garrido. Sevilla, Spain; Cordoba, Spain; Malaga, Spain; Granada, Spain.
- P-238** **INITIAL EXPERIENCE WITH A GENERIC TACROLIMUS FORMULATION IN A LIVER TRANSPLANT CENTER IN CHILE. (Abstract # P-238)**
Edgar B. Sanhueza, Montserrat A. Rius, Rodrigo L. Zapata, Roberto A. Humeres, Horacio R. Rios, Juan K. Juan. Santiago, Chile.
- P-239** **REJECTION AFTER LIVING RELATED LIVER TRANSPLANTATION (LRLT): A RETROSPECTIVE STUDY. (Abstract # P-239)**
Ibrahim Mostafa, Rasha Refaee, Wael Safwat, Medhat Abd El All, Ayman Namera, Sanaa Kamal, Moubarek Hussein, Magda El-Monayeri, Alaa Fayeze, Mahmoud El-Meteini. Cairo, Egypt.

Living Donor

- P-240** **FOUR SUCCESSFUL CASES OF SIMULTANEOUS LIVING DONOR LIVER AND KIDNEY TRANSPLANTATION. (Abstract # P-240)**
R. Mohanka, N. Mohan, V. Kumaran, S. Saigal, N. Saraf, S. Nundy, A. Soin. New Delhi, India.
- P-241** **DONOR BILIARY COMPLICATIONS IN LDLT: COULD IT BE MINIMIZED IN THE ABSENCES OF CADAVERIC PROGRAM? (Abstract # P-241)**
Ibrahim K. Marwan, Tarek M. Ibrahim, Mahmoud" M. Elmeteny, Alla" F. Hamza, Adel M. Hosny, Osama A. Elmalet, Khaled M. Amer, Ibrahim M. Mostafa, Ayman M. Yousry, Wahed N. Dose, Imam A. Wakid. Shebeen Elkom, Egypt; , Egypt.
- P-242** **CHYLOUS ASCITES AFTER LIVING DONOR LIVER TRANSPLANTATION – REPORT OF THREE CASES. (Abstract # P-242)**
Anwar Jarrad, Saeb Hammoudeh, Muawieh Ababneh, Aiman Obed, Abdullah Al Bashir. Amman, Jordan; Goettingen, Germany.
- P-243 †** **BILIARY RECONSTRUCTION DURING ADULT LIVING DONOR LIVER TRANSPLANTATION. THE USE OF DUCTOPLASTY ADVERSELY AFFECTS THE OUTCOME. (Abstract # P-243)**
Juan Carlos Garcia-Valdecasas, Santiago Sanchez Cabus, Constantino Fondevila, David Calatayud, Raquel Garcia Roca, Josep Marti, Maria Marta Modolo, Adolfo Parayno, Arturo Mora, Jose Fuster. Barcelona, Spain.
- P-244** **HEMODYNAMIC MONITORING AND SMALL FOR SIZE SÍNDROME IN ADULT LIVING DONOR LIVER TRANSPLANTATION (LDLT). (Abstract # P-244)**
Santiago Sanchez Cabus, David Calatayud, Raquel Garcia Roca, Constantino Fondevila, Josep Marti, Joana Ferrer, Marco Antonio Loera, Antonio Alvarado, Jose Fuster, Juan Carlos Garcia-Valdecasas. Barcelona, Spain.
- P-245** **LIVING DONOR LIVER TRANSPLANTATION USING RIGHT LIVER GRAFT WITH HEMANGIOMATOSIS: CASE REPORT. (Abstract # P-245)**
Murat Dayangac, Onur Yaprak, Koray Bas, Levent Ulusoy, Cihan Duran, Refik Killi, Yildiray Yuzer, Yaman Tokat. Istanbul, Turkey.
- P-246** **LEFT VERSUS RIGHT LIVER GRAFTS FOR LIVING LIVER DONATION: OUTCOMES ANALYSIS OF 544 HEPATECTOMIES IN THE NSQIP DATASET. (Abstract # P-246)**
Thomas A. Aloia, Stephen Jones, Nadine Haykal, David Michel, Linda W. Moore, Joseph Galati, Ahmed O. Gaber, Barbara L. Bass, R. M. Ghorbail. Houston, TX, USA.

- P-247 ADULT LIVING DONOR LIVER TRANSPLANTATION USING RIGHT LOBE WITH HALF MIDDLE HEPATIC VEIN. (Abstract # P-247)**
Xiangcheng Li, Xuehao Wang, Feng Zhang, Cunming Liu. Nanjing, China.
- P-248 CLINICAL RELEVANCE OF ADAPTING PORTAL VEIN FLOW IN LIVING DONOR LIVER TRANSPLANTATION. (Abstract # P-248)**
Yongjun Chen, Baiyong Shen, Chenghong Peng, Hongwei Li. Shanghai, China.
- P-249 † REGENERATION OF SEGMENT IV IN LEFT LOBE REMNANTS: ANALYSIS OF OUTFLOW OBSTRUCTED TERRITORIES IN COMPUTED TOMOGRAPHY DATA. (Abstract # P-249)**
Andrea Schenk, Milo Hindennach, Arnold Radtke, Massimo Malagò, Christoph E. Broelsch, Sonja Kinner, Tobias Schroeder, Heinz-Otto Peitgen. Bremen, Germany; Essen, Germany; London, United Kingdom.
- P-250 SIMULTANEOUS LIVING DONOR KIDNEY AND LIVER TRANSPLANTATION: RESULTS OF DONORS. (Abstract # P-250)**
Tarkan Ünek, Hüseyin Astarcioglu, Tufan Egeli, Sedat Karademir, Ibrahim Astarcioglu, Hüseyin Gülay, Mert Akan, Sevda Özkardesler, Seymen Bora, Çigdem Arslan. Izmir, Turkey.
- P-251 THE RECONSTRUCTION OF THE VEINS AT LIVING RELATED LIVER TRANSPLANTATION. (Abstract # P-251)**
Oleg G. Kotenko, Denis A. Fedorov, Alexander V. Grinenko, Alexey O. Popov, Alexander A. Korshak, Andrey V. Gusev. Kiev, Ukraine.
- P-252 DONOR SURGICAL AND PERIOPERATIVE COMPLICATIONS IN 409 LIVING DONOR LIVER TRANSPLANTATIONS ACCORDING TO THE CLAVIEN CLASSIFICATION ADAPTED FOR LIVE LIVER DONORS. (Abstract # P-252)**
Chao-Long Chen, Allan Concejero, Chin-Hsiang Yang, Chih-Chi Wang, Shih-Ho Wang, Yueh-Wei Liu, Chee-Chien Yong, Bruno Jawan. Kaohsiung, Taiwan.
- P-253 † USING THE DUODENUM TO RECONSTRUCT THE BILIARY SYSTEM IN LIVE DONOR LIVER TRANSPLANTATION IS SUPERIOR TO A ROUX-EN-Y. (Abstract # P-253)**
J. Campsen, M. Zimmerman, S. Mandell, M. Wachs, T. Bak, I. Kam. Aurora, CO, USA.
- P-254 ACCELERATION OF LIVER REGENERATION BY MESENCHYMAL STEM CELL-DERIVED TROPHIC FACTORS IN THE CONTEXT OF IMMUNOSUPPRESSION. (Abstract # P-254)**
Suomi M. Fouraschen, Jeroen de Jonge, Qiuwei Pan, Herold J. Metselaar, Hugo W. Tilanus, Luc J. van der Laan. Rotterdam, Netherlands.
- P-255 PLATELET TRANSFUSION IS AN INDEPENDENT FACTOR RELATED WITH HUMAN LIVER REGENERATION IN LIVING DONOR LIVER TRANSPLANTATION. (Abstract # P-255)**
Joohyun Kim, Kyung-Suk Suh, Taehoon Kim, Woo Young Shin, Nam-Joon Yi, Kuhn Uk Lee. Seoul, Republic of Korea.

Malignancies

- P-256 PATHOLOGICAL DESCRIPTION OF NATIVE LIVER IN HIV-HCV COINFECTED PATIENTS TRANSPLANTED FOR HEPATOCELLULAR CARCINOMA – A COMPARATIVE STUDY WITH HCV MONOINFECTED PATIENTS. (Abstract # P-256)**
E. Vibert, M. R. Ghigna, R. Adam, D. Azoulay, D. Castaing, D. Samuel, C. Guettier, J. C. Duclos-Vallee. Villejuif, France.
- P-257 LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA: A PATHOLOGICAL-BASED ANALYSIS. (Abstract # P-257)**
Josep Martí, Carlo Sposito, Josep Fuster, Joana Ferrer, David Calatayud, Raquel Garcia-Roca, Santiago Sanchez, Constantino Fondevila, Alejandro Forner, Jordi Bruix, Josep Maria Llovet, Miquel Navasa, Antoni Rimola, Juan Carlos Garcia-Valdecasas. Barcelona, Spain.
- P-258 † THE SURVIVAL BENEFIT OF LIVER TRANSPLANTATION IN PATIENTS WITH HEPATOCELLULAR CARCINOMA. (Abstract # P-258)**
Alessandro Vitale, Anna Chiara Frigo, Francesco Grigoletto, Francesco D'Amico, Patrizia Burra, Davide F. D'Amico, Umberto Cillo. Padova, Italy.
- P-259 CYBERKNIFE THERAPY FOR ADVANCED PRIMARY TUMORS OF THE LIVER. (Abstract # P-259)**
Kush K. Goyal, Douglas Einstein, Charles Kunos, Deepojt Singh, Christopher Siegel, Juan Sanabria. Cleveland, OH, USA.
- P-260 LIVER TRANSPLANTATION FOR EXPANDED HEPATOCELLULAR CARCINOMA. (Abstract # P-260)**
Hamdi Karakayali, Gokhan Moray, Sinasi Sevmis, Nurten Savas, Ugur Yilmaz, Figen Ozcay, Adnan Torgay, Mehmet Haberal. Ankara, Turkey.
- P-261 INCIDENCE AND OUTCOME OF UPPER AERODIGESTIVE TUMORS AFTER LIVER TRANSPLANTATION. (Abstract # P-261)**
Carlos Jimenez-Romero, Alejandro Manrique, Elia Marques, Francisco Colina, Jorge Calvo, Alvaro Garcia-Sesma, Patricia Ortega, Felix Cambra, Enrique Moreno. Madrid, Spain.

- P-262 PROGRESSION OF HEPATOCELLULAR CARCINOMA BEFORE LIVER TRANSPLANTATION: DROPOUT OR LIVER TRANSPLANTATION? (Abstract # P-262)**
Alberto Brolese, Alessandro Vitale, Giacomo Zanus, Patrizia Boccagni, Daniele Neri, Nela Srsen, Francesco D'Amico, Enrico Gringeri, Francesco E. D'Amico, Patrizia Burra, Davide F. D'Amico, Umberto Cillo. Padova, Italy.
- P-263 CAN WE APPLY UCSF CRITERIA BY PRE-TRANSPLANT RADIOLOGIC IMAGING AS SELECTION CRITERIA FOR LIVER TRANSPLANTATION IN HEPATOCELLULAR CARCINOMA? (Abstract # P-263)**
Gi Hong Choi, Myoung Soo Kim, Man Ki Ju, Soo Jin Kim, Dong Jin Joo, Jin Sub Choi, Yu Seun Kim, Soon Il Kim. Seoul, Republic of Korea.
- P-264 POST-TRANSPLANT LYMPHOPROLIFERATIVE DISORDERS (PTLD) IN ADULT LIVER TRANSPLANTED PATIENTS WITH IMMUNOLOGICAL DISEASES. (Abstract # P-264)**
Tim Zimmermann, Vuk Tripkovic, Maria Hoppe-Lotichius, Thomas C. Wehler, Stefan Biesterfeld, Ana Paula Barreiros, Peter R. Galle, Gerd Otto, Marcus Schuchmann. Mainz, Germany.
- P-265 LIVING DONOR LIVER TRANSPLANTATION FOR ADVANCED HEPATOCELLULAR CARCINOMA: BEYOND MILAN CRITERIA. (Abstract # P-265)**
Dong-Goo Kim, Keung-Keun Lee, Jung-Hyun Park. Seoul, Korea.
- P-266 SHORT AND LONG TERM SURVIVAL BENEFITS OF ADJUVANT CHEMOTHERAPY IN POST OLT PATIENTS WITH HCC. (Abstract # P-266)**
Alejandro Mejia, Reem Ghalib, Cheryl Levine, Joann Cheah, Praveena Lammata, Abdullah Mubarak, Parvez Mantry, Jeffrey Weinstein, Edward Dominguez, Tiffany Anthony, Stephen Cheng. Dallas, TX, USA.
- P-267 USING RADIOFREQUENCY ABLATION OR PERCUTANEOUS ETHANOL INJECTION TO DESTROY HEPATOCELLULAR CANCERS (HCC) PRIOR TO LIVER TRANSPLANT IMPROVES PATIENT SURVIVAL EVEN WITH T3 CANCERS. (Abstract # P-267)**
Anthony Sebastian, Shi-Feng Li, Vivek Kohli, Yi Huang, Yong Ye, Ahmet Gurakar, Sajid Jalil, Harlan Wright. Oklahoma City, OK, USA.
- P-268 † BRINGING BACK HCC IN MILAN CRITERIA WITH AN AGGRESSIVE DOWNSTAGING BEFORE LIVER TRANSPLANTATION. AN EFFECTIVE STRATEGY? (Abstract # P-268)**
Alessandro Giacomoni, Andrea Lauterio, Abdallah Slim, Stefano Di Sandro, Vincenzo Pirotta, Iacopo Mangoni, Luciano De Carlis. Milano, Italy.
- P-269 EVALUATION OF SIROLIMUS AND/OR CELECOXIB TO PREVENT HEPATOCELLULAR CARCINOMA IN LIVER TRANSPLANT RECIPIENTS: A PILOT STUDY. (Abstract # P-269)**
Laura S. Michalski, Kellie Bennett, Holly Kramer, John Brems. Maywood, IL, USA; Louisville, KY, USA.
- P-270 LIVER TUMORS IN CHILDREN: A SINGLE CENTER EXPERIENCE. (Abstract # P-270)**
Mercedes Martinez, Steven J. Lobritto, Darrell J. Yamashiro, Dominique Jan, Jean Emond. New York, NY, USA.
- P-271 SEQUENTIAL TACE AND RFA IMPROVES POST LIVER TRANSPLANT OUTCOMES IN PATIENTS WITH HCC. (Abstract # P-271)**
Thomas A. Aloia, John A. Goss, David Michel, Nadine Haykal, Joseph Galati, Ahmed O. Gaber, R. M. Ghobrial. Houston, TX, USA.
- P-272 HEPATOCELLULAR CARCINOMA: RESULTS OF LIVER TRANSPLANTATION IN A SINGLE BRAZILIAN CENTER. (Abstract # P-272)**
Ana Carolina Gonzalez, Joyce Roma, Luciana Agoglia, Pollyana Oliveira, Cassia Guedes, Marcelo Enne, Elizabeth Balbi, Alexandre Cerqueira, Jefferson Alves, Jose Manoel Martinho, Lucio Pacheco-Moreira. Rio de Janeiro, Brazil.
- P-273 FIVE YEAR FOLLOW-UP OF HEPATOCELLULAR CARCINOMA TREATED WITH LIVER TRANSPLANTATION UNDER MILAN CRITERIA. (Abstract # P-273)**
Andres Valdivieso, Jorge Ortiz de Urbina, Javier Bustamante, Miguel Montejó, Jose R. Fernandez, Mikel Gastaca, Patricia Ruiz, Javier Gonzalez, Alberto Ventoso, Milagros Testillano, Maria J. Suarez. Bilbao-Baracaldo, Vizcaya, Spain.

Outcomes

- P-274 15 YEARS OF EXPERIENCE IN SPLIT LIVER TRANSPLANTATION. LIVER TRANSPLANT UNIT OF "12 OCTOBER" UNIVERSITY HOSPITAL, MADRID, SPAIN. (Abstract # P-274)**
Yiliam Fundora, Almudena Moreno, Juan C. Meneu, Baltasar Pérez, Manuel Abradelo, Alberto Gimeno, Carlos Jiménez, Enrique Moreno. Madrid, Spain.
- P-275 MANAGEMENT OF PORTAL AND SPLANCHNIC VEIN THROMBOSIS IN PATIENTS AWAITING LIVER TRANSPLANTATION (LT). (Abstract # P-275)**
Marco Senzolo, Cecilia Ferronato, Patrizia Boccagni, Daniele Gasparini, Diego Miotto, Maria Teresa Sartori, Umberto Cillo, Patrizia Burra. Padua, Italy; Udine, Italy.

- P-276 LIVER TRANSPLANTATION SURVIVAL RATES FOR FAMILIAL AMYLOIDOTIC POLYNEUROPATHY: A 15-YEAR EXPERIENCE AT A SINGLE CENTER IN BRAZIL. (Abstract # P-276)**
Fabricio G. Souza, Maira S. C. dos Santos, Thomsom M. Palma, Rafael Pecora, Leonardo R. Ferraz, Margareth P. Lallee, Carlos E. S. Baia, Eloisa H. D. Quintela, Ana Olga N. G. F. Mies, Ana Sueli C. Zan, Osvaldo I. Pereira, Sergio Mies. Sao Paulo, SP, Brazil.
- P-277 PREGNANCY FOLLOWING LIVER TRANSPLANTATION: A 20 YEAR EXPERIENCE. (Abstract # P-277)**
Rachel H. Westbrook, Andrew D. Yeoman, Kosh Agarwal, Varuna Aluvihare, John G. O'Grady, Matthew Bowles, Mohamed Rela, Nigel D. Heaton, Michael A. Heneghan. London, United Kingdom.
- P-278 OUTCOME OF LIVER TRANSPLANTATION FOR THE TREATMENT OF HAEMOPHILIA. (Abstract # P-278)**
Satoshi Yokoyama, Adam Bartlett, John O'Grady, Mohamed Rela, Nigel Heaton. London, United Kingdom.
- P-279 IMPACT OF ORTHOTOPIC LIVER TRANSPLANTATION IN SEVERE HEPATOPULMONARY SYNDROME: A SINGLE-CENTER EXPERIENCE. (Abstract # P-279)**
José C. Chaman, Pedro M. Padilla, Carlos F. Rondon, Eduardo G. Anchante, Felix A. Carrasco, Fernando M. Bobadilla. Lima, Peru.
- P-280 DE NOVO SYSTEMIC TRANSTHYRETIN AMYLOIDOSIS 9 YEARS AFTER DOMINO LIVER TRANSPLANTATION (DLT) – CASE REPORT AND SCREENING OF LITERATURE. (Abstract # P-280)**
Ana-Paula Barreiros, Rosa Walz, Christian Geber, Frank Birklein, Peter R. Galle, Gerd Otto. Mainz, Germany.
- P-281 HISTIDINE-TRYPTOPHAN-KETOGLUTARATE SOLUTION VS. UNIVERSITY OF WISCONSIN SOLUTION FOR DECEASED DONOR LIVER TRANSPLANTATION: ANALYSIS OF UNOS DATABASE. (Abstract # P-281)**
Gurkan Tellioglu, Bijan Egtesad, Joan M. Alster, David Yao, Songhua Lin, John Fung. Cleveland, OH, USA; Cleveland, USA.
- P-282 LIVER TRANSPLANTATION IN HIV POSITIVE PATIENTS: COMPARISON WITH A MATCHED HIV NEGATIVE POPULATION. (Abstract # P-282)**
Umberto Baccarani, Gian Luigi Adani, Marcello Tavio, Dario Lorenzin, Angela Londero, Francesco Bragantini, Chiara Comuzzi, Anna Rossetto, Federico Pea, Vittorio Bresadola, Davide Nicolini, Andrea Risaliti, Pierluigi Viale. Udne, Italy.
- P-283 DONOR INFLUENCE ON OUTCOME IN PATIENTS UNDERGOING LIVER TRANSPLANTATION FOR PBC. (Abstract # P-283)**
Dietmar A. Jacob, Ulf P. Neumann, Marcus Bagra, Peter Neuhaus. Berlin, Germany.
- P-284 20 YEAR-EVOLUTION OF LIVER TRANSPLANTATIONS IN EUROPE. REPORT OF THE EUROPEAN LIVER TRANSPLANT REGISTRY (ELTR). (Abstract # P-284)**
R. Adam, V. Karam, V. Delvart, J. Buckels, J. O'Grady, J. Klempnauer, D. Castaing, P. Neuhaus, N. Jamieson, ELITA. Villejuif, France; Birmingham, United Kingdom; London, United Kingdom; Groningen, Netherlands; Hannover, Germany; Berlin, Germany; Cambridge, United Kingdom.
- P-285 PATIENTS WITH HEPATOCELLULAR CARCINOMA BEYOND MILAN CRITERIA: SHOULD WE TACE OR LIVER TRANSPLANT? (Abstract # P-285)**
Jong Man Kim, Choon Hyuck David Kwon, Jae-Won Joh, Ju Ik Moon, Mill Jae Shin, Jae Min Chun, Gum O. Jung, Jae Berm Park, Gyu-Seong Choi, Sung-Joo Kim, Suk-Koo Lee. Seoul, Republic of Korea.
- P-286 CONFRONTATION OF SURVIVAL BEFORE AND AFTER THE INTRODUCTION OF MELD IN BRAZILIAN PATIENTS ON THE WAITING LIST OF LIVER TRANSPLANTATION. (Abstract # P-286)**
Rogério Soares Castro, Tiago Pereira Sevá, Jazon Romilson Almeida, Ilka Santana Boin, Elza Cotrim Soares, Leonardo Monici Trevisan. Campinas, Sao Paulo, Brazil.
- P-287 WILSON'S DISEASE AS AN INDICATION TO LIVER TRANSPLANTATION – A SINGLE CENTRE EXPERIENCE. (Abstract # P-287)**
Krzysztof Zieniewicz, Waldemar Patkowski, Tadeusz Wroblewski, Pawel Nyckowski, Rafal Paluszkiwicz, Krzysztof Dudek, Piotr Remiszewski, Marcin Kotulski, Mariusz Grodzicki, Magdalena Urban, Marek Krawczyk. Warszawa, Poland.
- P-288 † PRE-TRANSPLANT RECIPIENT ICU AND VENTILATOR DEPENDENCY DOES NOT PREDICT FUTILITY OF LIVER TRANSPLANTATION IN PATIENTS WITH END-STAGE CHRONIC LIVER DISEASE. (Abstract # P-288)**
Markus Selzner, Arash Kafshi, Nazia Selzner, Paul D. Greig, Mark S. Catral, Les Lilly, George Therapondos, Lesley E. Adcock, Ian D. McGilvray, Gary A. Levy, Eberhard L. Renner, David R. Grant. Toronto, ON, Canada.
- P-289 † OUTCOMES OF SIMULTANEOUS LIVER KIDNEY TRANSPLANT ARE NOT AFFECTED BY PRE-TRANSPLANT DONOR SPECIFIC ANTIBODIES. (Abstract # P-289)**
S. I. Hanish, M. Samaniego, G. Levenson, A. M. D'alessandro, L. A. Fernandez. Madison, WI, USA.

- P-290** **EXCELLENT OUTCOME AFTER LATE RETRANSPLANTATION OF THE LIVER DURING THE LAST DECADE. (Abstract # P-290)**
Wojciech G. Polak, Paul M. J. Peeters, Koert P. de Jong, Marieke T. de Boer, Aad P. van den Berg, Henkjan J. Verkade, Rene Scheenstra, Elizabeth B. Haagsma, Herman G. D. Hendriks, Maarten J. H. Slooff, Robert J. Porte. Groningen, Netherlands.
- P-291** **A RECIPIENT'S PREOPERATIVE SODIUM, OBESITY AND PERIOPERATIVE TRANSFUSIONS PREDICTS RENAL DYSFUNCTION AFTER LIVER TRANSPLANTATION IN PATIENTS WITH NORMAL RENAL FUNCTION PRIOR. (Abstract # P-291)**
Richard Gilroy, Erik Schadde, Ryan Taylor, Chris Wilbert, Neal Peterson, Greg Isaac, James Kindscher. Kansas City, KS, USA.
- P-292** **THE CONTRIBUTION OF PRE- AND POST-LIVER TRANSPLANT TOBACCO USE TO OUTCOMES. (Abstract # P-292)**
Andrea DiMartini, Paulo Fontes, Mary Amanda Dew, Michael de Vera. Pittsburgh, PA, USA.
- P-293** **OUTCOME OF TRANS-JUGULAR INTRAHEPATIC PORTOSYSTEMIC SHUNT (TIPS) FOLLOWING LIVER TRANSPLANTATION. (Abstract # P-293)**
Mohammad Al-Freah, Rizwan Mahmoud, Matthew Foxton, Julia Wendon, Michael Heneghan, John O'Grady, Pauline Kane, John Karani, Mohammed Rela, Nigel Heaton. London, Denmark Hill, United Kingdom.
- P-294** **PATIENTS WITH PREOPERATIVE HEPATORENAL SYNDROME (HRS) HAVE COMPARABLE LONG-TERM OUTCOMES AFTER LIVE-DONOR LIVER TRANSPLANTATION (LDLT). (Abstract # P-294)**
Siu Ho Kenneth Chok, Chung Mau Lo, Kwok Chai Kelvin Ng, See Ching Chan. Hong Kong SAR, Hong Kong.
- P-295** **CHRONIC KIDNEY DISEASE POST LIVER TRANSPLANTATION. (Abstract # P-295)**
Jeyamani Ramachandran, Libby John, Rajiv Juneja, Amit K. Dutta, Richard Woodman, Alan J. Wigg. Adelaide, South Australia, Australia; Adelaide, SA, Australia; Vellore, Tamilnadu, India.
- P-296** **ECONOMIC AND CLINICAL OUTCOMES ANALYSIS COMPARING PREEMPTIVE VERSUS INTRAOPERATIVE FACTOR VIIa ADMINISTRATION DURING ORTHOTOPIC LIVER TRANSPLANTATION (OLT). (Abstract # P-296)**
Jenna L. Scheffert, Nicole A. Weimert, Neha Patel, David J. Taber, Brienne L. Dunn, Angello Lin, John E. McGillicuddy, Michael G. Hughes, Charles F. Bratton, Kenneth D. Chavin, Prabhakar K. Baliga. Charleston, SC, USA.
- P-297 †** **SINGLE CENTER EXPERIENCE WITH VALGANCICLOVIR (VGC) PROPHYLAXIS IN ADULT ORTHOTOPIC LIVER TRANSPLANT (OLT) RECIPIENTS. (Abstract # P-297)**
Curtis D. Holt, Kiran Dhanireddy, Sammy Saab, Theodore Sievers, Sherilyn Gordon-Burroughs, Jhonny Hong, John Duffy, Douglas Farmer, Christopher Jones, Fady Kaldas, Emad Asham, Ronald Busuttill. Los Angeles, CA, USA; Galveston, TX, USA.
- P-298** **THE EFFECTS OF ANTIVIRAL DRUGS ON REGENERATION IN CIRRHOTIC LIVERS: A STUDY OF STATS, INTERLEUKINS AND KI-67. (Abstract # P-298)**
Hale Kirimlioglu, Abuzer Dirican, Faik Tatli, Burcu Aydin, Sezai Yilmaz, Vedat Kirimlioglu. Malatya, Turkey.
- P-299** **LIVER TRANSPLANTATION FOR ACUTE LIVER FAILURE. (Abstract # P-299)**
Gokhan Moray, Hamdi Karakayali, Figen Ozcay, Adnan Torgay, Beyhan Demirhan, Gulnaz Arslan, Mehmet Haberal. Ankara, Turkey.
- P-300** **MEDICAL PROCEDURES IN PATIENTS WITH CHRONIC LIVER DISEASE: THROMBOCYTOPENIA AND TRANSFUSION USE. (Abstract # P-300)**
M. P. Curry, N. H. Afdhal, R. S. Brown, Jr., R. Odeh-Ramadan, R. Reddy, F. Poordad, T. D. Schiano, M. R. Charlton, S. B. Han, D. Theodore, K. Grotzinger, J. Ishak, K. Payne. Boston, MA, USA; New York, NY, USA; Philadelphia, PA, USA; Los Angeles, CA, USA; Rochester, MN, USA; Collegeville, PA, USA; Nashua, NH, USA.
- P-301** **SURVIVAL OUTCOMES OF PATIENTS AFTER LIVER TRANSPLANTATION FOR ALCOHOLIC LIVER DISEASE AND HBV/HCV CO-INFECTION. (Abstract # P-301)**
Oskar Kornasiewicz, Krzysztof Dudek, Rafal Stankiewicz, Marek Krawczyk. Warsaw, Poland.
- P-302** **THE MELD SCORE IN FRANCE: THE OTHER SIDE OF THE COIN: A MATCHED CASE CONTROL STUDY OF POSTOPERATIVE MORTALITY BEFORE AND AFTER THE ESTABLISHMENT OF THE MELD SCORE. (Abstract # P-302)**
Barbara J. Alkofer, Laurence Chiche, Alain Bessodes, Desiré Samba, Vincent Lepennec, Ephrem Salame. Caen, France, Metropolitan.
- P-303** **PORTAL FLOW-BASED VIABILITY TESTING OF POST-TRANSPLANT LIVER FUNCTION. (Abstract # P-303)**
Marek J. Pacholczyk, Beata Lagiewska, Maciej Kosieradzki, Leszek Adadynski, Gajusz Gontarczyk, Janusz Trzebicki, Wojciech Lisik, Dariusz Wasiak, Andrzej Chmura. Warsaw, Poland.
- P-304** **IMPACT OF PREOPERATIVE RENAL DYSFUNCTION ON LIVING DONOR LIVER TRANSPLANTATION. (Abstract # P-304)**
Dong-Goo Kim, Keung-Keun Lee, Jung-Hyun Park. Seoul, Korea.

P-305 PRE-TRANSPLANT TROPONIN LEVELS HELP TO PREDICT LONG-TERM POST-TRANSPLANT CARDIAC EVENTS. (Abstract # P-305)
Kymberly Watt, Elizabeth Coss Zevallos, Rachel Pedersen, Ross Dierkhising, Michael Charlton. Rochester, MN, USA.

Patient Selection/Organ Allocation

- P-306 MASS MEDIA INFLUENCY IN ORGAN DONATION IN SAO PAULO, BRAZIL. (Abstract # P-306)**
Wellington Andraus, Mauricio A. Barros, Vinicius R. Santos, Rodrigo B. Martino, Roberto Meirelles, Antonio Roberto Teixeira, Estela R. R. Figueira, Fabio F. Makdissi, Andre C. Oliveira, Flavio Galvao, Luiz A. C. D'Albuquerque. Sao Paulo, Brazil.
- P-307 PAIRED EXCHANGE LIVING DONOR PEDIATRIC LIVER TRANSPLANTATION FOR GRAFT-SIZE MISMATCH. (Abstract # P-307)**
Ifthikhar Khan, Zahid Arain, Ahmed Elgohary, Hammood Hebby, Sami Wali, Atef Bassas. Riyadh, Saudi Arabia.
- P-308 INDICATING LIVER TRANSPLANTATION FOR FULMINANT HEPATIC FAILURE. THE APACHE III SCORE IS SUPERIOR TO MELD SCORE AND KINGS COLLEGE HOSPITAL CRITERIA. (Abstract # P-308)**
Panagiotis Fikatas, Frank Ulrich, Ji Eun Lee, Sascha Chopra, Andreas Pascher, Olaf Guckelberger, Gero Puhl, Ulf Neumann, Peter Neuhaus, Johann Pratschke. Berlin, Germany.
- P-309 LIVER TRANSPLANTATION AND MORBID OBESITY: A MULTI-CENTER STUDY. (Abstract # P-309)**
Hosein Shokouh-Amiri, Santiago R. Vera, Ahmad O. Gaber, Reza Mehrazin, Nosratollah Nezakatgoo, Robert McMillan, Hany M. Dabbous, Doria Cataldo, Dinesh Ranjan, Gazi B. Zibari. Shreveport, LA, USA; Memphis, TN, USA; Houston, TX, USA; Philadelphia, PA, USA; Lexington, KY, USA.
- P-310 IDENTIFICATION OF NEW DONOR VARIABLES ASSOCIATED WITH GRAFT SURVIVAL IN A SINGLE-CENTER LIVER TRANSPLANT COHORT. (Abstract # P-310)**
Otmane Nafidi, André Roy, Denis Marleau, Marc Bilodeau. Montréal, QC, Canada.
- P-311 A NOVEL PSYCHOSOCIAL RISK MODEL IDENTIFIES PATIENTS AT-RISK FOR POOR POST-TRANSPLANT OUTCOMES. (Abstract # P-311)**
Thomas A. Aloia, Nadine Haykal, John Ontiveros, Shelley Spector, Andrea Duchini, Howard Monsour, Joseph Galati, Ahmed O. Gaber, R. M. Ghobrial. Houston, TX, USA.
- P-312 BILE DUCT NECROSIS MIMICKING A HILAR BILE DUCT CANCER DURING LIVING DONOR LIVER TRANSPLANTATION. (Abstract # P-312)**
Sun Hyung Joo, Bum Soo Kim, Suk Hwan Lee, Sang Mok Lee, Ho Chul Park. Seoul, Korea.

P-313 FEASIBILITY OF USING GRAFTS FROM MARGINAL DONORS IN LIVER RETRANSPLANTATION. A SINGLE-CENTER ANALYSIS. (Abstract # P-313)
Josep Martí, Constantino Fondevila, Maria Marta Modolo, David Calatayud, Santiago Sanchez, Joana Ferrer, Raquel Garcia-Roca, Josep Fuster, Juan Carlos Garcia-Valdecasas. Barcelona, Spain.

P-314 CREATININE CALCULATED FROM TIMED CREATININE CLEARANCE CORRELATES MORE STRONGLY WITH PRE-TRANSPLANT MORTALITY THAN MEASURED SERUM CREATININE. (Abstract # P-314)
Patrick P. McHugh, Thomas D. Johnston, Roberto Gedaly, Hoonbae Jeon, Dinesh Ranjan. Lexington, KY, USA.

Pediatrics

- P-315 BILIARY RECONSTRUCTION IN PEDIATRIC LIVING-DONOR LIVER TRANSPLANTATION: BILIO-ENTERIC OR DUCT TO DUCT. (Abstract # P-315)**
Hisham Abdelkader, Hatem Saafan, Amr Abdelaal, Mohamed Fathy, Mohamed Bahaa, Mohamed Shaker, Ahmed Mokhtar, Hany Saied, Mahmoud Meteini, Olivier Boilot, Alaa F. Hamza. Cairo, Egypt.
- P-316 DONOR FACTORS PREDICTING GRAFT FAILURE AFTER PEDIATRIC LIVER TRANSPLANTATION. (Abstract # P-316)**
Oliver B. Lao, James D. Perkins, Andre A. S. Dick, Patrick J. Healey, Jorge D. Reyes. Seattle, WA, USA.
- P-317 OUTCOME OF VASCULAR ANASTOMOSES IN LIVING RELATED PEDIATRIC LIVER TRANSPLANTATION. (Abstract # P-317)**
Mohamed Shaker, Hisham Abdelkader, Mohamed Fathy, Amr Abdelaal, Mohamed Bahaa, Ahmed Mokhtar, Ahmed Eldory, Mahmoud ElMeteini, Alaa Hamza. Cairo, Egypt.
- P-318 SUCCESSFUL LIVER RETRANSPLANTATION FOR A CHILD WITH HEPATOPULMONARY SYNDROME DUE TO PORTAL VEIN OCCLUSION AFTER LIVER TRANSPLANTATION. (Abstract # P-318)**
Joo Young Jang, Kyung Mo Kim, Seak Hee Oh, Dae Yeon Kim, Ki Hun Kim, Kwang Min Park, Young Joo Lee, Sung Gyu Lee. Seoul, Korea.
- P-319 RISK FACTORS PREVALENCE FOR PREMATURE CARDIOVASCULAR DISEASE IN PEDIATRIC OLT PATIENTS. (Abstract # P-319)**
Carlos E. Gonzalez Cambaceres, Yanina Camiser, Maria B. Araujo, Oscar C. Inventarza, Carmen Mazza. Buenos Aires, Argentina; , Argentina; Buenos Aires.

- P-320 SURVEILLANCE OF EPSTEIN-BARR VIRUS INFECTION IN CHILDREN ON GANCICLOVIR-VALGANCICLOVIR PROPHYLAXIS FOR 6 MONTHS AFTER LIVER TRANSPLANTATION. (Abstract # P-320)**
 Esteban Frauca, Loreto Hierro, Angela de la Vega, Carmen Camarena, Gema Muñoz Bartolo, Ruth Díez, Carmen Díaz, Jose Luis Encinas, Francisco Hernandez, Nuria Leal, Javier Murcia, Manuel Gámez, Manuel López Santamaría, Paloma Jara. Madrid, Spain.
- P-321 LONG-TERM OUTCOME OF PEDIATRIC LIVING DONOR LIVER TRANSPLANTATION FOR NEONATAL HEPATITIS. (Abstract # P-321)**
 Yueh-Wei Liu, Chao-Long Chen, Chih-Chi Wang, Shih-Ho Wang, Allan M. Concejero, Chee-Chien Yong, Chin-Hsiang Yang, Bruno Jawan, Yu-Fan Cheng. Kaohsiung, Taiwan.
- P-322 LIVER TRANSPLANT REVERSES PORTAL HYPERTENSION ASSOCIATED HYPOALBUMINEMIA AND GROWTH FAILURE IN A PATIENT WITH ARPKD. (Abstract # P-322)**
 Vera F. Hupertz, Reema Gulati, Bijan Eghtesad. Cleveland, OH, USA.
- P-323 LIVER TRANSPLANTATION FOR UNRESECTABLE HEPATOBLASTOMA IN CHILDREN. (Abstract # P-323)**
 Srinath Chinnakotla, Naveen Mittal, Martha Stegner, Amanda Blair, Lisa Cutright, Edmund Q. Sanchez, Richard Ruiz, Greg J. McKenna, Henry B. Randall, Goran B. Klintmalm. Dallas, TX, USA; Dallas/Ft. Worth, TX, USA.

Radiology

- P-324 TURBULENT PORTAL FLOW AFTER LIVING DONOR LIVER TRANSPLANTATION: PREVALENCE, ASSOCIATED CT FINDINGS, AND CLINICAL SIGNIFICANCE ON LONGTERM FOLLOW-UP. (Abstract # P-324)**
 Kyoung Won Kim, So Jung Lee, Woo Kyoung Jeong, Gi-Won Song, Shin Hwang, Sung-Gyu Lee. Seoul, Korea; Guri, Korea.
- P-325 EVALUATION OF THE HEPATIC ARTERY ANASTOMOSIS BY INTRAOPERATIVE ULTRASONOGRAPHY WITH HIGH-FREQUENCY TRANSDUCER IN RIGHT-LOBE GRAFT LIVING DONOR LIVER TRANSPLANTATION. (Abstract # P-325)**
 Kyoung Won Kim, Han Song Mun, Gi-Won Song, Chul-Soo Ahn, So Yeon Kim, Shin Hwang, Sung-Gyu Lee. Seoul, Korea; Seongnam, Korea.
- P-326 † LIVER GRAFT REGENERATION IN RIGHT LOBE ADULT LIVING DONOR LIVER TRANSPLANTATION. (Abstract # P-326)**
 Yu-Fan Cheng, Tung-Liang Huang, Tai-Yi Chen, Leo Leung-Chit Tsang, Chao-Long Chen. Kaohsiung, Taiwan.

- P-327 INTRA-OPERATION MODULATION OF PORTAL GRAFT INFLOW BY SPLENIC ARTERY LIGATION OR SPLENECTOMY IN HIGH RECIPIENT PORTAL INFLOW DETECTED BY COLOR DOPPLER ULTRASOUND. (Abstract # P-327)**
 Hsin-You Ou, Tung-Liang Huang, Tai-Yi Chen, Leo Leung-Chit Tsang, Allan M. Concejero, Chao-Long Chen, Yu-Fan Cheng. Kaohsiung, Taiwan.
- P-328 AN ALTERNATIVE PERCUTANEOUS TRANSPLANTIC APPROACH IN TREATMENT OF PORTAL VENOUS OCCLUSION AFTER LIVING DONOR LIVER TRANSPLANT. (Abstract # P-328)**
 Tung Liang Huang, Yu Fan Cheng, Shin You Ou, Leo Leung Chit Tsang, Chun Yen Yu, Chao Long Chen. Kaohsiung, Taiwan.
- P-329 TREATMENT OF PSEUDOANEURYSM FOLLOWING LIVER BIOPSY. (Abstract # P-329)**
 Kwan Woo Kim, Sung Gyu Lee, Shin Hwang, Ki Hun Kim, Chul Soo Ahn, Deok Bog Moon, Tae Yong Ha, Gi Won Song, Dong Hwan Jung, Je Ho Ryu, Nam Kyu Choi, Young Dong Yu, Gil Chun Park, Joo Dong Kim. Seoul, Republic of Korea.
- P-330 SUCCESSFUL SEQUENTIAL THROMBOLYSIS AND BALLOON DILATATION OF VENA CAVAL THROMBOSIS AND STENOSIS POST LIVER TRANSPLANTATION. (Abstract # P-330)**
 Ifitikhar Khan, Mohammad Al-Jared, Ahmed Elgohary, Yahya Saleh, Rehana Nisar, Hosham Malik, Zahid Arain, Hammood Hebibi, Sami Wali, Atef Bassas. Riyadh, Saudi Arabia.
- P-330.5 MRCP ACCURATELY DIAGNOSED BILIARY COMPLICATIONS AFTER LIVER TRANSPLANTATION: A COMPARISON WITH ENDOSCOPIC RETROGRADE CHOLANGIOGRAPHY AND PERCUTANEOUS TRANSHEPATIC CHOLANGIOGRAPHY. (Abstract # P-330.5)**
 Lior H. Katz, Ofer Benyaminov, Marius Brown, Jaquelin Sulkas, Eitan Mor, Ziv Ben-Ari. Petach-Tikva, Israel; Tel-Aviv, Israel.

Recurrent Disease/Pathology

- P-331 SURVIVAL OF CLOSTRIDIUM PERFRINGENS SEPSIS IN A LIVER TRANSPLANT RECIPIENT. (Abstract # P-331)**
 Geraldine Diaz, Thomas Boyer, Rainer Gruessner, John Renz, John Renz. Tucson, AZ, USA.
- P-332 A RANDOMIZED, CONTROLLED, OPEN LABEL STUDY TO EVALUATE THE EFFECT OF EVEROLIMUS ON FIBROSIS PROGRESSION IN LIVER TRANSPLANT RECIPIENTS WITH RECURRENT HEPATITIS C: THE REVERT STUDY. (Abstract # P-332)**
 E. Villamil, A. Gadano, F. Zingale, R. R. Perez, S. Yantorno, A. Otero, A. Avagnina. Buenos Aires, Argentina; Rosario, Argentina; Mendoza, Argentina; , Argentina.

- P-333 TREATMENT OF HEPATIC STEATOSIS FOLLOWING LIVER TRANSPLANTATION. (Abstract # P-333)**
Sean C. Kumer, Curtis K. Argo, Patrick L. Northup, Carl Berg, Abdullah Al-Osaimi, Steve Caldwell, Timothy L. Pruett, Timothy M. Schmitt. Charlottesville, VA, USA.
- P-334 IT IS LIVER TRANSPLANTATION NECESSARY FOR HEPATOPORTAL SCLEROSIS? (Abstract # P-334)**
Elaine C. Ataide, Marilia I. Leonardi, Raquel B. Stucchi, Adilson R. Cardoso, Cristina A. Caruy, Jazon R. Almeida, Tiago S. Pereira, Cecilia A. F. Escanhoela, Ilka F. S. F. Boin. Campinas, Sao Paulo, Brazil.
- P-335 † EARLY DIAGNOSIS AND TREATMENT OF BILIARY ANASTOMOTIC STRICTURES AFTER PEDIATRIC SPLIT LIVER TRANSPLANTATION. (Abstract # P-335)**
Marco Spada, Pieralba Catalano, Roberto Miraglia, Fabrizio Di Francesco, Silvia Riva, Davide Cintonino, Marco Sciveres, Bruno Gridelli. Palermo, Italy.
- P-336 THE SAFETY AND EFFICACY OF HBIG IN COMBINATION WITH ETV OR LVD IN PREVENTING RECURRENCE OF HBV AFTER LIVER TRANSPLANTATION WAS EVALUATED HERE. (Abstract # P-336)**
Wang Dong, Ye Ji Zhu, Ming Guang Li, Sheng Xi Leng. Beijing, China.
- P-337 TEMPORAL (GIANT CELL) ARTERITIS & BRUCELOSIS POST LIVER TRANSPLANTATION PRESENTING WITH OBSTRUCTIVE PATTERN OF LIVER ENZYMES. (Abstract # P-337)**
Mohammad M. Hamshow, Abdaal W. Khan, Sherif El Hanafi, Abdulmajeed Al Abdulkareem. Riyadh, Saudi Arabia.
- P-338 PREVENTION OF HEPATITIS B RECURRENCE POST LIVER TRANSPLANT: USE OF IM HBIG. (Abstract # P-338)**
Anwar Jarrad, Saeb Hammoudi, Muawieh Ababneh, Aiman Obed, Abdulla Al Bashir. Amman, Jordan; Goettingen, Germany.
- P-339 PRETRANSPLANT PRIMARY BILIARY CIRRHOSIS RECURRED POST TRANSPLANT AS AUTOIMMUNE HEPATITIS. (Abstract # P-339)**
Anwar Jarrad, Hassn Enab, Saeb Hammoudi, Aiman Obed, Abdulla Al Bashir. Amman, Jordan; Goettingen, Germany.
- P-340 INTRAOPERATIVE RED CELL AND PLATELET TRANSFUSION HAVE NO EFFECT ON SURVIVAL OR HISTOLOGIC DISEASE RECURRENCE IN HEPATITIS C PATIENTS AFTER LIVER TRANSPLANTATION. (Abstract # P-340)**
Mark J. Rice, Adam Wendling, Roberto J. Firpi, Alan W. Hemming, David R. Nelson, Wilhelm K. Schwab, Nikolaus Gravenstein, Timothy E. Morey. Gainesville, FL, USA.
- P-341 CHANCES AND LIMITATIONS OF NONINVASIVE TESTS IN THE ASSESSMENT OF LIVER FIBROSIS IN LIVER TRANSPLANT PATIENTS. (Abstract # P-341)**
Carsten Kamphues, Lotz Katharina, Röcken Christoph, Neumann P. Ulf, Neuhaus Peter. Berlin, Germany.
- P-342 THE HEPATITIS B VIRUS (HBV) SERO-NEGATIVE CONVERSION WITH ENTECAVIR AND HIGH DOSE HBIG COMBINATION THERAPY FOR THE PATIENTS WITH HBV RECURRENCE AFTER LIVER TRANSPLANTATION. (Abstract # P-342)**
Young-Kyu Kim, Kwang-Woong Lee, Seong Yeong Cho, Sung-Sik Han, Seong Hoon Kim, Sun-Young Kong, Yu Mi Lee, Sang Jae Park. Goyang-si, Gyeonggi-do, Korea.

Surgical Techniques/Complications

- P-343 PRETRANSPLANT PORTAL VEIN THROMBOSIS: HOW TO SUCCESSFULLY RESTORE PORTAL FLOW (PF) INTO THE GRAFT. (Abstract # P-343)**
Gi-Won Song, Sung-Gyu Lee, Shin Hwang, Chul-Soo Ahn, Deok-Bog Moon, Kyoung-Won Kim, Ja-Young Cho. Seoul, Korea.
- P-344 VERY EARLY HEPATIC ARTERY THROMBOSIS AFTER LIVER TRANSPLANTATION MAY NOT BE DETECTED BY POST-OPERATIVE TRANSAMINASE ELEVATION. (Abstract # P-344)**
Vasilios Papanikolaou, Dionisios Vrochides, Georgios Imvrios, Dimitrios Giakoustidis, Ioannis Fouzas, Nikolaos Antoniadis, Achilleas Ntinas, Dimitrios Kardasis, Evangelos Akriviadis, Themistoklis Vasiliadis, Ioannis Goulis, Eva Anagnostara, Evangelia Katsiki, Nikolaos Ouzounidis, Georgios Tsoulfas, Tatiana Amvrosidou, Anastasios Tsitlakidis, Dimitrios Takoudas. Thessaloniki, Greece.
- P-345 COMPARISON OF TECHNICAL VARIANT AND WHOLE ORGAN LIVER GRAFTS IN THE ERA OF MELD. (Abstract # P-345)**
Felix Braun, Human Honarpisheh, Rainer Guenther, Jessica Walter, Maren Schulze, Martin Burdelski, Dieter C. Broering. Kiel, Germany.
- P-346 RECIPIENT OUTCOMES IN DOMINO LIVER TRANSPLANTATION (LT) WITH DONOR VENA CAVA PRESERVATION (VCP). (Abstract # P-346)**
R. Garcia-Roca, M. M. Modolo, P. Taura, J. Beltran, S. Sanchez, J. Marti, J. Ferrer, D. Calatayud, C. Fondevila, J. Fuster, J. C. Garcia-Valdecasas. Barcelona, Spain.
- P-347 MAJOR HEPATECTOMY UNDER TOTAL VASCULAR ISOLATION: A ROLE OF ISCHEMIC PRECONDITIONING, A RETROSPECTIVE STUDY. (Abstract # P-347)**
JangYong Jeon, Jean C. Emond. Anyang, Kyungki, Republic of Korea; NewYork, NY, USA.

- P-348 VENOUS RECONSTRUCTION FOR A RIGHT LOBE GRAFT WITH MULTIPLE VENOUS ORIFICES IN LIVING DONOR LIVER TRANSPLANTATION. (Abstract # P-348)**
Fernando Rotellar, Fernando Pardo, Pablo Martí-Cruchaga, Ignacio Herrero, Bruno Sangro, Mercedes Iñarrairaegui, Gabriel Zozaya, Javier A.-Cienfuegos. Pamplona, Spain.
- P-349 CONTRAST ENHANCED ULTRASOUND (CEUS): A NEW LOW-COST IMAGING PROCEDURE FOR HEPATIC ARTERY AND PORTAL VEIN EARLY COMPLICATIONS AFTER LIVER TRANSPLANTATION. (Abstract # P-349)**
Roberto M. Lauro, Umberto Maggi, Giovanni Paone, Paolo Bertoli, Giorgio Rossi. Milan, Italy.
- P-350 THE EFFECT OF DIFFERENT TECHNIQUES FOR BILE DUCT ANASTOMOSIS ON POST-TRANSPLANT BILIARY COMPLICATION IN LIVING DONOR LIVER TRANSPLANTATION. (Abstract # P-350)**
Man Ki Ju, Gi Hong Choi, Jin Sub Choi, Dong Jin Joo, Soo Jin Kim, Soon Il Kim, Myoung Soo Kim, Yu Seun Kim. Seoul, Republic of Korea.
- P-351 LATERO-LATERAL CAVAL ANASTOMOSIS WITHOUT VENO-VENOUS BYPASS AND TEMPORARY PORTO-CAVAL SHUNT IN LIVER TRANSPLANTATION: PROSPECTIVE EXPERIENCE. (Abstract # P-351)**
Matteo Donataccio, Giorgio C. Dalle Ore, Dino Donataccio, Marcello Ceola, Maurizio Dan. Verona, VR, Italy.
- P-352 INFLOW OR OUTFLOW? INTRACTABLE ASCITES AFTER OLT. (Abstract # P-352)**
Scott A. Fink, James V. Guarrera, Wei Zhang, Martin R. Prince, Robert S. Brown, Jean Emond. New York, NY, USA.
- P-353 THE IMPACTS OF CONCOMITANT SPLENECTOMY ON PORTAL PRESSURE IN LIVER CIRRHOSIS PATIENTS. (Abstract # P-353)**
Sang Geol Kim, Yoon Jin Hwang, Kyung Hee Nam, Jae Min Cheon, Young Gook Yun, Jong Yeol Kim. Daegu, Republic of Korea.
- P-354 SPLIT LIVER TRANSPLANTATION IN ADULT AND PEDIATRIC RECIPIENTS: A 16 YEAR EXPERIENCE IN A SINGLE CENTER. (Abstract # P-354)**
Olivier Boillot, Gabriella Pittau, Thomas Gelas, Mustapha Adham, Jérôme Dumortier, Olivier Guillaud, Yves Bouffard, Catherine Boucaud, Charles Ber, Pierre Sagnard. Lyon, France.
- P-355 LONG-TERM OUTCOME OF HEPATIC ARTERY ANASTOMOSIS USING CONTINUOUS SUTURE TECHNIQUE IN LIVING DONOR LIVER TRANSPLANTATION. (Abstract # P-355)**
Nam-Joon Yi, Kyung-Suk Suh, Taehoon Kim, Joohyun Kim, Woo Young Shin, Kuhn Uk Lee. Seoul, Korea.
- P-356 MICROVASCULAR RECONSTRUCTION OF HEPATIC ARTERY: PERSONAL EXPERIENCE ON 500 CASES. (Abstract # P-356)**
Mehmet Alper, Murat Zeytunlu, Murat Kilic. Izmir, Turkey.
- P-357 ABDOMINAL HERNIA IN WAITING LIST PATIENTS: WHAT IS THE BEST POLICY? (Abstract # P-357)**
Wellington Andraus, Ailton Sepulveda, Mauricio Barros, Antonio Roberto Teixeira, Rodrigo B. Martino, Vinicius R. Santos, Andre C. Oliveira, Fabio F. Makdissi, Estela R. Figueira, Roberto Meirelles, Luiz A. C. D'Albuquerque. Sao Paulo, Brazil.
- P-358 SEQUENTIAL TREATMENT OF HCC IN A PATIENT WITH HBV CIRRHOSIS AND LUNG TUBERCULOSIS CAVITATION: LOCAL ABLATION, LEFT LUNG PNEUMONECTOMY, LIVER TRANSPLANTATION. (Abstract # P-358)**
Matteo Donataccio, Giorgio C. Dalle Ore, Dino Donataccio, Marcello Ceola, Michela Ricci, Maurizio Dan, Francesco Calabrò. Verona, VR, Italy.
- P-359 SPLIT LIVER TRANSPLANTATION FOR TWO ADULT RECIPIENTS IN A EUROPEAN MELD-BASED ALLOCATION SYSTEM. (Abstract # P-359)**
Matteo Cescon, Gian Luca Grazi, Matteo Ravaioli, Giorgio Ercolani, Massimo Del Gaudio, Marco Vivarelli, Augusto Lauro, Matteo Zanello, Gaetano Vetrone, Alesandro Cucchetti, Antonio D. Pinna. Bologna, Italy.
- P-360 HIGH INCIDENCE BUT LOW RATE OF REPAIR OF INCISIONAL HERNIAS AFTER LIVER TRANSPLANTATION. (Abstract # P-360)**
Benjamin Samstein, Elsa Pichardo, Tomy Perez, Robert Brown, Jean Emond. New York, NY, USA.
- P-361 BLOOD SALVAGE DURING ORTHOTOPIC LIVER TRANSPLANTATION (OLT) CAN SIGNIFICANTLY REDUCE THE DEMAND FOR BANKED RED BLOOD CELLS. (Abstract # P-361)**
James D. Kindscher, Martin De Ruyter, Melissa Rockford, Amy Pichoff, Malik Hamid, John Nachtigal. Kansas City, KS, USA.
- P-362 BILIARY DRAINAGE OF DUCT-TO-DUCT ANASTOMOSIS IN ADULT WHOLE-ORGAN LIVER TRANSPLANTATION: INCREASED MORBIDITY AND NO BENEFIT. (Abstract # P-362)**
Robert Klek, Jerzy Lubikowski, Mariola Post, Jacek Butkiewicz, Konrad Jarosz, Andrzej Bialek, Piotr Milkiewicz, Maciej Wojcicki. Szczecin, Poland.

- P-363 † IMPACT OF TEMPORARY PORTO-CAVAL SHUNT (TPCS) IN LIVER TRANSPLANTATION (OLT). (Abstract # P-363)**
Davide Ghinolfi, Gonzalo Rodriguez-Laiz, Kishore Iyer, Mark Sturdevant, Hiroshi Sogawa, Gloria Immordino, Felipe Maegawa Boff, Alan Contreras Saldívar, Noorul Khan, Thomas Schiano, Juan Del Rio Martin. New York, NY, USA.
- P-364 VASCULAR COMPLICATIONS IN RIGHT LOBE LIVING DONOR LIVER TRANSPLANTATION. (Abstract # P-364)**
Sedat Karademir, Tarkan Unek, Serhan Derici, Tufan Egeli, Huseyin Astarcioglu, Ibrahim Astarcioglu. Izmir, Turkey.
- P-365 HEPATIC ARTERY THROMBOSIS IN ADULT TO ADULT LIVING DONOR LIVER TRANSPLANTATION. (Abstract # P-365)**
Yusuke Kyoden, Sumihito Tamura, Yasuhiko Sugawara, Norihiro Kokudo. Tokyo, Japan.
- P-366 LIVER TRANSPLANTATION FOR MASSIVE HEPATOMEGALY IN ONE CASE OF ADULT POLYCYSTIC LIVER DISEASE. (Abstract # P-366)**
Jorge A. Martinez, Nicolás Jarufe, Juan F. Guerra, Pilar Dominguez, Alejandro Soza, Cristián Muñoz, Marco Arrese, Rosa M. Perez. Santiago, Chile; Santiago, RM, Chile.
- P-367 REMOVABLE INTRADUCTAL STENTING IN DUCT-TO-DUCT BILIARY RECONSTRUCTION IN LIVER TRANSPLANTATION. (Abstract # P-367)**
Hadrien Tranchart, Ailton Sepulveda, Mircea Chirica, Frederic Prat, Denis Bernard, Filomena Conti, Olivier Soubrane, Olivier Scatton. Paris, France.
- P-368 TECHNICAL ASPECTS OF HEPATIC ARTERY RECONSTRUCTION WITHOUT MICROSCOPE IN LIVING DONOR LIVER TRANSPLANTATION. (Abstract # P-368)**
Abdallah Slim, Andrea Lauterio, Alessandro Giacomoni, Stefano Di Sandro, Iacopo Mangoni, Plamen Mihaylov, Mohamed Al Kofahi, Luciano De Carlis. Milano, Italy.
- P-369 † COST AND EFFICACY ANALYSIS OF UNIVERSAL VERSUS TARGETED PROPHYLAXIS IN LIVER TRANSPLANTATION. (Abstract # P-369)**
Brianne L. Dunn, Nicole A. Weimert, David J. Taber, Neha Patel, Jenna L. Scheffert, Angello Lin, Tikvah Y. Habib, Kenneth D. Chavin, Prabhakar K. Baliga. Charleston, USA; Charleston, SC, USA.
- P-370 AGGRESSIVE HEPATIC VENACAVAL RESECTION IN LIVING DONOR LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA EXCEEDING THE MILAN CRITERIA: A CASE REPORT. (Abstract # P-370)**
Yuzo Umeda, Takahito Yagi, Hiroshi Sadamori, Hiroaki Mastuda, Susumu Shinoura, Kenji Mizuno, Ryuichi Yoshida, Daisuke Satoh, Masashi Utsumi, Noriaki Tanaka. Okayama, Japan.
- P-371 SURGICAL REANASTOMOSIS COULD SPARE RETRANSPLANTATION IN HEPATIC ARTERY THROMBOSIS. (Abstract # P-371)**
Woo Young Shin, Kyung-Suk Suh, Joohyun Kim, Tae Hoon Kim, Nam-Joon Yi, Jai-Young Cho, Kuhn Uk Lee. Seoul, Korea.
- P-372 RISK FACTORS FOR COLONIZATION/ INFECTION FOR VANCOMYCIN-RESISTANT ENTEROCOCCUS IN COHORT OF LIVER TRANSPLANTATION RECIPIENTS WITH SURVEILLANCE CULTURES. (Abstract # P-372)**
Maristela P. Freire, Patricia Bonazzi, Icaro Boszczowski, Isabel V. Oshiro, Thais Guimaraes, Telesforo Bachella, Silvia F. Costa, Edson Abdala. São Paulo, Brazil.

State of the Art Lecture

10:00 AM – 10:30 AM

Room: Grand Ballroom, Level 3

Moderators: John J. Fung, MD, PhD, Cleveland Clinic Foundation, Cleveland, OH, USA & Sue V. McDiarmid, MD, University of California, Los Angeles, CA, USA

Liver Transplantation around the World

Luc Noel, MD

World Health Organization

Geneva, Switzerland

Rising Star Symposium

10:30 AM - 12:30 PM

Room: Grand Ballroom, Level 3

Moderators: Ronald W. Busuttil, MD, PhD, University of California, Los Angeles, CA, USA & Sue V. McDiarmid, MD, University of California, Los Angeles, CA, USA

**Supported by an Unrestricted Educational Grant from Novartis Pharma AG*

10:30 AM THE NOVEL FUNCTION OF T CELL Ig MUCIN-1 (TIM-1) IN THE MECHANISM OF LIVER ISCHEMIA AND REPERFUSION INJURY. (Abstract # O-10)

Yoichiro Uchida, Bibo Ke, Maria Cecilia S. Freitas, Elizabeth R. Benjamin, Nader Najafian, Mohamed H. Sayegh, Ronald W. Busuttil. Los Angeles, CA, USA; Boston, MA, USA.

11:50 AM LIVER TRANSPLANTATION FOR HIV: LONG TERM OUTCOMES FROM THE UK. (Abstract # O-11)

Deepak Joshi, Varuna Aluvihare, Ajay Belgaumkar, John O'Grady, Abid Suddle, Michael Heneghan, Kosh Agarwal. London, United Kingdom.

12:10 PM URINARY NGAL AS A SENSITIVE MARKER FOR RENAL INJURY DURING LIVER TRANSPLANTATION. (Abstract # O-12)

Gebhard Wagener, Moury Minhaz, Fallon Mattis, Stephen Yap, Mihwa Kim, H. T. Lee. New York, NY, USA.

- 10:50 AM NO EVIDENCE THAT FK506 DIRECTLY INTERFERES WITH THE ANTIVIRAL ACTION OF INTERFERON-ALPHA ON HEPATITIS C VIRUS. (Abstract # O-13)**
Qiuwei Pan, Herold J. Metselaar, Jaap Kwekkeboom, Geert Kazemier, Harry L. A. Janssen, Hugo W. Tilanus, Luc J. W. van der Laan. Rotterdam, Netherlands.
- 11:30 AM PORCINE MODEL REPLICATING THE HUMAN SCENARIO OF DONATION AFTER CARDIAC DEATH. (Abstract # O-14)**
Jason Y. Rhee, Kevin O'Connor, Francis L. Delmonico, Richard Lusk, Richard B. Freeman. Boston, MA, USA; Newton, MA, USA.
- 11:10 AM CO-CULTURE WITH MESENCHYMAL STEM CELLS RESULTS IN IMPROVED VIABILITY AND FUNCTION OF HUMAN HEPATOCYTES; POTENTIALLY A NEW STRATEGY FOR THE CELLULAR THERAPY OF LIVER DISEASE. (Abstract # O-15)**
Emer Fitzpatrick, Christina Philipeos, Robin Hughes, Ragai Mitry, Anil Dhawan. London, United Kingdom.

Break

12:30 PM – 12:45 PM

Room: Grand Ballroom, Level 3

Novartis Pharma AG

Sponsored Lunch Symposium

12:45 PM – 2:15 PM

Room: Grand Ballroom, Level 3

Break

2:15 PM – 2:30 PM

Concurrent Session: Immunosuppression

2:30 PM - 4:00 PM

Room: Sutton North, Level 2

Moderators: Hugo Vargas, Mayo Clinic, Phoenix, AZ, USA

Hans Schlitt, University of Regensburg, Regensburg, Germany

- 2:30 PM EFFECT ON HCV-ANTIGEN SPECIFIC PBMC RESPONSE BY CALCINEURIN ANTAGONISTS IN LIVER TRANSPLANTED PATIENTS WITH VIRAL RECURRENCE. (Abstract # O-16)**
Alessandro Perrella, Donatella Pisaniello, Bernardino Rampone, Anna D'Antonio, Oreste Perrella, Oreste Cuomo. Naples, Italy.

- 2:40 PM HOMEOSTATIC PROLIFERATION OF MEMORY-TYPE CD8⁺ T CELLS AS A CAUSE OF ACUTE REJECTION UPON IMMUNOSUPPRESSION WITHDRAWAL IN LIVER TRANSPLANT RECIPIENTS. (Abstract # O-17)**
Vincent Donckier, Valerio Lucidi, Roberto Troisi, Xavier Rogiers, Alexis Buggenhout, Myriam Remmelink, Isabelle Salmon, Christophe Moreno, Nathalie Boon, Nadine Bourgeois, Isabelle Colle, Hans Van Vlierberghe, Ligia Craciun, Patrick Stordeur, Bernard de Hemptinne, Michel Goldman. Brussels, Belgium; Ghent, Belgium.
- 2:50 PM PROPOSAL TO TREAT ACUTE CELLULAR REJECTION (ACR) IN PRESENCE OF HEPATITIS C VIRAL (HCV) INFECTION IN POST LIVER TRANSPLANT RECIPIENTS IN RELATION TO HEPATITIS ACTIVITY INDEX (HAI). SINGLE CENTRE EXPERIENCE. (Abstract # O-18)**
Ashokkumar Jain, Vrishali Patil, Charlotte Ryan, Rajeev Sharma, Saman Safadjou, Baber Sheikh, Randeep Kashyap, Mark Orloff. Philadelphia, PA, USA; Rochester, NY, USA.
- 3:00 PM LONG-TERM IMMUNOSUPPRESSION WITH ANTI-CD25 MONOCLONAL ANTIBODIES IN LIVER TRANSPLANT PATIENTS WITH CHRONIC KIDNEY DISEASE. (Abstract # O-19)**
M. Cantarovitch, J. Tchervenkov, P. Metrakos, M. Deschênes, P. Wong, P. Ghali, P. Chaudhury, M. Hassanain, G. Arena, S. Paraskevas, J. Barkun. Montreal, QC, Canada.
- 3:10 PM ARTERIAL HYPERTENSION IN LIVER TRANSPLANTATION: RATE OF CONTROL WITH ANTIHYPERTENSIVE THERAPY. (Abstract # O-20)**
Jhon Prieto, Marina Berenguer, Manuel de la Mata, Belinda Martinez, Victoria Aguilera, Pilar Barrera, Lourdes Rafael, Angel Rubin, Enrique Fraga, Antoni Rimola. Barcelona, Spain; Valencia, Spain; Cordoba, Spain.
- 3:20 PM LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA WITH UNFAVOURABLE PROGNOSTIC FACTORS: RECURRENCE FREE SURVIVAL IS IMPROVED BY ADEQUATE IMMUNOSUPPRESSION. (Abstract # O-21)**
Marco Vivarelli, Alessandro Dazzi, Matteo Zanello, Alessandro Cucchetti, Matteo Ravaoli, Matteo Cescon, Massimo Del Gaudio, Gian Luca Grazi, Antonio D. Pinna. Bologna, Italy.
- 3:30 PM USEFULNESS OF ImmuKnow® ASSAY AS A TOOL TO DIFFERENTIATE THE AETIOLOGY OF LATE ALLOGRAFT DYSFUNCTION IN LIVER TRANSPLANT RECIPIENTS. (Abstract # O-22)**
Silvia Rosado Garcia, Raquel Castejon Diaz, Isolina Baños Perez, Maria Jesus Citores Sanchez, Ana Noblejas Mozo, Juan Antonio Vargas Nuñez, Valentin Cuervas-Mons Martinez. Madrid, Spain.

- 3:40 PM** **CONVERSION TO A SIROLIMUS-BASED CALCINEURIN INHIBITOR (CNI) FREE IMMUNOSUPPRESSION FOR NEUROTOXICITY IN LIVER TRANSPLANTATION. (Abstract # O-23)**
Greg J. McKenna, Edmund Q. Sanchez, Srinath Chinnakotla, Henry B. Randall, Richard Ruiz, Nicholas Onaca, Robert M. Goldstein, Marlon F. Levy, Goran B. Klintmalm. Dallas, TX, USA.
- 3:50 PM** **MYCOPHENOLATE MONOTHERAPY IN PATIENTS AFTER LIVER TRANSPLANTATION: A PROSPECTIVE RANDOMIZED TRIAL. (Abstract # O-24)**
Ulf P. Neumann, Anja Kiessling, Maximilian Schmeding, Johann Pratschke, Peter Neuhaus. Berlin, Germany.

Concurrent Session: Patient Selection/ Organ Allocation

2:30 PM - 4:00 PM

Room: Regent Parlor, Level 2

Moderators: Juan Carlos Meneu, MD, PhD, Hospital 12

De Octubre, Madrid, Spain & Constantino Fondevila, MD, PhD, Hospital Clinic, Barcelona, Spain

- 2:30 PM** **PRE-TRANSPLANT IMAGING CORRELATE POORLY WITH EXPLANT PATHOLOGY IN LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA. (Abstract # O-25)**
Ahmed Fahmy, Ivo Mitsiev, Vincent Peyregne, Thomas Diflo, Devon John, Glyn Morgan, Lewis Teperman. New York, NY, USA.
- 2:40 PM** **RESULTS OF THE IMPLEMENTATION OF A MELD SCORE-BASED ALLOCATION SYSTEM IN AN EUROPEAN CENTER. (Abstract # O-26)**
Claire Francoz, Daniele Sommacale, Hamza Boudjema, Antonella Pironti, Federica Dondero, Catherine Paugam-Burtz, Dominique Valla, Jacques Belghiti, Francois Durand. Clichy, France; , France.
- 2:50 PM** **REVIEWING THE CAUSES FOR OVER THOUSAND DISCHARGED LIVER DONORS. CAN DONATIONS BE INCREASED? (Abstract # O-27)**
Ilka F. S. F. Boin, Helbert O. M. Palmiero, Patricia Kajikawa, Helder Zambelli. Campinas, Sao Paulo, Brazil; Sao Paulo, Campinas, Brazil.
- 3:00 PM** **TRANSJUGULAR INTRAHEPATIC PORTOSYSTEMIC SHUNT (TIPS) FOR CIRRHOTICS AWAITING LIVER TRANSPLANTS. (Abstract # O-28)**
Marcelo A. F. Ribeiro, Eleazar Chaib, Regina F. Friedberg, Felipe M. V. Lopes. São Paulo, Brazil; Sao Paulo, Brazil.
- 3:10 PM** **RESTRICTIVE USE OF BLOOD PRODUCTS DURING LIVER TRANSPLANTATION: A COST ANALYSIS. (Abstract # O-29)**
Christian S. Van der Hilst, Alexander J. C. IJtsma, Maarten J. H. Slooff, Marieke T. de Boer, Ton Lisman, Robert J. Porte. Groningen, Netherlands.

- 3:20 PM** **TUNING TRANSPLANT ACCESS KINETICS FOR LIVER MALIGNANCIES. (Abstract # O-30)**

Christian Jacquelin, Benoit Audry, Corinne Antoine. Saint-Denis, France.

- 3:30 PM** **BILIARY COMPLICATIONS AFTER ORTHOTOPIC LIVER TRANSPLANTATION FROM DONORS AFTER CARDIAC DEATH: SPECTRUM OF DISEASE. (Abstract # O-31)**
Ahmad Abou Abbass, Atsushi Yoshida, Rob Slater, Marwan Abouljoud, Dean Kim, Dilip Moonka, Marwan Kazimi, John Hundley. Detroit, MI, USA.

- 3:40 PM** **VALIDATION OF THE BCLC PROGNOSTIC SYSTEM IN SURGICAL HCC PATIENTS. IS NECESSARY TO MODIFY THE BCLC TREATMENT ALGORITHM? (Abstract # O-32)**
Davide F. D'Amico, Alessandro Vitale, Paola Violi, Patrizia Boccagni, Alberto Pauletto, Michele Scopelliti, Domenico Bassi, Francesco E. D'Amico, Umberto Cillo. Padova, Italy.

- 3:50 PM** **SEVERITY OF PREOPERATIVE RENAL FAILURE PREDICTS 30 DAY MORTALITY BUT NOT 1 YEAR SURVIVAL: A POTENTIAL IMPACT IN THE MELD ERA. (Abstract # O-33)**
Richard K. Gilroy, Ryan Taylor, Erik Schadde, Jay Montgomery, Christina Jones, Victor Le, James Kindscher. Kansas City, KS, USA.

Concurrent Session: Malignancies

2:30 PM - 4:00 PM

Room: Grand Ballroom, Level 3

Moderators: Myron Schwartz, MD, Mount Sinai Medical Center, New York, NY, USA & Vincenzo Mazzaferro, Istituto Nazionale Tumori, Milano, Italy

- 2:30 PM** **ROLE OF PREOPERATIVE TREATMENTS OF HEPATOCELLULAR CARCINOMA IN PATIENTS UNDERGOING LIVING -DONOR LIVER TRANSPLANTATION: THE JAPANESE EXPERIENCE. (Abstract # O-34)**
Hiroyuki Furukawa, Satoru Todo, the Japanese Liver Transplantation Study Group. Sapporo, Japan.
- 2:40 PM** **SIGNALING MODIFICATION IN KAPOSI'S SARCOMA BY SIROLIMUS IN A LIVER RECIPIENT: EVIDENCE OF MALIGNANCY CURED BY IMMUNOSUPPRESSANT. (Abstract # O-35)**
Cheng-Maw Dominic Ho, Shiu-Feng Kathy Huang, Yao-Ming Wu, Ming-Chih Ho, Rey-Heng Hu, Po-Huang Lee. London, United Kingdom; Taipei, Taiwan; Zhunan, Taiwan.
- 2:50 PM** **LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA: THE ROLE OF TUMOR MARKERS IN EXPANDED SELECTION CRITERIA. (Abstract # O-36)**
Yasutsugu Takada, Shinji Uemoto. Kyoto, Japan.

3:00 PM LIVER VOLUME AND CREATININE CLEARANCE ARE INDEPENDENT PREDICTORS OF MORTALITY IN PATIENTS AWAITING LIVER TRANSPLANTATION. (Abstract # O-37)

Patrick P. McHugh, Roberto Gedaly, Thomas D. Johnston, Hoonbae Jeon, Dinesh Ranjan. Lexington, KY, USA.

3:10 PM PREOPERATIVE DIAGNOSIS OF POORLY DIFFERENTIATED GRADE IN PATIENTS WITH LARGE HEPATOCELLULAR CARCINOMA: A PROSPECTIVE CONTROLLED STUDY. (Abstract # O-38)

Alessandro Vitale, Francesco D'Amico, Maria Guido, Maurina Costantin, Ambrogio Fassina, Massimo Rugge, Giacomo Zanus, Alberto Brolese, Davide F. D'Amico, Umberto Cillo. Padova, Italy.

3:20 PM HCC RADIOLOGICAL PROGRESSION AFTER DOWNSTAGING IS A STRONG PREDICTOR OF POOR TRANSPLANTATION OUTCOME EVEN IN PATIENTS WHO MEET MILAN CRITERIA. (Abstract # O-39)

Alessandro Giacomoni, Stefano Di Sandro, Abdallah Slim, Andrea Lauterio, Iacopo Mangoni, Luciano De Carlis. Milano, Italy.

3:30 PM DE NOVO MALIGNANCIES FOLLOWING LIVING DONOR LIVER TRANSPLANTATION. A RETROSPECTIVE STUDY AND CASE REVIEW. (Abstract # O-40)

Wael Safwat, Rasha Refaie, Medhat Abdel Aal, Mahmoud El Meteiny, Ibrahim Mostafa. Cairo, Egypt.

3:40 PM BENEFIT OF LOCOREGIONAL THERAPY FOR THE TREATMENT OF HEPATOCELLULAR CARCINOMA PRIOR TO LIVER TRANSPLANTATION. (Abstract # O-41)

Shawn Pelletier, Constance Mobley, Ted Welling, Christopher Sonnenday, Michael Englesbe, Michael Volk, Jorge Marrero. Ann Arbor, MI, USA.

3:50 PM EXPRESSION OF EPIDERMAL GROWTH FACTOR RECEPTOR AND ITS PROGNOSTIC VALUE ON PREDICTING OUTCOME ON LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA. (Abstract # O-42)

Guillermo Kiss, Maria Lúcia Zanotelli, Guido P. C. Cantisani, Carlos T. S. Cerski, Claudio A. Marroni, Ajácio B. M. Brandão, Lúcia M. Kliemann, Eduardo S. Schlindwein, Ian Leipnitz, Mário H. M. M. Meine, Marcos Mucenic, Marcus V. Osório. Porto Alegre, RS, Brazil.

Video Submission Session #1

2:30 PM – 4:00 PM

Room: Sutton Center, Level 2

Moderators: Milan Kinkhabwala, MD, Montefiore Medical Center, New York, NY, USA & Elizabeth A. Pomfret, MD, PhD, Lahey Clinic Medical Center, Burlington, MA, USA

Coffee Break

4:00 PM – 4:45 PM

Room: America's Hall I, Level 3

Poster Grand Rounds II

4:00 PM – 4:45 PM

Presenters in Attendance

Room: America's Hall I, Level 3

Categories:

- Fulminant Liver Failure
- Immunosuppression
- Radiology
- Recurrent Disease/Pathology
- Surgical Techniques/Complications

Poster Session II*

4:00 PM – 4:45 PM

**Refer to pages 24-38 for poster listing*

Concurrent Session: Extended Criteria Donors/Disease Transmission

4:45 PM - 6:15 PM

Room: Sutton Center, Level 2

Moderators: Francois Durand, Hospital Beaujon, Paris, France & Lewis W. Teperman, MD, New York University Medical Center, New York, NY, USA

4:45 PM A CLINICALLY USEFUL PREDICTIVE MODEL FOR PROGRESSION TO DEATH IN DONATION AFTER CARDIAC DEATH (DCD). (Abstract # O-43)

Jason Y. Rhee, Robin Ruthazer, Kevin O'Connor, Francis L. Delmonico, Richard Lusk, Richard B. Freeman. Boston, MA, USA; Newton, MA, USA.

4:55 PM LIVER TRANSPLANTATION UTILIZING HBsAg-POSITIVE GRAFTS: AN UNEXPECTED OUTCOME FOR MARGINAL LIVERS. (Abstract # O-44)

Elisabetta Loggi, Lorenzo Micco, Stefano Gitto, Stefania Lorenzini, Maurizio Biselli, Carlo Sanrocco, Giorgio Ercolani, Gian Luca Grazi, Mauro Bernardi, Antonio Daniele Pinna, Pietro Andreone, Bologna Liver Transplant Group. Bologna, Italy.

5:05 PM MULTIFACTORIAL BIOLOGICAL MODULATION OF WARM ISCHEMIA AND REPERFUSION INJURY IN LIVER TRANSPLANTATION FROM NON-HEART-BEATING-DONORS ELIMINATES PRIMARY GRAFT NON-FUNCTION AND REDUCES BILE SALT TOXICITY. (Abstract # O-45)

Diethard Monbaliu, Katrien Vekemans, Harm Hoekstra, Lauri Vaahtera, Louis Libbrecht, Jaakko Parkkinen, Jos Van Pelt, Robert Porte, Jacques Pirenne. Leuven, Belgium; Helsinki, Finland; Groningen, Netherlands; Gent, Belgium.

- 5:15 PM COMPARISON OF LIVER FUNCTION TESTS OUT TO 5-YEARS POST TRANSPLANT IN DONATION AFTER CARDIAC DEATH (DCD) COMPARED TO DONATION AFTER BRAIN DEATH (DBD) LIVER TRANSPLANT RECIPIENTS. (Abstract # O-46)**
Adam Bartlett, Paolo Muiesan, Walid Faraj, Satoshi Yokoyama, Takuya Kimura, Mansoor Ahmed, Mohamed Rela, Nigel Heaton. Denmark Hill, London, United Kingdom.
- 5:25 PM LIVER TRANSPLANTATION USING DECEASED DONORS OLDER THAN 80 YEARS DURING THE MELD ERA IN THE UNITED STATES: IS THERE ANY AGE LIMIT? (Abstract # O-47)**
Nicolas Jabbour, Ashish Singhal, Yong Ye, Shi-Feng Li, Yi Huwang, Ian V. Hutchinson, Yong W. Cho. Oklahoma City, OK, USA; Los Angeles, CA, USA.
- 5:35 PM MACROSTEATOSIS AND INFLUENCE OF THE CRITICAL CARE MANAGEMENT BEFORE RECOVERY OF ORGANS IN DECEASED DONORS. (Abstract # O-48)**
Vincent Peyregne, Muriel Rabilloud, Ahmed Fahmy, Devon John, Thomas Diflo, Glyn Morgan, Lewis Teperman. New York, NY, USA; Lyon Cedex 03, France.
- 5:45 PM PRESUMED CONSENT LAWS ARE ASSOCIATED WITH HIGHER DONATION RATES AROUND THE WORLD. (Abstract # O-49)**
Barbara Kern, Richard B. Freeman. Boston, MA, USA.
- 5:55 PM RECIPIENT AGE IMPACTS ON GRAFT SURVIVAL AND HEPATITIS C RECURRENCE OF OLDER LIVERS FOLLOWING TRANSPLANTATION. (Abstract # O-50)**
Nazia Selzner, Markus Selzner, Arash Kashfi, Paul D. Greig, Mark S. Cattral, Gary A. Levy, Les Lilly, Eberhard L. Renner, George Therapondos, Lesley E. Adcock, David R. Grant, Ian D. McGilvray. Toronto, ON, Canada.
- 6:05 PM “DE NOVO” AMYLOIDOSIS IN RECIPIENTS OF DOMINO LIVER TRANSPLANTATION: CLINICAL AND HISTOLOGICAL DATA. (Abstract # O-51)**
Laura Lladó, Carme Baliellas, Joan Fabregat, Carles Casasnovas, David Julià, Xavier Sanjuan, Emilio Ramos, Jaume Torras, Rosa Rota, Antoni Rafecas. Barcelona, Spain.

Concurrent Session: Anesthesia/Critical Care Medicine

4:45 PM - 6:15 PM

Room: Sutton North, Level 2

Moderators: Claus Niemann, MD, University of California, San Francisco, CA, USA & Jean Mantz, MD, Beaujon University, Paris, France

- 4:45 PM LTrAC 201 – LOOKING FOR EVIDENCE (2). (Abstract # O-52)**
Ann Walia, Roman Schumann, Damon Michaels, Nate Mercaldo, Susan Mandell, Pratik Pandharipande. Nashville, TN, USA.
- 4:55 PM HEPATIC ARTERY FLOW AND CARDIAC OUTPUT: CORRELATION BETWEEN SYSTEMIC AND LIVER HEMODYNAMICS. (Abstract # O-53)**
Mauricio Sainz-Barriga, Koen Reyntjens, Eva-Line Decoster, Xavier Rogiers, Bernard de Hemptinne, Roberto Troisi. Ghent, Belgium.
- 5:05 PM CAN A ‘ONE-STOP-SHOP’ APPROACH TO LIVER TRANSPLANTATION PRE-OPERATIVE EVALUATION EXIST VIA 3D CARDIOVASCULAR MRI? (Abstract # O-54)**
Ngoc Thai, Michael Dishart, Bryan Veynovich, Kusum Tom, Jose Oliva, Anil Singh, Saundra B. Grant, June A. Yamrozik, Ronald B. Williams, Vikas K. Rath, Mark Doyle, Robert W. W. Biederman. Pittsburgh, USA.
- 5:15 PM BODY SURFACE AREA INDEX PREDICTS OUTCOME IN LIVER TRANSPLANTATION (LT). (Abstract # O-55)**
Kyota Fukazawa, Ernesto A. Pretto. Miami, FL, USA.
- 5:25 PM SERUM PROTEOME FOR THE DIAGNOSIS OF EARLY SEPSIS AFTER LIVER TRANSPLANTATION (LT). (Abstract # O-56)**
Catherine Paugamburtz, Miguel Albuquerque, Jacques Belghiti, Jean Mantz, Valerie Paradis. Clichy, France; Paris, France.
- 5:35 PM POTENTIAL RISK FACTORS FOR PULMONARY EMBOLISM DURING ADULT LIVER TRANSPLANTATION. (Abstract # O-57)**
Tetsuro Sakai, Kenichi A. Tanaka, Feng Dai, Ibteasm A. Hilmi, Raymond M. Planinsic. Pittsburgh, PA, USA; Atlanta, GA, USA.
- 5:45 PM THE RELATIONSHIP BETWEEN STROKE VOLUME INDEX AND RIGHT VENTRICULAR END DIASTOLIC VOLUME INDEX DURING LIVER TRANSPLANTATION; COMPARISON OF MIDDLE-AGED AND ELDERLY PATIENTS WITH LIVER CIRRHOSIS. (Abstract # O-58)**
Ji Hyun Chin, In Gu Jun, Jun Gol Song, Young Kug Kim, Gyu Sam Hwang. Seoul, Korea.

- 5:55 PM OPTIMIZING COST-EFFECTIVENESS IN PERIOPERATIVE CARE FOR LIVER TRANSPLANTATION: A MODEL FOR RESOURCE-LIMITED HEALTH ECONOMIES. (Abstract # O-59)**
Karina Rando, Claus U. Niemann, Pilar Taura, John Klinck. Montevideo, Uruguay; San Francisco, CA, USA; Barcelona, Spain; Cambridge, United Kingdom.
- 6:05 PM PRE AND INTRA-OPERATIVE PREDICTORS OF THE NEED FOR RENAL REPLACEMENT THERAPY AFTER LIVER TRANSPLANTATION. (Abstract # O-60)**
 Man Ki Ju, Myoung Soo Kim, Dong Jin Joo, Soo Jin Kim, Kyu Ha Huh, Gi Hong Choi, Beom Seok Kim, Jin Sub Choi, Soon Il Kim, Yu Seun Kim. Seoul, Republic of Korea.

Concurrent Session: Living Donor

4:45 PM - 6:15 PM

Room: Grand Ballroom, Level 3

Moderators: Sheung-Tat Fan, MD, PhD, The University of Hong Kong, Hong Kong, China & Luis Podesta, MD, Favaloro Foundation, Buenos Aires, Argentina

- 4:45 PM SIGNIFICANT MEDICAL ISSUES IN "HEALTHY" RIGHT HEPATIC LOBE (RHL) DONOR CANDIDATES. (Abstract # O-61)**
Mary Ann Simpson, Denise Morin, David Burns, Kristen Robson, James Pomposelli, Elizabeth Pomfret. Burlington, MA, USA.
- 4:55 PM RISK FACTORS OF INTRAOPERATIVE COMPLICATIONS DURING DONOR HEPATECTOMY IN LIVING-DONOR LIVER TRANSPLANTATION. (Abstract # O-62)**
Arash Pirat, Adnan Torgay, Sule Balci, Pinar Zeyneloglu, Hamdi Karakayali, Gulnaz Arslan, Mehmet Haberal. Ankara, Turkey.
- 5:05 PM DOES LIVING LIVER DONATION AFFORD PSYCHOLOGICAL BENEFITS? LIVING LIVER DONORS' PSYCHOLOGICAL PROFILES AND POST-DONATION OUTCOMES. (Abstract # O-63)**
Ruy Cruz, Andrea DiMartini, Mary Amanda Dew, Mary Grace Fitzgerald, Michael de Vera, Wallis Marsh. Pittsburgh, PA, USA.
- 5:15 PM DUAL-GRAFT LDLT USING RIGHT POSTERIOR SECTION AND LEFT LIVER GRAFT – COMPARISON WITH DUAL LDLT USING TWO LEFT LIVER. (Abstract # O-64)**
Deok-Bog Moon, Sung-Gyu Lee, Chul-Soo Ahn, Shin Hwang, Ki-Hun Kim, Tae-Yong Ha, Gi-Won Song, Dong-Hwan Jung. Seoul, Korea.
- 5:25 PM A LOW GRAFT VS BODY WEIGHT RATIO DOES NOT PREDICT OUTCOME FOLLOWING ADULT-TO-ADULT RIGHT LOBE LIVING DONOR LIVER TRANSPLANTATION. (Abstract # O-65)**
Markus Selzner, Arash Kashfi, Nazia Selzner, Paul D. Greig, Mark S. Cattral, Les Lilly, George Therapondos, Lesley E. Adcock, Ian D. McGilvray, Gary A. Levy, Eberhard L. Renner, David R. Grant. Toronto, ON, Canada.

- 5:35 PM ADENOSINE INFUSION RESTORES THE HEPATIC ARTERY BUFFER RESPONSE (HABR) IN A PORCINE MODEL OF THE SMALL FOR SIZE (SFS) LIVER GRAFT. (Abstract # O-66)**
Dympna M. Kelly, John J. Fung, Xiaocheng Zhu, Hiroaki Shiba, Bin Wang, Samuel Irefin, Andrei Cocieru, Loris Trenti, Teresa Diago, Cristiano Quintini, Zhong Chen, Joan Alster, Charles Miller, Anthony Demetris. Cleveland, OH, USA; Pittsburgh, PA, USA.

- 5:45 PM PORTAL INFLOW AND PRESSURE CHANGES IN RIGHT LIVER LIVING DONOR LIVER TRANSPLANTATION INCLUDING MIDDLE HEPATIC VEIN. (Abstract # O-67)**
See C. Chan, Chung M. Lo, Kelvin K. Ng, Siu H. Chok, Boon H. Yong, Sheung T. Fan. Hong Kong, China.

- 5:55 PM LIVING DONOR LIVER TRANSPLANTATION: A EUROPEAN LIVER TRANSPLANT REGISTRY (ELTR) REPORT ON 2634 CASES. (Abstract # O-68)**
R. Adam, V. Karam, V. Delvart, M. Kilic, A. Paul, L. Fisher, J. Lerut, Y. Tokat, P. Neuhaus, P. Kalicinski, O. Boillot, D. Castaing, ELITA. Villejuif, France; Izmir, Turkey; Essen, France; Groningen, Netherlands; Hamburg, Germany; Istanbul, Turkey; Berlin, Germany; Warsaw, Poland; Lyon, France.
- 6:05 PM IMPACT OF DONOR AGE ON RIGHT LOBE LIVING DONOR LIVER TRANSPLANTATION IN A SINGLE CENTRE. (Abstract # O-69)**
William W. Sharr, Kenneth S. H. Chok, Kelvin K. C. Ng, S. C. Chan, C. M. Lo, S. T. Fan. Hong Kong, Hong Kong.

Hepatitis C

4:45 PM - 6:15 PM

Room: Regeant Parlor, Level 2

Moderators: Michael R. Charlton, MD, Mayo Clinic, Rochester, MN, USA & Bart J. Veldt, MD, Erasmus MC University Medical Center, Rotterdam, The Netherlands

- 4:45 PM 20 YEARS EVOLUTION OF HCV LIVER TRANSPLANTED PATIENTS, ACCORDING TO IMMUNOSUPPRESSION. (Abstract # O-70)**
Bilbao Itxarone, Castells Luis, Dopazo Cristina, Allende Elena, Lazaro Jose, Caralt Mireia, Blanco Laia, Sapisochin Gonzalo, Charco Ramon. Barcelona, Spain.
- 4:55 PM SIROLYMUS MONOTHERAPY IN HIV PATIENTS AFTER LIVER TRANSPLANTATION. (Abstract # O-71)**
Fabrizio Di Benedetto, Nicola De Ruvo, Roberto Montalti, Gian Piero Guerrini, Roberto Ballarin, Mario Spaggiari, Antonio Mimmo, Giuseppe D'Amico, Stefano Di Sandro, Rosa Maria Iemmolo, Giorgio E. Gerunda. Modena, Italy, Italy.

- 5:05 PM NATURAL HISTORY OF FIBROSING CHOLESTATIC HEPATITIS C (FCH) AFTER LIVER TRANSPLANTATION: A SINGLE CENTER EXPERIENCE. (Abstract # O-72)**
Amir Yosephy, Thomas J. Byrne, Elizabeth E. Carey, Kathy Hansen, David D. Douglas, David Mulligan, Jorge J. Rakela, Hugo E. Vargas, Bashar A. Aqeel. Phoenix, AZ, USA.
- 5:15 PM GENOTYPE 2 AND 3 RECURRENT HEPATITIS C AFTER LIVER TRANSPLANTATION: EXCELLENT RESULTS WITH SUBOPTIMAL DOSES OF ANTIVIRAL THERAPY. (Abstract # O-73)**
Francesca R. Ponziani, Raffaella Viganò, Luca Belli, Giovambattista Pinzello, Michele Colledan, Eleonora De Martin, Patrizia Burra, Sara Boninsegna, Francesca Donato, Daniele Di Paolo, Mario Angelico, Maria Rendina, Maurizio Pompili, Antonio Gasbarrini, Stefano Fagiuoli. Rome, Italy; Bergamo, Italy; Milano, Italy; Bari, Italy; Padova, Italy.
- 5:25 PM EARLY PREDICTORS FOR THE DEVELOPMENT OF HEPATITIS-C-ASSOCIATED LIVER GRAFT FIBROSIS. (Abstract # O-74)**
Dennis Eurich, Marcus Bahra, Fabian Spies, Jan M. Langrehr, Ruth Neuhaus, Peter Neuhaus, Ulf P. Neumann. Berlin, Germany.
- 5:35 PM DONATION AFTER CARDIAC DEATH DOES NOT AFFECT HEPATITIS C RECURRENCE. (Abstract # O-75)**
Rolf N. Barth, Sameh A. Fayek, Joseph Scalea, Linda A. Ridge, Benjamin Philosophie. Baltimore, USA.
- 5:45 PM HCV RECURRENCE POST-TRANSPLANTATION: MOLECULAR PATHWAYS AFFECTED IN THE ALLOGRAFT. (Abstract # O-76)**
Valeria R. Mas, Daniel G. Maluf, Kellie J. Archer, Richard T. Stravitz, Marc P. Posner, Robert A. Fisher. Richmond, VA, USA.
- 5:55 PM EXPLANT PERISEPTITIS OR INFLAMMATION >2 IS STRONGLY ASSOCIATED WITH CLINICALLY SIGNIFICANT HEPATITIS C (HCV) RECURRENCE AFTER LIVER TX (LTx). (Abstract # O-77)**
Mary Ann Simpson, Urmila Khettry, Fredric D. Gordon, James J. Pomposelli, Elizabeth A. Pomfret. Burlington, MA, USA.
- 6:05 PM STAGE-SPECIFIC FIBROSIS PROGRESSION IN PATIENTS TRANSPLANTED FOR CHRONIC HEPATITIS C. (Abstract # O-78)**
Sumeet K. Asrani, Rachel Pedersen, Schuyler O. Sanderson, Michael R. Charlton, Terry Schneekloth, Charles B. Rosen, Terry M. Therneau, W. Ray Kim. Rochester, MN, USA.

The 2009 International Congress of ILTS

Day-at-a-Glance, Friday, July 10, 2009

6:30 AM – 7:00 PM	Registration Open <i>Room: Grand Ballroom Foyer, Level 3</i>	<i>Page 60</i>	Luncheon #2 Steroid Sparing Approaches after Liver Transplantation <i>Room: Nassau Suite B, Level 2</i>
7:00 AM – 8:00 AM	Bristol-Myers Squibb Sponsored Breakfast Symposium – Confronting the Growing Challenge of Preserving Renal Function after Liver Transplantation <i>Page 47</i> <i>Room: Sutton North, Level 3</i>	<i>Page 60</i>	Luncheon #3 Guidelines for the Treatment of Recurrent Hepatitis C after Liver Transplantation <i>Room: Murray Hill Suite B, Level 2</i>
8:00 AM – 9:00 AM	Plenary Session II <i>Page 47</i> <i>Room: Grand Ballroom, Level 3</i>	<i>Page 60</i>	Luncheon #4 CMV in Liver Transplantation: Direct and Indirect Effects <i>Room: Murray Hill Suite A, Level 2</i>
9:00 AM – 9:30 AM	Coffee Break <i>Room: America's Hall I, Level 3</i>	12:45 PM – 2:15 PM	Transplant 101 Luncheon Symposium (Ticketed Event) <i>Page 60</i> <i>Room: Grammercy Suite, Level 2</i>
9:00 AM – 9:30 AM	Poster Session III <i>Page 47</i> <i>Room: America's Hall I, Level 3</i>	2:15 PM – 2:30 PM	Break
9:30 AM – 11:00 AM	Featured Symposium #1 <i>Page 59</i> Disease Related Outcome of Pediatric Liver Transplantation <i>Room: Sutton Center, Level 2</i>	2:30 PM – 4:00 PM	Concurrent Sessions <i>Page 60</i> Basic Science <i>Room: Sutton North, Level 2</i>
9:30 AM – 11:00 AM	Featured Symposium #2 <i>Page 59</i> Basic Science <i>Room: Sutton North, Level 2</i>	<i>Page 61</i> Outcomes <i>Room: Grand Ballroom, Level 3</i>	Fulminant Hepatic Failure <i>Room: Regeant Parlor, Level 2</i>
9:30 AM – 11:00 AM	Featured Symposium #3 <i>Page 59</i> Informing Candidates of Donor Risks <i>Room: Grand Ballroom, Level 3</i>	2:30 PM – 4:00 PM	Video Submission Session #2 <i>Page 62</i> <i>Room: Sutton Center, Level 2</i>
11:00 AM – 11:15 AM	Break	4:00 PM – 4:45 PM	Coffee Break <i>Room: America's Hall I, Level 3</i>
11:15 AM – 11:45 AM	State of the Art Lecture <i>Page 59</i> DCD and Liver Preservation <i>Room: Grand Ballroom, Level 3</i>	4:00 PM – 4:45 PM	Poster Session III, Poster Grand Rounds III <i>Page 62</i> <i>Room: America's Hall I, Level 3</i>
11:45 AM – 12:45 PM	Presidential Address & Distinguished Service Award <i>Page 60</i> <i>Room: Grand Ballroom, Level 3</i>	4:45 PM – 6:15 PM	Concurrent Sessions <i>Page 62</i> Pediatrics <i>Room: Sutton Center, Level 2</i>
12:45 PM – 2:15 PM	Meet-the-Expert Luncheons (Ticketed Events) <i>Page 60</i> Luncheon #1 Protection of the Kidney after Liver Transplantation <i>Room: Nassau Suite A, Level 2</i>	<i>Page 63</i> Recurrent Disease/Pathology <i>Room: Nassau Suite, Level 2</i>	Radiology <i>Room: Regeant Parlor, Level 2</i>
		<i>Page 64</i> Surgical Techniques/Complications <i>Room: Grand Ballroom, Level 3</i>	
		4:45 PM – 6:15 PM	Featured Symposium #4 <i>Page 65</i> Anesthesia/Critical Care <i>Room: Sutton North, Level 2</i>

Friday, July 10

6:15 PM - 6:30 PM ILTS Business Meeting

Page 65

Room: Sutton North, Level 2

7:30 PM - 10:30 PM Reception at Rockefeller Center*

Page 65

Rockefeller Center

** Ticketed Event with a separate registration fee. No transportation provided.*

Friday, July 10, 2009

Registration Open

6:30 AM – 7:00 PM

Room: Grand Ballroom Foyer, Level 3

Bristol-Myers Squibb Sponsored Breakfast Symposium - Confronting the Growing Challenge of Preserving Renal Function after Liver Transplantation

7:00 AM - 8:00 AM

Room: Sutton North, Level 3

Plenary Session II

8:00 AM - 9:00 AM

Room: Grand Ballroom, Level 3

Moderators: Geoffrey McCaughan, MD, PhD, Royal Prince Alfred Hospital, Sydney, Australia & Michael A.E. Ramsay, MD, Baylor University Medical Center, Dallas, TX, USA

- 8:00 AM **ACTIVATION OF PD-1 NEGATIVE T CELL CO-STIMULATION SIGNALING AMELIORATES LIVER INJURY INDUCED BY ISCHEMIA AND REPERFUSION. (Abstract # O-79)**
Haofeng Ji, Xiuda Shen, Feng Gao, Yuan Zhai, Ronald W. Busuttil. Los Angeles, CA, USA.
- 8:10 AM **COMBINED KIDNEY-LIVER TRANSPLANTATION OR KIDNEY TRANSPLANTATION ALONE FOR PRIMARY HYPEROXALURIA TYPE 1 (PH1): A FRENCH MULTICENTRIC STUDY. (Abstract # O-80)**
Philippe Metzler, Christophe Camus, Joseph Rivalan, Patrick Niaudet, Didier Samuel, Antoine Durrbach, François Bayle, Philippe Lang, Pierre Merville, Eric Thervet, Albert Bensman, Lionel Rostaing, Georges Deschenes, Karim Boudjema, Philippe Compagnon. Rennes, France.
- 8:20 AM **CHARACTERIZING STEROID-FREE REGIMENS POST LIVER TRANSPLANTATION: RANDOMIZED PHASE III TRIAL COMPARING TACROLIMUS MONOTHERAPY AFTER DACLIZUMAB INDUCTION AND TACROLIMUS+MMF DUAL THERAPY. (Abstract # O-81)**
U. Cillo, G. Otto, T. Becker. Padova, Italy; Mainz, Germany; Hannover, Germany.
- 8:30 AM **IDENTIFYING THE FUTILE PEDIATRIC LIVER RE-TRANSPLANT. (Abstract # O-82)**
Oliver B. Lao, James D. Perkins, Andre A. S. Dick, Patrick J. Healey, Jorge D. Reyes. Seattle, WA, USA.

- 8:40 AM **EARLY WITHDRAWAL OF CALCINEURIN INHIBITORS AND EVEROLIMUS MONOTHERAPY IN DE NOVO LIVER TRANSPLANT RECIPIENTS.**

(Abstract # O-83)

Roberto Montalti, Gianluca Rompianesi, Michele Masetti, Fabrizio Di Benedetto, Nicola Cautero, Nicola De Ruvo, Gian Piero Guerrini, Roberto Ballarin, Nazareno Smerieri, Giorgio E. Gerunda. Modena, Italy.

- 8:50 AM **INFLAMMATORY MICROENVIRONMENT ACCELERATES LIVER TUMOR GROWTH AND METASTASIS BY MOBILIZING CIRCULATING ENDOTHELIAL PROGENITOR CELLS AND INCREASING CANCER STEM LIKE CELL POPULATIONS. (Abstract # O-84)**

Kwan Man, Qiao Cheng, Yan Liu, Tung-Tuen Lam, Kein T. P. Ng, Chung-Mau Lo. Hong Kong, China.

Coffee Break

9:00 AM – 9:30 AM

Room: America's Hall I, Level 3

Poster Session III

9:00 AM – 9:30 AM

Presenters in Attendance

Room: America's Hall I, Level 3

- † Those posters identified as a Poster of Distinction by this symbol have received review scores that place them in the top 10% of their category. The Planning Committee encourages you to make them a priority when you visit the poster session.

Anesthesia/Critical Care Medicine

- P-373 **ASSOCIATION BETWEEN BODY MASS INDEX, ASCITES AND ANESTHESIA MANAGEMENT OF LIVER TRANSPLANT PATIENTS. (Abstract # P-373)**
Youri Vater, James Perkins, Gregory Dembo, Jorge Reyes, Kenneth Martay, Ester Park, Alex Vitin, Miriam M. Treggiari. Seattle, WA, USA.
- P-374 **THE INFLUENCE OF TWO DIFFERENT ANESTHETIC REGIMENS ON THE RIGHT VENTRICULAR FUNCTION DURING ORTHOTOPIC LIVER TRANSPLANTATION. (Abstract # P-374)**
Glauber Gouvêa, Rodrigo Diaz, Lúcio Auler, Renato Toledo, José M. Martinho. Rio de Janeiro, Brazil; Niterói, Rio de Janeiro, Brazil.

- P-375 ACTIVE SURVEILLANCE CULTURES ON THE FIRST DAY OF ADMISSION AFTER ORTHOTOPIC LIVER TRANSPLANTATION. (Abstract # P-375)**
Guadalupe Aguirre-Avalos, Marco A. Covarrubias-Velasco, Roberto C. Miranda-Ackerman, Cuauhtemoc Juárez-Uriarte, Graciela C. Gómez-Arellano, Andrea Viramontes-Pérez, Diego Cisneros-Estrada, Juan A. Ramírez-Casillas, Martha L. Zavala-Silva, Julio C. Mijangos-Mendez, Marlene Ruiz-García, Luis C. Rodríguez-Sancho, Hilario Coronado-Magaña. Guadalajara, Jalisco, Mexico.
- P-376 314 LIVER TRANSPLANTS WITHOUT PLASMA TRANSFUSION: ANALYSIS OF PREDICTIVE FACTORS OF BLEEDING. (Abstract # P-376)**
Emmanuel Boleslawski, Olivier Delhay, Nicole Declerck, Sébastien Dharancy, Stéphanie Truant, Gilles Lebuffé, Brigitte Jude, François-René Pruvot. Lille, France.
- P-377 THE EFFECTS OF EARLY AND LATE OCCURRENCE OF HEMORRHAGIC SHOCK IN POST-HEPATECTOMY RATS. (Abstract # P-377)**
Bruno Jawan, Chao-Long Chen, Chih-Hsien Wang, Chia-Yun Lai, Chia-Jung Huang, Kaohsiung, Taiwan.
- P-378 LIVER TRANSPLANTATION IN CRITICALLY ILL CHILDREN LESS THAN 1 YEAR OR 10 KG: AN ANESTHESIOLOGIST/ CRITICAL CARE PERSPECTIVE. (Abstract # P-378)**
Geraldine Diaz, Khalid Kahn, Andrew Theodoreau, Cleo Harden, Lu Masselli, Nikki Stubbs, Rainer Gruessner, John Renz. Tucson, AZ, USA.
- P-379 † ANESTHETIC MANAGEMENT AND OUTCOME OF LIVER TRANSPLANT PATIENTS WITH FULMINANT HEPATIC FAILURE. (Abstract # P-379)**
Alexandre Teruya, Alexandre P. Oliveira, Rogério P. Barbosa, Maria Paula V. C. Zurstrassen, Diná M. H. Nowak, Marcelo B. Rezende, Rogério Carballo, Sérgio P. Meira-Fº, Marcel V. Vitorelli, Raffael C. P. Zamper, Ben-Hur Ferraz-Neto, Flávio Takaoka. Sao Paulo, SP, Brazil.
- P-380 SALVAGE LIVER TRANSPLANTATION (LT) IN DECOMPENSATED CIRRHOSIS AFTER ABDOMINAL SURGERY. NEW INDICATION FOR LIVER TRANSPLANTATION. (Abstract # P-380)**
Ephrem Salamé, Mario Altieri, Gil Lebreton, Jack Tartiere, Désiré Samba, Barbara Alkofer, Dominique Arsène, Jean-Paul Deshayes, Philippe Ségol. Caen, France.
- P-381 THE USE OF CELL SAVER AND OTHER RESTRICTIVE BLOOD TRANSFUSION MANEUVERS FOR LIVER TRANSPLANTATION. (Abstract # P-381)**
Zalak Patel, Haran Fisher, Ernesto Pretto. Miami, FL, USA.
- P-382 CONTINUOUS INTRA-ARTERIAL BLOOD MONITORING CAN HELP TO ELIMINATE USE OF SODIUM BICARBONATE TO CORRECT METABOLIC ACIDOSIS DURING LIVER TRANSPLANTATION. (Abstract # P-382)**
Mitsuru Nakatsuka, Jan Yi Pasnak. Richmond, VA, USA.
- P-383 PERIOPERATIVE CARE IN ALPERS SYNDROME CARRIER: CASE PRESENTATION AND ANESTHESIA SURVEY. (Abstract # P-383)**
Youri L. Vater, Gregory A. Dembo, Kenneth Martay, Alexander A. Vitin, Avi A. Weinbroum. Seattle, WA, USA; Tel Aviv, Israel.
- P-384 LONG TERM OUTCOME AFTER LIVER TRANSPLANTATION IN A PATIENT WITH A POSTOPERATIVE DECOMPENSATED SEVERE PULMONARY HYPERTENSION AND CARDIAC FAILURE. (Abstract # P-384)**
Mario Altieri, Eric Saloux, Jean-Paul Deshayes, Jack Tartiere, Désiré Samba, Gilles Grollier, Ephrem Salamé. Caen, France.
- P-385 † SEVERE INTRAOPERATIVE GLUCOSE VARIABILITY AND EXTENDED CRITERIA DONOR: ASSOCIATION WITH REOPERATION FOR HEMORRHAGE IN LIVER TRANSPLANTATION. (Abstract # P-385)**
Chulsoo Park, Hasen Yersiz, Marc Huh, Randolph H. Steadman, Ronald Chen, Ke-Qin Hu, Johnny Hong, Ronald W. Busuttil, Victor W. Xia. Los Angeles, CA, USA; Orange, CA, USA.

Basic Sciences

- P-386 † DOWNREGULATION OF T-LYMPHOCYTE ACTIVATION AND CO-ACTIVATION MARKERS IN HEPATITIS C VIRUS (HCV) INFECTION BEFORE AND AFTER LIVER TRANSPLANTATION. (Abstract # P-386)**
Cecilia Ortiz, Marina Berenguer, Raquel Cañada, Amparo Sempere, Blas Risalde, Victoria Aguilera, Martin Prieto, Xavier Lopez, Andres Gonzalez. Valencia, Spain.
- P-387 PATTERNS OF HLA AND MICA ANTIBODY EXPRESSION IN TWENTY-YEAR LIVER TRANSPLANT SURVIVORS. (Abstract # P-387)**
Sherilyn Gordon Burroughs, Heidi Schubmehl, Mikki Ozawa, Paul Terasaki, Ronald W. Busuttil. Los Angeles, CA, USA.
- P-388 CC CHEMOKINE RECEPTOR 5delta32 POLYMORPHISM IS NOT A RISK FACTOR DEVELOPMENT OF BILIARY STRICTURES AFTER LIVER TRANSPLANTATION, BUT IT IS ASSOCIATED WITH OVERALL SURVIVAL. (Abstract # P-388)**
Carlijn I. Buis, Harm Hoekstra, Jelle Adelmeijer, Elizabeth B. Haagsma, Ton Lisman, Robert J. Porte. Groningen, Netherlands.

- P-389 TRACKING OF TRANSPLANTED LIVER CELLS IN A PRECLINICAL LARGE ANIMAL MODEL. (Abstract # P-389)**
Igor M. Sauer, Nathanael Raschzok, Kirsten Steinz, Anja Zielinski, Nils Billecke, Mehmet H. Morgül, Nora N. Kammer, Michaela K. Adonopoulou, Jens Pinkernelle, Ulf Teichgäber, Wolfgang Ruedinger, Peter Neuhaus. Berlin, Germany; Weinheim, Germany.
- P-390 ISCHEMIC PRECONDITIONING AND GLOBAL GENE EXPRESSION IN DECEASED DONOR LIVER TRANSPLANTATION. (Abstract # P-390)**
Ali Raza, George Dikdan, Kunj Desai, Asif Shareef, Andrew N. dela Torre, Dorian Wilson, Andrian Fisher, Helen Fernandes, Patricia Soteropoulos, Baburao Koneru. Newark, NJ, USA.
- P-391 THE PROTECTIVE EFFECT OF NITRITE ON LIVER COLD ISCHEMIA REPERFUSION INJURY. (Abstract # P-391)**
Wei Li, Zihui Meng, Yuliang Liu, Jorge D. Reyes, John D. Lang. Seattle, WA, USA; Seattle, USA.
- P-392 DEVELOPMENT OF A SEVERE VON WILLEBRAND FACTOR/ADAMTS13 DYSBALANCE DURING ORTHOTOPIC LIVER TRANSPLANTATION – A POSSIBLE RISK FOR POST-OPERATIVE THROMBOSIS? (Abstract # P-392)**
Ilona T. A. Pereboom, Jelle Adelmeijer, Yvonne van Leeuwen, Herman G. D. Hendriks, Robert J. Porte, Ton Lisman. Groningen, Netherlands; Rotterdam, Netherlands.
- P-393 MICROSURGICAL RECONSTRUCTION OF HEPATIC ARTERY WITHOUT CLAMPING THE GRAFT ARTERY IN LIVING DONOR LIVER TRANSPLANTATION: EXPERIENCES AND LESSONS FROM 101 CASES. (Abstract # P-393)**
Sheng Yan, Qi-Yi Zhang, Yu-Sheng Yu, Jiang-Juan He, Shu-Sen Zheng. Hangzhou, Zhejiang, China.
- P-394 EFFECTS OF COLD PRESERVATION ON INTRAHEPATIC BILIARY MICROCIRCULATION AFTER RAT LIVER TRANSPLANTATION. (Abstract # P-394)**
Jiahong Dong, Leida Zhang. Beijing, China; Chongqing, China.
- P-395 ROLE OF JNK IN THE BENEFICIAL EFFECTS OF PC IN RAT REDUCED-SIZE LIVER TRANSPLANTATION. (Abstract # P-395)**
Sussagna Padrisa Altés, Rosa Franco Gou, Joan Roselló Catafau, Carmen Peralta. Barcelona, Spain.
- P-396 FASTING PROTECTS AGAINST HEPATIC ISCHEMIA-REPERFUSION INJURY AND HAS NO NEGATIVE EFFECT ON LIVER REGENERATION FOLLOWING PARTIAL HEPATECTOMY. (Abstract # P-396)**
Marielle Verweij, Tessa M. van Ginhoven, James R. Mitchell, Sandra van den Engel, Jan H. J. Hoeijmakers, Jan N. M. IJzermans, Ron W. F. de Bruin. Rotterdam, Netherlands; Boston, MA, USA.

- P-397 † MECHANISM OF IMMUNE HYPORESPONSIVENESS INDUCED BY RECIPIENT-DERIVED IMMATURE DENDRITIC CELLS IN RAT LIVER TRANSPLANTATION. (Abstract # P-397)**
Li Li, Zhang Sheng Ning, Ran Jiang Hua, Liu Jing, Li Zhu. Kunming, Yunnan, China.
- P-398 HYPOXIA-INDUCIBLE FACTOR-DEPENDENT INDUCTION OF NETRIN-1 DAMPENS INFLAMMATION CAUSED BY HYPOXIA. (Abstract # P-398)**
Holger K. Eltzschig, Susan Mandell, Tobias Eckle, Peter Rosenberger. Aurora, CO, USA; Tuebingen, Germany.
- P-399 AN EFFECTIVE MODEL FOR PREDICTING EARLY ACUTE KIDNEY INJURY FOLLOWING LIVER TRANSPLANTATION. (Abstract # P-399)**
Xiao Xu, Qi Ling, Jian Wu, Lin Zhou, ShuSen Zheng. Hangzhou, Zhejiang, China.

Extended Criteria Donors/Disease Transmission

- P-400 LIVER TRANSPLANTATION FOLLOWING DONATION AFTER CARDIAC DEATH: AN ANALYSIS USING MATCHED PAIRS. (Abstract # P-400)**
James Pine, Amer Aldouri, Alistair Young, Mervyn Davies, Giles Toogood, Stephen Pollard, Peter Lodge, Raj Prasad. Leeds, West Yorkshire, United Kingdom.
- P-401 FACTORS THAT PREDICT OUTCOMES OF RECIPIENTS TRANSPLANTED WITH LIVERS FROM DONATION AFTER CARDIAC DEATH. (Abstract # P-401)**
Roberto Hernandez-Alejandro, Paul J. Marotta, Cheryl H. Dale, Corinne M. Weernink, Douglas Quan, William J. Wall. London, ON, Canada.
- P-402 OUTCOMES OF LIVER TRANSPLANTATION FROM HEPATITIS C POSITIVE DONORS BETWEEN 40 AND 65 YEARS OF AGE. (Abstract # P-402)**
Shakir Hussein, Thallis Christophides, Scot D. Henry, Jean C. Emond, James V. Guarrera. New York, NY, USA.
- P-403 USE OF LIVERS FROM HEPATITIS B CORE ANTIBODY POSITIVE DONORS IN LIVING DONOR LIVER TRANSPLANTATION. (Abstract # P-403)**
Onur Yaprak, Murat Dayangac, Koray Bas, Deniz Balci, Sahem Al Qusous, Yildiray Yuzer, Yaman Tokat. Istanbul, Turkey.
- P-404 † CLASSIFICATION AND MANAGEMENT OF BILIARY COMPLICATIONS IN DCD LIVER TRANSPLANTS. (Abstract # P-404)**
Roberto C. Lopez-Solis, Paulo Fontes, Vivek Sharma, Ruy Cruz, Deanna Blisard, Wallis Marsh, Michael de Vera. Pittsburgh, PA, USA.

- P-405 LIVER TRANSPLANTATION FROM UNCONTROLLED NON-HEART-BEATING DONORS. A CASE-CONTROL STUDY. (Abstract # P-405)**
Santos Jimenez-Galanes, Juan Carlos Meneu Diaz, Baltasar Perez-Saborido, Almudena Moreno Elola-Olaso, Yiliam Fundora Suarez, Manuel Abradelo Usera, Alberto Gimeno Calvo, Enrique Moreno Gonzalez. Madrid, Spain.
- P-406 SUCCESS OF ORGANS TRANSPLANTED FROM TWO DONORS VICTIMS OF CARBAMATE INSECTICIDES INTOXICATION. (Abstract # P-406)**
Jose H. Garcia, Geraldo A. Marques, Klebia A. de Lima, Leda F. Miranda, Flavia A. Campos, Marineuza Lucena, Auricelio Tavares, Gustavo R. Coelho, Jose T. Valenca, Jr., Joao B. Marinho. Fortaleza, Ceara, Brazil.
- P-407 THE IMPACT OF MARGINAL DONOR ON SURVIVING LIVER TRANSPLANTATION IN EMERGENCY CASES. (Abstract # P-407)**
Vesna Vegar Brozovic, Ivo Brozovic. Zagreb, Croatia.
- P-408 MARGINAL ORGANS DO NOT IMPAIR LIVER ALLOGRAFT RECIPIENT ONE YEAR OVERALL AND ORGAN SURVIVAL. (Abstract # P-408)**
Andreas A. Schnitzbauer, Axel Doenecke, Marcus N. Scherer, Hans J. Schlitt. Regensburg, Bavaria, Germany.
- P-413 HISTOLOGY FOLLOW UP OF INTERFERON TREATED PATIENTS RETRANSPLANTED FOR HEPATITIS C WITH SUSTAINED VIRAL RESPONSE. (Abstract # P-413)**
Rolland C. Dickson, Raouf Nakhleh, Marwan Ghabril, Jaime Aranda-Michel, Hugo Bonatti. Jacksonville, FL, USA; Indianapolis, IN, USA; Charlottesville, VA, USA.
- P-414 FACTORS PREDICTIVE OF SVR IN PATIENTS TREATED WITH PEG-IFN AND RIBAVIRIN FOR RECURRENT HCV AFTER LIVER TRANSPLANTATION. (Abstract # P-414)**
Reem Ghalib, Cheryl Levine, Praveena Lammata, Joann Cheah, Abdullah Mubarak, Parvez Mantry, Jeffrey Weinstein, Tiffany Anthony, Edward Dominguez, Alejandro Mejia, Stephen Cheng. Dallas, TX, USA.
- P-415 OUTCOMES OF LIVER TRANSPLANTATION IN 14 HIV-INFECTED PATIENTS WITH A MINIMUM FOLLOW-UP OF 2 YEARS. (Abstract # P-415)**
Mikel Gastaca, Jose R. Fernandez, Miguel Montejo, Milagros Testillano, Patricia Ruiz, Andres Valdivieso, Javier Gonzalez, Javier Bustamante, Maria J. Suarez, Alberto Ventoso, Jorge Ortiz de Urbina. Bilbao, Vizcaya, Spain.
- P-416 INCIDENCE OF HEPATIC FIBROSIS AFTER CADAVERIC ORTHOTOPIC LIVER TRANSPLANTATION DUE TO HCV CIRRHOSIS. (Abstract # P-416)**
Mario H. M. M. Meine, Maria Lucia Zanotelli, Guido P. C. Cantisani, Claudio A. Marroni, Ajácio B. M. Brandão, Eduardo S. Schlindwein, Ian Leipnitz, Guillermo Kiss, Marcos Mucenic, Marcus V. Osório. Porto Alegre, RS, Brazil.

Hepatitis C

- P-409 PREDICTORS OF EARLY HEPATIC FIBROSIS POST LIVER TRANSPLANTATION IN HEPATITIS C RECIPIENTS. (Abstract # P-409)**
Sameh A. Fayek, Raghava Munivenkatappa, Rolf N. Barth, Linda Ridge, Alina Macovei, Benjamin Philosopher. Baltimore, MD, USA.
- P-410 DONOR AGE PREDICTS RECURRENT DISEASE IN LIVER TRANSPLANTATION RECIPIENTS WITH HEPATITIS C. (Abstract # P-410)**
Marcus Bahra, Volker Schmitz, Carsten Kamphues, Ruth Neuhaus, Peter Neuhaus, Ulf P. Neumann. Berlin, Germany.
- P-411 † PROGNOSIS OF SEVERE RECURRENCE OF HCV INFECTION AFTER LIVER TRANSPLANTATION IN A LARGE COHORT OF HIV INFECTED PATIENTS. (Abstract # P-411)**
T. M. Antonini, A. M. Roque-Afonso, M. Sebah, B. Roche, R. Sobesky, C. Guettier, D. Samuel, J. C. Duclos-Vallee. Villejuif, France.
- P-412 COMBINED DONOR AND RECIPIENT AGE IMPACTS SURVIVAL IN PATIENTS WITH HEPATITIS C UNDERGOING LIVER TRANSPLANTATION. (Abstract # P-412)**
Patrick McHuge, Hoonbae Jeon, Thomas Johnston, Dinesh Ranjan, Roberto Gedaly. Lexington, KY, USA.
- P-417 INFLUENCE OF OKT3 THERAPY FOR STEROID-RESISTANT REJECTION ON THE RECURRENCE OF HEPATOCELLULAR CARCINOMA FOLLOWING LIVER TRANSPLANTATION. (Abstract # P-417)**
Michael A. Zimmerman, Mara A. Kelly, Jeffrey Campsen, Susan Mandell, James R. Burton, Igal Kam. Aurora, CO, USA.
- P-418 EVEROLIMUS RESCUE THERAPY IN LIVER TRANSPLANTATION. 12 DE OCTUBRE UNIVERSITY HOSPITAL EXPERIENCE. MADRID, SPAIN. (Abstract # P-418)**
Yiliam Fundora, Vanessa Barra, Santos Jiménez, Juan Carlos Meneu, Carlos Jiménez, Baltasar Pérez, Alberto Gimeno, Manuel Abradelo, Vanessa Lopez, Manuel Octavio Salinas, J. S. Ignacio Serrano, Enrique Moreno. Madrid, Spain.
- P-419 MYCOPHENOLATE MOFETIL IMPROVE THE FIBROSIS COURSE IN HCV TRANSPLANT RECIPIENTS. (Abstract # P-419)**
Tommaso Maria Manzia, Luca Toti, Andrea Monaco, Roberta Angelico, Daniele Sforza, Irene Bellini, Luciano Perrone, Manuele Berlanda, Giuseppe Tisone. Rome, Italy.

- P-420 COMPLETE STEROID AVOIDANCE IN ADULT LIVER TRANSPLANTATION WITH 1-YEAR FOLLOW-UP: A SINGLE CENTER EXPERIENCE. (Abstract # P-420)**
Carlo B. Ramirez, Cataldo Doria, Adam M. Frank, Victor Navarro, Steven Herrine, Simona Rossi, Mark Chaballa, Silvia Vaccino, Stephen T. Armenti, Yoogoo Kang, Ignazio R. Marino. Philadelphia, PA, USA; New York, NY, USA.
- P-421 † APOPTOSIS-RESISTANT T-CYTOTOXIC-MEMORY CELLS ASSOCIATE WITH REJECTION-PRONE CHILDREN WITH LIVER AND/OR SMALL BOWEL TRANSPLANTATION. (Abstract # P-421)**
Chethan Ashokkumar, Mylarappa Ningappa, Ankit Gupta, Qing Sun, Rakesh Sindhi. Pittsburgh, PA, USA.
- P-422 TEN YEAR RESULTS OF MYCOPHENOLATE MOFETIL (MMF) AND LOW DOSES of CALCINEURIN INHIBITORS (LDCI) IN PATIENTS WITH RENAL DYSFUNCTION AFTER LIVER TRANSPLANTATION. (Abstract # P-422)**
A. W. Avolio, R. Barbarino, L. Vargiu, M. C. Lirosi, B. Annicchiarico, S. Agnes, M. Siciliano, F. Frongillo. Rome, Italy.
- P-423 AN UNUSUAL PALATE LESION IN A POST-TRANSPLANT PATIENT. (Abstract # P-423)**
Katherine Metzger, Nayan Patel, Ester Little, Mark Wong, Alberto Ramos, Geetha Kolli, Moore Ann, Fox Kaya, Manch Richard. Phoenix, AZ, USA.
- P-424 RENAL TUBULER ACIDOSIS IN LIVER TRANSPLANT RECIPIENTS: THE EFFECT OF CALCINEURIN INHIBITORS. (Abstract # P-424)**
Ramazan Idilman, Zeki Karasu, Guldane Cengiz, Kenan Keven, Sadik Ersoz, Sule Sengul, Selcuk Haznedaroglu, Acar Tuzuner, Unal Aydin, Secil Olut, Ali Ozden. Ankara, Turkey; Izmir, Turkey.
- P-425 RENAL IMPROVEMENT AFTER CONVERSION TO MMF PREDICTS LONG-TERM SURVIVAL IN LIVER TRANSPLANT PATIENTS WITH CNI-RELATED NEPHROPATHY. (Abstract # P-425)**
Arno Kornberg, Bernadett Küpper, Katharina Thrum, Olaf Habrecht, Annette Sappeler. Jena, Germany; Bad Berka, Germany.
- P-426 † CONVERSION TO EVEROLIMUS-BASED IMMUNOSUPPRESSION IN MAINTENANCE LIVER TRANSPLANT RECIPIENTS. (Abstract # P-426)**
Mélanie Vallin, Olivier Guillaud, Isabelle Morard, Marie Claude Gagnieu, Gilles Mentha, Mustapha Adham, Emmanuel Morelon, Olivier Boillot, Emiliano Giostra, Jérôme Dumortier. Lyon, France; Geneva, Switzerland.
- P-427 EARLY COMPLICATIONS IN LIVER TRANSPLANT PATIENTS TREATED WITH TACROLIMUS OR CYCLOSPORINE. (Abstract # P-427)**
Juan J. P. Miranda, Jaime J. Poniachik, Danny D. Oksenberg, Jorge J. Contreras, Jose J. Ibarra. Santiago, Independencia, Chile.
- P-428 † SELF-REPORTED NON-ADHERENCE TO IMMUNE-SUPPRESSANTS IN LIVER TRANSPLANT RECIPIENTS: DEMOGRAPHIC, INTERPERSONAL AND INTRAPERSONAL FACTORS. (Abstract # P-428)**
Sangeeta Lamba, Kunj K. Desai, Bart Holland, Shaun Chun, Baburao Koneru. Newark, NJ, USA.
- P-429 HYPERACUTE REJECTION: REALITY IN LIVER TRANSPLANTATION – REPORT OF CASES. (Abstract # P-429)**
Bianca Della-Guardia, Marcio D. Almeida, Torres A. Margareth, Venco Filadelfio, Rogerio C. Afonso, Meira-Filho P. Sergio, Ben-Hur Ferraz-Neto. Sao Paulo, Brazil.
- P-430 SURVIVAL ANALYSIS AFTER LIVER TRANSPLANTATION IN CHILEAN PATIENTS RECEIVING CYCLOSPORINE OR TACROLIMUS AS PRIMARY IMMUNOSUPPRESSION. (Abstract # P-430)**
Juan J. P. Miranda, Danny D. Oksenberg, Jaime J. Poniachik, Jorge J. Contreras, Jose J. Ibarra. Santiago, Independencia, Chile.

Living Donor

- P-431 VALIDATING GRAFT AND STANDARD LIVER SIZE PREDICTIONS IN RIGHT LIVER LIVING DONOR LIVER TRANSPLANTATION. (Abstract # P-431)**
See C. Chan, Chung M. Lo, Yik Wong, Kelvin K. Ng, Siu H. Chok, Sheung T. Fan. Hong Kong, China.
- P-432 † EVALUATION OF 707 ADULT RIGHT HEPATIC LIVE (RHL) DONORS IN A LARGE WESTERN CENTER. (Abstract # P-432)**
Elizabeth Pomfret, Mary Ann Simpson, Denise Morin, David Burns, Kristen Robson, James Pomposelli. Burlington, MA, USA.
- P-433 ANALYSIS OF COMPLICATIONS IN HEPATIC RIGHT LOBE LIVING DONORS. (Abstract # P-433)**
Ayman Zaki Azzam, Kinji Uryuhara, T. Ito, Y. Takada, H. Egawa, Kiochi Tanaka. Kyoto, Japan.
- P-434 SAFETY OF SMALL-FOR-SIZE GRAFT IN ADULT-TO-ADULT LIVING DONOR LIVER TRANSPLANTATION. (Abstract # P-434)**
Ju Ik Moon, Milljae Shin, Jong Man Kim, Jae Min Chun, Gum O. Jung, Gyu Seong Choi, Jae Berm Park, Choon Hyuck David Kwon, Sung-Joo Kim, Jae-Won Joh, Suk-Koo Lee. Seoul, Korea.
- P-435 † PREOPERATIVE RISK FACTORS FOR EVALUATING THE PROGNOSIS AFTER ADULT-TO-ADULT LIVING DONOR LIVER TRANSPLANTATION. (Abstract # P-435)**
Masato Fujiyoshi, Masahiko Taniguchi, Minoru Ota, Kenichiro Yamashita, Tomomi Suzuki, Tsuyoshi Shimamura, Toshiya Kamiyama, Michiaki Matsushita, Hiroyuki Furukawa, Satoru Todo. Sapporo, Hokkaido, Japan.

- P-436 RIGHT DONOR HEPATECTOMY IS ASSOCIATED WITH PERSISTENT THROMBOCYTOPENIA AND SPLENOMEGALY. (Abstract # P-436)**
Benjamin Samstein, Dianne L. Rudow, Jean C. Emond. New York, NY, USA.
- P-437 SEVERE HYPOPHOSPHATEMIA MAY PREDICT LIVER DYSFUNCTION AFTER LIVE LIVER DONATION. (Abstract # P-437)**
Bo Li, Ding Yuan, Yonggang Wei, Lunan Yan, Tianfu Wen. Chengdu, Sichuan, China.
- P-438 LOW INCIDENCE OF GRAFT FAILURE SECONDARY TO SMALL-FOR-SIZE SYNDROME (SFSS) FOLLOWING LIVING DONOR LIVER TRANSPLANTATION (DLT). (Abstract # P-438)**
Khashayar Vakili, Yee-Lee Cheah, James J. Pomposelli, Mohamed Akoad, William D. Lewis, Roger L. Jenkins, Elizabeth A. Pomfret. Burlington, MA, USA.
- P-439 REGIONAL COLLABORATION IN LIVER TRANSPLANTATION FOR FILIPINOS. (Abstract # P-439)**
Vanessa de Villa, Allan Concejero, Germana Gregorio, Janus Ong, Eternity Labio, Ramon Santos-Ocampo, Chao Long Chen, Chung Mau Lo, Sheung Tat Fan. Pasig, Philippines; Kaohsiung, Taiwan; Hong Kong, China.
- P-440 THE MINIMAL DONOR VOLUME FOR RIGHT LOBE LIVING-DONOR LIVER TRANSPLANTATION. (Abstract # P-440)**
Salvatore Gruttadauria, Fabrizio Di Francesco, James Wallis Marsh, Amadeo Marcos, Bruno Gridelli. Palermo, Italy.
- P-441 ANALYSIS OF RIGHT HEPATECTOMIES IN THE NSQP DATABASE DETERMINES BENCHMARK MORBIDITY AND MORTALITY RATES FOR LIVING RELATED LIVER TRANSPLANT DONORS. (Abstract # P-441)**
Thomas A. Aloia, Stephen L. Jones, Nadine Haykal, David Michel, Linda W. Moore, Andrea Duchini, Joseph Galati, Barbara L. Bass, Ahmed O. Gaber, R. M. Ghobrial. Houston, TX, USA.
- P-442 A SINGLE INSTITUTION EXPERIENCE WITH LIVE DONOR LIVER TRANSPLANTATION FOR ACUTE-ON-CHRONIC HEPATITIS B LIVER FAILURE. (Abstract # P-442)**
Zheyu Chen, Tianfu Wen, Yong Zeng, Jichun Zhao, Lunan Yan. Chengdu, Sichuan, China.
- P-443 HUNDRED AND SIXTY SIX CASES OF LIVING-DONOR LIVER TRANSPLANTATION: SINGLE-CENTER EXPERIENCE IN BRAZIL. (Abstract # P-443)**
Thomson M. Palma, Rafael Pecora, Carlos E. S. Baía, Marilia I. Leonardi, Ana Sueli C. N. Zan, Leonardo R. Ferraz, Osvaldo I. Pereira, Ana Olga N. G. F. Mies, Eloiza H. D. Quintela, Margareth P. Lallee, Fabricio G. Souza, Maira S. C. Santos, Leonardo Weissmann, Edna A. F. S. Pedro, Marcio M. Paredes, Sergio Mies. Sao Paulo, SP, Brazil.
- P-444 IS RIGHT HEPATECTOMY FOR LIVER LIVING DONATION REALLY COMPARABLE TO RIGHT HEPATECTOMY FOR BENIGN LIVER LESIONS? (Abstract # P-444)**
Fédérica Dondéro, Guido Llido, Magaly Zappa, Valérie Vilgrain, Jacques Belghiti. Clichy, France.
- P-445 HOW IMPORTANT INTRAOPERATIVE CINE-PORTOGRAM IS? IN ORDER TO SUPPLY ADEQUATE PORTAL FLOW TO THE PARTIAL LIVER GRAFT IN ADULT-TO-ADULT LIVING DONOR LIVER TRANSPLANTATION. (Abstract # P-445)**
Deok-Bog Moon, Sung-Gyu Lee, Chul-Soo Ahn, Shin Hwang, Ki-Hun Kim, Tae-Yong Ha, Gi-Won Song, Dong-Hwan Jung, Kwan-Woo Kim, Nam-Kyu Choi, Gil-Chun Park, Joo-Dong Kim, Young-Dong Yu. Seoul, Korea.
- ## Malignancies
- P-446 LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA WITH TUMORS DIAGNOSED BEFORE TRANSPLANTATION SHOWS BETTER IN SURVIVAL AND LOWER TUMOR RECURRENCE OVER THE YEARS. (Abstract # P-446)**
Nicholas Onaca, Gary L. Davis, Linda W. Jennings, Robert M. Goldstein, Goran B. Klintmalm. Dallas, TX, USA.
- P-447 LONG-TERM OUTCOME OF PATIENTS WHO UNDERWENT LIVER TRANSPLANTATION (LT) FOR HCC WITH A PREVIOUS LIVER RESECTION (LR). (Abstract # P-447)**
Gonzalo Sapisochin, Dopazo Cristina, Amaia Gantxegi, Mireia Caralt, Laia Blanco, Jose Luis Lazaro, Itxarone Bilbao, Luis Castells, Helena Allende, Joaquin Balsells, Ramon Charco. Barcelona, Spain.
- P-448 † HEPATOCELLULAR CARCINOMA ON CIRRHOSIS: LIVER RESECTION, LIVER TRANSPLANTATION OR BOTH SURGICAL TREATMENTS? AN INTENTION TO TREAT ANALYSIS. (Abstract # P-448)**
Massimo Del Gaudio, Giorgio Ercolani, Matteo Ravaioli, Matteo Cescon, Augusto Lauro, Marco Vivarelli, Alessandro Cucchetti, Matteo Zanello, Gaetano Vetrone, Chiara Zanfi, Alessandro Dazzi, Francesco Tuci, Cristina Morelli, Gian Luca Grazi, Antonio Daniele Pinna. Bologna, Italy, Italy.
- P-449 100 PATIENTS WITH LIVER TRANSPLANTATION FOR HCC PRETREATED BY SEQUENTIAL TACE: IMPACT OF TUMOR CHARACTERISTICS ON RECURRENCE. (Abstract # P-449)**
Gerd Otto, Fernandes Bittinger, Maria Hoppe-Lotichius, Michael Heise, Michael Pitton. Mainz, Germany.

- P-450 DE NOVO SOLID ORGAN MALIGNANCY AFTER LIVER TRANSPLANTATION. (Abstract # P-450)**
Gazi B. Zibari, Hany M. Dabbous, Robert MacMillan, Hosein Shokouh-Amiri. Shreveport, LA, USA.
- P-451 HEPATOCELLULAR CARCINOMA (HCC) IN A 9-MONTH-OLD GIRL WITH BILIARY ATRESIA. (Abstract # P-451)**
Vincenzo Pugliese, Katia C. Leite, Eduardo Carone, Eduardo A. Fonseca, João Seda-Neto, Gilda Porta, Renata P. S. Pugliese, Paulo Chapchap. São Paulo, Brazil.
- P-452 DIFFERENCES BETWEEN CLINICAL AND PATHOLOGICAL EVALUATIONS OF HCC TUMOR LOAD DO NOT IMPACT ON 5-YEAR DISEASE-FREE SURVIVAL AFTER LIVER TRANSPLANTATION. (Abstract # P-452)**
Otmene Nafidi, Denis Marleau, André Roy, Marc Bilodeau. Montréal, QC, Canada.
- P-453 RADIOFREQUENCY ABLATION PRIOR TO LIVER TRANSPLANTATION: FEASIBILITY OF A NOVEL BIPOLAR DEVICE. (Abstract # P-453)**
Robert M. Eisele, Julia Zhukowa, Sascha S. Chopra, Sven C. Schmidt, Peter Neuhaus, Guido Schumacher. Berlin, Germany.
- P-454 RECURRENT HEPATOCELLULAR CARCINOMA IN LIVER TRANSPLANT RECIPIENTS WITH HEPATITIS C. (Abstract # P-454)**
Ivan Zendejas, Shugo Mizuno, Alan W. Hemming, Robin D. Kim. Gainesville, FL, USA.
- P-455 PROGNOSTIC FACTORS AFFECTING SURVIVAL AFTER RECURRENCE IN PATIENTS WHO UNDERWENT LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA. (Abstract # P-455)**
Woo Young Shin, Kyung-Suk Suh, Joohyun Kim, Tae Hoon Kim, Nam-Joon Yi, Jai Young Cho, Kuhn Uk Lee. Seoul, Korea.
- P-456 PRIMARY VERSUS SALVAGE LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA WITHIN MILAN CRITERIA – A SINGLE CENTER EXPERIENCE. (Abstract # P-456)**
Kelvin K. Ng, Chung-Mau Lo, Sheung-Tat Fan. Hong Kong, Hong Kong.
- P-457 LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA: INCIDENTAL VERSUS NO TUMOR. (Abstract # P-457)**
Burckhardt Ringe, Gary Xiao, David Sass, Sherry Shang, Timothy Maroney, Alexander Trebelev, David Reich, Kenneth Rothstein. Philadelphia, PA, USA.
- P-458 THE USE OF YTTRIUM⁹⁰ MICROSPHERE RADIOEMBOLIZATION OF HEPATOCELLULAR CARCINOMA AS DOWNSTAGING/BRIDGE FOR LIVER TRANSPLANTATION: CASE REPORT. (Abstract # P-458)**
Hatem Khalaf, Hamad Al-Suhaibani, Abdulaziz Al-Sugair, Hadeel Almana, Abdulmonem Almutawa, Mohammed Al-Sebayel. Riyadh, Saudi Arabia.
- P-459 LIVER RESECTION VERSUS LIVER TRANSPLANTATION AS TREATMENT OF EARLY HEPATOCELLULAR CARCINOMA: A CASE-CONTROL STUDY. (Abstract # P-459)**
Roberto Montalti, Valentina Serra, Gianluca Rompianesi, Fabrizio Di Benedetto, Nicola De Ruvo, Michele Masetti, Nicola Cautero, Roberto Ballarin, Rosa M. Iemmolo, Gian Piero Guerrini, Giorgio E. Gerunda. Modena, Italy.
- P-460 EFFICACY OF VARIOUS INTERVENTION MODALITIES ON HEPATOCELLULAR CARCINOMA. (Abstract # P-460)**
Gene M. Weinstein, Raffi Karagozian, Hannah Lee, Lawton Shick, Kathy Theal, Richard Freeman. Boston, MA, USA.
- P-461 LIVING DONOR LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA: TWO-CENTER PRELIMINARY RESULTS. (Abstract # P-461)**
Yaman Tokat, Sezai Yilmaz, Vedat Kirimlioglu, Hale Kirimlioglu, Cuneyt Kayaalp, Yildiray Yuzer. Istanbul, Turkey; Malatya, Turkey.
- P-462 PERCUTANEOUS RADIOFREQUENCY (PRFA) AS A BRIDGE TO LIVER TRANSPLANTATION (LT) FOR HEPATOCELLULAR CARCINOMA (HCC): CLINICO-PATHOLOGICAL RESULTS. (Abstract # P-462)**
A. Smail, R. Adam, M. Sebah, E. Vibert, C. Salloum, F. Perdigao, D. Azoulay, D. Samuel, C. Guettier, D. Castaing. Villejuif, France.
- P-463 EFFICACY OF ABLATIVE THERAPY IN HEPATOCELLULAR CARCINOMA (HCC) PATIENTS UNDERGOING LIVER TRANSPLANTATION – STUDY OF TUMOR NECROSIS ON EXPLANT PATHOLOGY. (Abstract # P-463)**
Parvez S. Mantry, Abdullah Mubarak, Travis VanMeter, Reem Ghalib, Jeffrey Weinstein, Alejandro Mejia, Tiffany Anthony, Stephen Cheng. Dallas, TX, USA.
- P-464 POST TRANSPLANT LYMPHOPROLIFERATIVE DISORDERS AFTER LIVER TRANSPLANTATION. (Abstract # P-464)**
Hugo J. R. Bonatti, Zina Meridan, Ehab A. Abdel-Gawad, Amy Roman, Timothy M. Schmitt, Klaus Hagspiel, Robert G. Sawyer, Kenneth L. Brayman, Helen P. Cathro, Costi D. Sifri, Timothy L. Pruett. Charlottesville, VA, USA.

Outcomes

- P-465 AB0-(IN)COMPATIBLE CADAVERIC DONOR LIVER TRANSPLANTATION – DOES IT REALLY CHANGE THE OUTCOMES? (Abstract # P-465)**
Marcin Kotulski, Krzysztof Zieniewicz, Marek Krawczyk. Warsaw, Poland.
- P-466 LIVER TRANSPLANTATION FOR BILIARY ATRESIA. (Abstract # P-466)**
Hamdi Karakayali, Figen Ozcay, Sinasi Sevmis, Gokhan Moray, Nazli Yavuzer, Adnan Torgay, Gulnaz Arslan, Mehmet Haberal. Ankara, Turkey.
- P-467 THE EFFECTS OF SMOKING ON LIVER TRANSPLANT MORBIDITY AND MORTALITY. (Abstract # P-467)**
Tacara N. Soones, Silvia Hafliger, Lorna M. Dove. New York, NY, USA.
- P-468 QUALITY OF LIFE FOR LONG-TERM SURVIVORS OF LIVER TRANSPLANTATION: A SYSTEMATIC REVIEW. (Abstract # P-468)**
Erin A. Walker, Adam Bartlett, Nigel Heaton, Christine Eiser. Sheffield, United Kingdom; London, United Kingdom.
- P-469 EMERGENCY LIVER TRANSPLANT OUTCOME IN ITALY. (Abstract # P-469)**
Carlo De Cillia, Sante Venetoni, Andrea Ricci, Dino A. Mattucci, Lucia Rizzato, Alessandro Nanni Costa. Roma, Italy; Italy, Italy.
- P-470 THE LONG-TERM SURVIVAL OF LIVER TRANSPLANT RECIPIENTS FOR HEPATITIS B AND D CIRRHOSIS IS INCREASED WHEN HEPATOCELLULAR CANCER IS PRESENT. (Abstract # P-470)**
George Imvrios, Dionisios Vrochides, Vasilios Papanikolaou, Ioannis Fouzas, Nikolaos Antoniadis, Dimitrios Giakoustidis, Achilleas Ntinis, Dimitrios Kardasis, Evangelos Akriviadis, Themistoklis Vasiliadis, Ioannis Goulis, Eleni Katsika, Georgios Moutsianos, Kalliopi Patsiaoura, Georgios Tsoulfas, Nikolaos Ouzounidis, Polina Agorastou, Dimitrios Takoudas. Thessaloniki, Greece.
- P-471 † A PROSPECTIVE COMPARATIVE STUDY OF CELSIOR AND UNIVERSITY OF WISCONSIN LIVER PRESERVATION SOLUTIONS. (Abstract # P-471)**
Eva M. Montalvá, Saulo Deusa, Rafael López-Andújar, Fernando San Juan, Angel Moya, Eugenia Pareja, Juan José Vila, Manuel De Juan, José MIR. Valencia, Spain.
- P-472 † LIVER TRANSPLANTATION (LT) FOR PATIENTS WITH ALCOHOLIC CIRRHOSIS (AC) WITH PROVEN ALCOHOL CONSUMPTION ON THE DAY OF THE TRANSPLANT PROCEDURE: A CASE CONTROL STUDY. (Abstract # P-472)**
Romain Altwegg, C. Vanlemmens, P. H. Bernard, S. Dharancy, P. Wolf, J. Dumortier, S. Radenne, O. Chazouilleres, F. Navarro, GP Pageaux. Montpellier, France; Besançon, France; Bordeaux, France; Lille, France; Strasbourg, France; Lyon, France; Paris, France.
- P-473 130 LIVER TRANSPLANTATIONS FOR FULMINANT HEPATIC FAILURE – RESULTS OF A HIGH VOLUME CENTER. (Abstract # P-473)**
Panagiotis Fikatas, Frank Ulrich, Ji Eun Lee, Sascha Chopra, Andreas Pascher, Olaf Guckelberger, Gero Puhl, Ulf Neumann, Peter Neuhaus, Johann Pratschke. Berlin, Germany.
- P-474 PREVIOUS LIVER RESECTION HAS NO NEGATIVE IMPACT ON OUTCOME OF FUTURE LIVER TRANSPLANTATION: EVIDENCE FROM A MATCHED CASE-CONTROL STUDY. (Abstract # P-474)**
Henrik Petrowsky, Ronald C. Auvenshine, Christopher M. Jones, John P. Duffy, Johnny C. Hong, Ronald W. Busuttil. Los Angeles, CA, USA.
- P-475 † FACTOR V LEIDEN MUTATION IS ASSOCIATED WITH HEPATIC ARTERY THROMBOSIS AFTER ORTHOTOPIC LIVER TRANSPLANTATION. (Abstract # P-475)**
Ilona T. A. Pereboom, Jelle Adelmeijer, Gerrit van der Steege, Aad P. van den Berg, Ton Lisman, Robert J. Porte. Groningen, Netherlands.
- P-476 THROMBOCYTOPENIA, SPLENOMEGALY AND PORTAL BLOOD FLOW IN LIVER TRANSPLANT PATIENTS. (Abstract # P-476)**
Eyraud Daniel, Granger Benjamin, Fratéa Sylvia, Vaillant Jean Christophe, Rousseau Géraldine, Hannoun Laurent. Paris, France, Metropolitan.
- P-477 † OUTCOMES OF PREGNANCY IN FEMALE LIVER TRANSPLANT RECIPIENTS. (Abstract # P-477)**
Vasileios Kostaras, Adam Frank, Carlo B. Ramirez, Cataldo Doria, Lisa A. Coscia, Vincent T. Armenti. Philadelphia, PA, USA.
- P-478 ONE HUNDRED AND FIFTY PEDIATRIC LIVER TRANSPLANTS AT RIYADH MILITARY HOSPITAL. (Abstract # P-478)**
Ifthikhar Khan, Abdul Aziz Al-Zahrani, Zahid Arain, Hammood Hebbi, Sami Wali, Atef Bassas. Riyadh, Saudi Arabia.
- P-479 EARLY AND LATE MORTALITY IN PATIENTS WITH LIVER TRANSPLANTATION. A 15 YEAR EXPERIENCE IN A LIVER CENTER IN CHILE (1993-2008). (Abstract # P-479)**
Rodrigo Zapata, Monserrat Rius, Edgar Sanhueza, Roberto Humeres, Horacio Rios, Hepp Juan. Santiago, Chile.
- P-480 PREVALENCE OF RISK FACTORS CONTRIBUTING TO RENAL DYSFUNCTION AND CARDIOVASCULAR MORBIDITY IN LIVER TRANSPLANT RECIPIENTS. (Abstract # P-480)**
Imran M. Patanwala, Mark Hudson. Newcastle upon Tyne, United Kingdom.

- P-481 INTENT-TO-TREAT SURVIVAL ANALYSIS OF CANDIDATES FOR LIVER TRANSPLANTATION IN A SINGLE CENTER IN ISRAEL. (Abstract # P-481)**
Eytan Mor, Danny Erez, Benjamin Medalion, Rachel Michowiz, Ziv Ben-Ari. Petah-Tiqwa, Israel.
- P-482 OUTCOMES OF LIVER TRANSPLANTATION IN COMBINED HEPATITIS C AND HEPATOCELLULAR CARCINOMA ARE NOT INFERIOR TO HEPATITIS C ALONE. (Abstract # P-482)**
Ali Raza, Gopal Ramaraju, Asif Shareef, Kunj Desai, Bart K. Holland, Andrew N. dela Torre, Dorian Wilson, Adrian Fisher, Arun Samanta, Baburao Koneru. Newark, NJ, USA.
- P-483 DO PRE-TRANSPLANT DISEASE SEVERITY SCORES PREDICT OUTCOME AFTER LIVING DONOR LIVER TRANSPLANTATION. (Abstract # P-483)**
Neeraj Saraf, Sanjiv Saigal, Vinay Kumaran, Ravi Mohanka, Naimish Mehta, Randhir Sud, Samiran Nundy, Arvinder Soin. New Delhi, Delhi, India.
- P-484 EARLY CHANGES IN KIDNEY FUNCTION PREDICT LONG-TERM CHRONIC KIDNEY DISEASE AND MORTALITY IN PATIENTS FOLLOWING LIVER TRANSPLANTATION. (Abstract # P-484)**
M. Cantarovich, J. Tchervenkova, J. Barkun, M. Deschênes, P. Wong, P. Ghali, P. Chaudhury, M. Hassanian, G. Arena, M. Fernandez, S. Paraskevas, P. Metrakos. Montréal, QC, Canada.
- P-485 † MELD SCORE LESS THAN 15 PREDICTS PROLONGED SURVIVAL AFTER TRANSJUGULAR INTRA-HEPATIC PORTO-SYSTEMIC SHUNTING (TIPS) PLACED TO TREAT ASCITES AND VARICEAL BLEEDING DUE TO SEVERE DISEASE RECURRENCE AFTER LIVER TRANSPLANTATION. (Abstract # P-485)**
Victor R. Araya, Eyob L. Feyssa, Kevin S. Grewal, Jorge A. Ortiz, Paul S. Brady, Radi F. Zaki, Ashraf H. Malek, Mumtaz A. Niazi. Philadelphia, PA, USA.
- P-486 † COST AND CLINICAL OUTCOMES ASSOCIATED WITH THE USE OF PERI-OPERATIVE FACTOR VIIa IN LIVER TRANSPLANTATION (LTX). (Abstract # P-486)**
Jenna L. Scheffert, Dave J. Taber, Neha Patel, Nicole A. Weimert, Brienne L. Dunn, Angello Lin, John E. McGillicuddy, Michael G. Hughes, Charles F. Bratton, Prabhakar K. Baliga, Kenneth D. Chavin. Charleston, SC, USA.
- P-487 ALLOANTIBODIES DETECTED BY LUMINEX IgG-PRA AND THE OUTCOME OF LIVER ALLORAFTS. (Abstract # P-487)**
Francisco Monteiro, Helcio Rodrigues, Jorge Kalil, Paulo Massarolo, Carlos Baia, Sergio Mies. São Paulo, SP, Brazil.
- P-488 DEGREE OF THROMBOCYTOPENIA AS AN INDICATOR OF SEVERITY OF LIVER DISEASE IN PATIENTS AWAITING AND FOLLOWING LIVER TRANSPLANTATION. (Abstract # P-488)**
R. S. Brown, Jr., R. Odeh-Ramadan, N. H. Afdhal, M. P. Curry, R. Reddy, F. Poordad, T. D. Schiano, M. R. Charlton, S. B. Han, D. Theodore, K. Grotzinger, J. Ishak, K. Payne, N. Lordan. NY, USA; Boston, USA; Philadelphia, USA; LA, USA; Rochester, USA; RTP, USA; Nashua, NH, USA.
- P-489 CELSIOR PRESERVATION FLUID IN LIVER TRANSPLANTATION: ONE-YEAR FOLLOW UP OF A PROSPECTIVE, MULTICENTER, NON-RANDOMIZED STUDY. (Abstract # P-489)**
Stephane Grandadam, Philippe Compagnon, Ephrem Salame, Philippe Wolf, Christian Ducerf, Patrice Le Treut, Olivier Soubrane, Daniel Cherqui, Karim Boudjema, Eric Bellissant. Rennes, France; Caen, France; Strasbourg, France; Lyon, France; Marseille, France; Paris, France; Créteil, France.
- P-490 SUCCESSFUL PREGNANCY IN A PATIENT WITH EPITHELIOID HEMANGIOENDOTHELIOMA – A CANDIDATE TO LIVER TRANSPLANTATION. (Abstract # P-490)**
Zoulikha Jabiry-Zieniewicz, Katarzyna Bobrowska, Barbara Suchonska, Iwona Szymusik, Oskar Kornasiewicz, Piotr Smoter, Krzysztof Zieniewicz. Warsaw, Poland.
- P-491 ANALYSIS OF SURVIVAL AFTER PRIMARY LIVER TRANSPLANTATION – MULTIVARIATE ANALYSIS OF 155 CASES IN A SINGLE CENTER INSITUATION. (Abstract # P-491)**
Julio C. Wiederkehr, Mauro R. Igreja, Marcelo S. Nogara, Nelson D. Souza, Barbara A. Wiederkehr, Vitor B. Nascimento. Blumenau, Santa Catarina, Brazil.
- P-492 LIVER TRANSPLANTATION IN PERÚ: OUTCOMES IN A SINGLE CENTER. (Abstract # P-492)**
José C. Chaman, Pedro M. Padilla, Carlos F. Rondon, Eduardo G. Anchante, Felix A. Carrasco, Fernando M. Bobadilla. Lima, Peru.
- P-493 GYNECOLOGICAL AND OBSTETRICAL PROBLEMS IN PATIENTS AFTER LIVER TRANSPLANTATION – A CASE REPORT. (Abstract # P-493)**
Zoulikha Jabiry-Zieniewicz, Barbara Suchonska, Iwona Szymusik, Katarzyna Bobrowska. Warsaw, Poland.
- P-494 LIVER TRANSPLANTATION IN PATIENTS WITH FAMILIAL AMYLOID (FAP): COMPARISON OF DIFFERENT TRANSTHYRETIN MUTATIONS. (Abstract # P-494)**
Ana-Paula Barreiros, Felix Post, Maria Hoppe-Lotichius, Peter R. Galle, Gerd Otto. Mainz, Germany.

- P-495 TUBERCULOSIS AFTER LIVER TRANSPLANTATION: A SINGLE CENTER EXPERIENCE. (Abstract # P-495)**
Shih-Ming Kuo, Teng-Wei Chen, Chung-Bao Hsieh. Taipei, Taiwan.
- P-496 POSTOPERATIVE LIVER TRANSPLANT FUNCTION SCORE CAN PREDICT SHORT AND LONG-TERM SURGICAL OUTCOMES. (Abstract # P-496)**
Mazen Hassanain, Jean Tchervenkove, Prosanto Chaudhury, Jeffery Barkun, Steven Paraskevas, Marcelo Cantarovich, Peter Metrakos. Montreal, QC, Canada; Montreal, QC.

Patient Selection/Organ Allocation

- P-497 GRANULOMATOUS INFECTIONS IN LIVING DONOR LIVER TRANSPLANT CANDIDATES. (Abstract # P-497)**
Allan Concejero, Chao-Long Chen, Hung-I Lu, Hock-Liew Eng, Jien-Wei Liu, Chin-Hsiang Yang, Chih-Chi Wang, Shih-Ho Wang, Yueh-Wei Liu, Chee-Chien Yong. Kaohsiung, Taiwan.
- P-498 A LIVING DONOR LIVER TRANSPLANTATION FOR UNCORRECTABLE INTRA- AND EXTRAHEPATIC BILOMA AFTER TRANSCATHETER ARTERIAL CHEMOEMBOLIZATION. (Abstract # P-498)**
Youn Jin Kim, Seong-Hwan Chang, Ik Jin Yun, Hae Won Lee. Seoul, Republic of Korea.
- P-499 † SEVEN SCORE SYSTEMS TO EVALUATE CANDIDATES TO ORTHOTOPIC LIVER TRANSPLANTATION: WHICH IS THE WINNER? (Abstract # P-499)**
Stefano Gitto, Maurizio Biselli, Annagiulia Gramenzi, Giovanni Vitale, Stefania Lorenzini, Roberto Di Donato, Lucia Brodosi, Maria Cristina Morelli, Gian Luca Grazi, Antonio Daniele Pinna, Mauro Bernardi, Pietro Andreone, Bologna Liver Transplantation Group (BLTG). Bologna, Italy.
- P-500 THE ROLE OF POST-REPERFUSION BIOPSY IN THE ERA OF EXTENDED CRITERIA DONOR. (Abstract # P-500)**
M. Raoufi, C. Ma, A. Ormsby, H. Vakil, K. Brown, M. A. Huang, D. Moonka, M. Abouljoud. Detroit, MI, USA.
- P-501 LIVER ALLOCATION IN EUROPE: THE 2007-2008 ITALY-SLOVAKIA “TWINNING PROJECT” UNDER MELD-ALLOCATION’S PERSPECTIVE. (Abstract # P-501)**
Augusto Lauro, Ludovit Laca, Luboslav Bena, Antonio Pinna, Jan Koller, Daniel Kuba, Lorenza Ridolfi, Paola di Ciaccio, Alessandro Nanni Costa. Bologna, Italy.
- P-502 PRESUMED CONSENT LAWS ARE ASSOCIATED WITH HIGHER DONATION RATES AROUND THE WORLD. (Abstract # P-502)**
Barbara Kern, Jason Rhee, Richard B. Freeman. Boston, MA, USA.

- P-503 SPLIT LIVER TRANSPLANTATION: EXPERIENCE IN “12 DE OCTUBRE” UNIVERSITY HOSPITAL, MADRID, SPAIN. (Abstract # P-503)**
Yiliam Fundora, Almudena Moreno, Juan Carlos Meneu, Baltasar Pérez, Alberto Gimeno, Carlos Jiménez, Manuel Abradelo, Enrique Moreno. Madrid, Spain.
- P-504 LIVER TRANSPLANTATION FOR BILIARY ATRESIA IN ADULTS: SHOULD THE PATTERN OF ORGAN PROCUREMENT DICTATE THE THERAPEUTIC STRATEGY IN PATIENTS WITH BILIARY ATRESIA? (Abstract # P-504)**
Mircea Chirica, Melanie Thouvenin, Olivier Scatton, Rim Cherif, Denis Bernard, Yvon Calmus, Pierre Philippe Massault, Olivier Soubrane. Paris, France.
- P-505 SUCCESSFUL LIVER TRANSPLANTATION IN A PATIENT WITH EPIDERMOLYSIS BULLOSA ACQUISITA. (Abstract # P-505)**
Lucia Miglioresi, Giovanni Vennarecci, Ubaldo Visco Comandini, Roberto Santoro, Giuseppe M. Ettorre. Rome, Italy.

Pediatrics

- P-506 PEDIATRIC LIVER TRANSPLANTATION IN AN ADULT LIVER TRANSPLANT PROGRAM: IS IT RELEVANT? (Abstract # P-506)**
Thomas Gelas, Christine Rivet, Gabriella Pittau, Catherine Boucaud, Yves Bouffard, Pierre Sagnard, Etienne Javouhey, Alain Lachaux, Olivier Boillot. Lyon, France.
- P-507 INCIDENCE OF INFECTIOUS COMPLICATIONS AND THEIR EFFECT ON OUTCOME IN CHILDREN WITH AND WITHOUT LIVER TRANSPLANTATION FOR ACUTE LIVER FAILURE. (Abstract # P-507)**
Gauri Godbole, Anil Dhawan, Naresh Shanmugam, Mohamed Rela, Nigel Heaton, Anita Verma. London, United Kingdom.
- P-508 LONG TERM GRAFT FUNCTION AFTER PEDIATRIC LIVING DONOR LIVER TRANSPLANTATION – IMPACT ON GRAFT FIBROSIS. (Abstract # P-508)**
Ken Hoshino, Masaharu Mori, Yuki Yamamoto, Yohei Yamada, Naoki Shimojima, Masahiro Shinoda, Hideaki Obara, Shigeyuki Kawachi, Yasushi Fuchimoto, Minoru Tanabe, Yuko Kitagawa, Yasuhide Morikawa. Tokyo, Japan.
- P-509 † LIVER TRANSPLANTATION FOR MITOCHONDRIAL CYTOPATHIES IN CHILDREN: A SINGLE CENTRE EXPERIENCE. (Abstract # P-509)**
Roshni Vara, Julian Raiman, Bernard Portman, Giorgia Mieli-Vergani, Nigel Heaton, Nedim Hadzic. London, United Kingdom.

P-510 LIVER TRANSPLANTATION IN HEPATOCELLULAR CARCINOMA IN CHILDREN WITH UNDERLYING CHRONIC LIVER DISEASE. (Abstract # P-510)
Marianne Samyn, Alberto Quaglia, Dylan Lewis, Pauline Kane, Giorgia Mieli-Vergani, Nigel Heaton, Mohamed Rela. London, United Kingdom.

P-511 HYPERREDUCED LEFT LATERAL SEGMENT GRAFT FOR LIVING DONOR LIVER TRANSPLANTATION WITH SMALL RECIPIENT. (Abstract # P-511)
Takuya Kimura, Mureo Kasahara, Akinari Fukuda, Takanobu Shigeta, Kazunari Sasaki. Setagaya, Tokyo, Japan.

P-512 LIVING DONOR LIVER TRANSPLANTATION FOR BILIARY ATRESIA: A SINGLE CENTER EXPERIENCE. (Abstract # P-512)
D. Y. Kim, K. M. Kim, YJ Lee, S. G. Lee. Seoul, Korea.

P-513 BILIARY ATRESIA-POLYSPLENIA SYNDROME: CLINICAL SPECTRUM AND SURGICAL IMPLICATIONS IN LIVER TRANSPLANTATION. (Abstract # P-513)
Iftikhar Khan, Mohammad Al-Shaqrani, Zahid Arain, Ahmed Elgohary, Hammood Hebbi, Sami Wali, Atef Bassas. Riyadh, Saudi Arabia.

Surgical Techniques/Complications

P-514 USE OF AORTIC ALLOGRAFTS FOR THE RECONSTRUCTION OF THE INFERIOR VENA CAVA. (Abstract # P-514)
Kourosh Saeb-Parsy, Asif Jah, Neville V. Jamieson, Raaj K. Praseedom. Cambridge, United Kingdom.

P-515 DRAIN BILIRUBIN AS AN INDICATOR OF BILIARY COMPLICATIONS AFTER LIVING DONOR LIVER TRANSPLANTATION. (Abstract # P-515)
D. Sood, V. Kumaran, R. Mohanka, N. Mehta, N. Saraf, S. Saigal, S. Nundy, A. Soin. New Delhi, India.

P-516 LIVER TRANSPLANTATION FOR HEREDITARY HEMORRHAGIC TELANGIECTASIA. CASE REPORT. (Abstract # P-516)
Juan Francisco Guerra, Luis Manríquez, Rosa María Pérez, Iván Godoy, Mario Concha, Verónica Mertz, Nicolás Jarufe, Marco Arrese, Cristian Muñoz, Alejandro Soza, Pilar Domínguez, Jorge Martínez. Santiago, Chile.

P-517 RIGHT SIDED DIAPHRAGMATIC HERNIA RESULTING IN BOWEL OBSTRUCTION AFTER IDIOPATHIC ASCITIS FOLLOWING PEDIATRIC LIVE DONOR LIVER TRANSPLANTATION. (Abstract # P-517)
Pedro A. Rivas-Vetencourt, Zaira Ron, Ruben Castillo, Elena Pestana, Laura Naranjo, Hermogenes Malave, Carlos Baliachi, Miguel Bazalo, Franco Bisignano, Tomoaki Kato. Caracas, Miranda, Venezuela; New York, NY, USA.

P-518 EARLY CONVERSION FROM CALCINEURIN INHIBITOR TO SIROLIMUS IN LIVER TRANSPLANT RECIPIENTS WITH IMPAIRED RENAL FUNCTION: A SYSTEMIC AND SPLANCHNIC HEMODYNAMIC STUDY. (Abstract # P-518)
Sara B. Chao, Daniel Alvarez, Maria M. Anders, Federico Cicora, Quiñonez Emilio, Fernando Gruz, Lucas Mc Cormack, Ricardo Mastai. Buenos Aires, Argentina.

P-519 COMPARISON OF MORBIDITY FOLLOWING LIVER TRANSPLANTATION IN PATIENTS WITH AND WITHOUT PORTAL VEIN THROMBOSIS – A SINGLE CENTER EXPERIENCE. (Abstract # P-519)
Rajeev Sharma, Randeep Kashyap, Ashok Jain, Saman Safadjou, Mark Orloff. Rochester, NY, USA; Philadelphia, PA, USA.

P-520 PORTAL VEIN CLAMPING TIME, BACTERIAL TRANSLOCATION AND MELD SCORE IN LIVER TRANSPLANTATION: A PROSPECTIVE STUDY. (Abstract # P-520)
Maxime Audet, Tullio Piardi, Fabrizio Panaro, Luca Arru, GianFranco Calandra, Santiago Pautasso, Nazario Portolani, Philippe Wolf. Strasbourg, France; Brescia, Italy.

P-521 † INCIDENCE AND CLINICAL RELEVANCE OF THE BACTERIAL CONTAMINATION OF THE PRESERVATION SOLUTION IN LIVER TRANSPLANTATION. (Abstract # P-521)
Patricia Ruiz, Mikel Gastaca, Jose Ramon Fernandez, Javier Gonzalez, Alberto Ventoso, Milagros Testillanos, Javier Bustamante, Maria Jesus Suarez, Miguel Montejo, Andres Valdivieso, Jorge Ortiz de Urbina. Barakaldo, Spain.

P-522 LIVER TRANSPLANT FOR WILSON'S DISEASE. (Abstract # P-522)
Sinasi Sevmis, Hamdi Karakayali, Gokhan Moray, Nurten Savas, Figen Ozcay, Ugur Yilmaz, Adnan Torgay, Gulnaz Arslan, Mehmet Haberal. Ankara, Turkey.

P-523 DOES VENOUS RECONSTRUCTION OF THE ANTERIOR SECTOR AFFECT ON GRAFT REGENERATION IN LIVING DONOR RIGHT LOBE LIVER TRANSPLANTATION? (Abstract # P-523)
Dong Jin Joo, Myoung Soo Kim, Soo Jin Kim, Gi Hong Choi, Man Ki Ju, Jin Sub Choi, Soon Il Kim. Seoul, Republic of Korea.

P-524 EFFICIENT TISSUE INCORPORATION OF COMPOSITE MESHES USED FOR INCISIONAL HERNIA REPAIR AFTER LIVER TRANSPLANTATION. (Abstract # P-524)
Frederik Berrevoet, Bert Van den Bossche, Isabelle Colle, Hans Van Vlierberghe, Koen Reyntjens, Roberto Troisi, Xavier Rogiers, Bernard de Hemptinne. Ghent, Belgium.

- P-525 LEFT LIVER LOBE TRANSPLANTATION IN ADULT RECIPIENTS FROM SPLIT LIVERS AND LIVING DONORS. (Abstract # P-525)**
Olivier Boillot, Gabriella Pittau, Thomas Gelas, Jérôme Dumortier, Yves Bouffard, Catherine Boucaud, Charles Ber, Pierre Sagnard. Lyon, France.
- P-526 SUCCESSFUL SURGICAL AND ENDOSCOPIC MANAGEMENT OF NON-ANASTOMOTIC BILIARY STRICTURES AFTER LIVER TRANSPLANTATION – CASE REPORT. (Abstract # P-526)**
Dennis Eurich, Daniel Seehofer, Winfried Veltzke-Schlieker, Ruth Neuhaus, Ulf P. Neumann, Peter Neuhaus. Berlin, Germany.
- P-527 HEPATIC ARTERY THROMBOSIS IN 153 CONSECUTIVE LIVER TRANSPLANT RECIPIENTS PERFORMED IN YEAR 2008: A NEW SURGICAL TECHNIQUE. (Abstract # P-527)**
Vedat Kirimlioglu, Sezai Yilmaz, Vedat Nisanoglu, Cengiz Ara, Cemalettin Aydin, Dincer Ozgor, Hale Kirimlioglu. Malatya, Turkey.
- P-528 COMBINED HEART AND LIVER TRANSPLANTATION: A SINGLE CENTER EXPERIENCE. (Abstract # P-528)**
Matteo Cescon, Matteo Zanello, Gian Luca Grazi, Matteo Ravaoli, Giorgio Ercolani, Massimo Del Gaudio, Alessandro Cucchetti, Gaetano Vetroni, Alessandro Dazzi, Francesco Tuci, Chiara Zanfi, Paolo Di Gioia, Antonio D. Pinna. Bologna, Italy.
- P-529 LIVER RETRANSPLANTATION IN HIGH MELD RECIPIENTS. (Abstract # P-529)**
Andre I. David, Paula V. Zurstrassen, Sergio P. Meira, Marcelo B. Resende, Márcio D. Almeida, Bianca Della Guardia, Rogério A. Carballo, Ben-Hur Ferraz-Neto. São Paulo, SP, Brazil.
- P-530 ROUTINE MICROSURGICAL BILIARY RECONSTRUCTION DECREASES EARLY ANASTOMOTIC COMPLICATIONS IN LIVING DONOR LIVER TRANSPLANTATION. (Abstract # P-530)**
Chao-Long Chen, Allan M. Concejero, Tsan-Shiun Lin, Yuan-Cheng Chiang, Chih-Chi Wang, Shih-Ho Wang, Yueh-Wei Liu, Chin-Hsiang Yang, Chee-Chien Yong. Kaohsiung, Taiwan.
- P-531 † PORTAL VEIN RECANALIZATION AFTER PEDIATRIC TRANSPLANTATION. (Abstract # P-531)**
Joao Seda-Neto, Francisco Carnevale, Eduardo Carone, Airtom Moreira, Charles Zurstrassen, Vincenzo Pugliese, Andre Godoy, Gilda Porta, Irene Miura, Vera Baggio, Renata Pugliese, Eduardo Fonseca, Paulo Chapchap. Sao Paulo, SP, Brazil.
- P-532 CAVOPORTAL HEMITRANSPOSITION WITH PORTOSYSTEMIC SHUNT FOR RECONSTRUCTION OF PORTAL FLOW AND ADEQUATE PORTAL DECOMPRESSION IN EXTENDED PORTAL THROMBOSIS. (Abstract # P-532)**
Keizo Dono, Shigeru Marubashi, Shogo Kobayashi, Yutaka Takeda, Hiroaki Nagano, Koji Umeshita, Yuichiro Doki, Masaki Mori. Toyonaka City, Osaka, Japan; Suita, Osaka, Japan.
- P-533 GRAFT HEMODYNAMIC AND VOLUME DETERMINE GRAFT PREDOMINATION IN ADULT LIVING DONOR LIVER TRANSPLANTATION USING DUAL GRAFT. (Abstract # P-533)**
Chee-Chien Yong, Chao-Long Chen, Allan M. Concejero, Chih-Chi Wang, Shih-Ho Wang, Yueh-Wei Liu, Chin-Hsiang Yang. Kaohsiung, Taiwan.
- P-534 ONLY POLYPROPYLENE MESH: A GOOD TECHNIQUE FOR INCISIONAL HERNIAS AFTER LIVER TRANSPLANTATION. (Abstract # P-534)**
Fernando Duek, Javier Lendoire, Gabriel Raffin, Luis Gil, Carlos Quarín, Pablo Barros Schelotto, Veronica Garay, Oscar Imventarza. Buenos Aires, Argentina.
- P-535 STANDARD ADULT LIVER TRANSPLANTATION TECHNIQUE: SALT SURVEY. (Abstract # P-535)**
Alexis Laurent, Daniel Cherqui. Creteil, France.
- P-536 TOWARDS ZERO BILE LEAKS IN LIVING RELATED LIVER TRANSPLANTATION. (Abstract # P-536)**
Vivek Vij, Shridhar V. Sasturkar, Ajitabh Shrivastav, Puneet Dargan, Neerav Goyal, Manav Wadhavan, Subash Gupta. New Delhi, India.
- P-537 SPLIT LIVER TRANSPLANTATION. (Abstract # P-537)**
Eviatar Neshet, Eddie Island, J. Moon, Seigo Nishida, Andreas Tzakis. Miami, USA.
- P-538 † EVALUATION AND MONITORING OF INITIAL GRAFT FUNCTION AFTER LIVER TRANSPLANTATION: IMMEDIATE DIAGNOSIS OF PRIMARY NONFUNCTION BY THE LiMax TEST. (Abstract # P-538)**
Martin Stockmann, Johan F. Lock, Eugen Schwabauer, Johann Pratschke, Peter Neuhaus. Berlin, Germany.
- P-539 SUCCESSFUL ADULT LT WITH A ROTATED LEFT LIVER LOBE FROM AN “IN SITU” SPLITTING PROCEDURE. (Abstract # P-539)**
Lucia Miglioresi, Giovanni Vennarecci, Ubaldo Visco Comandini, Roberto Santoro, Giuseppe M. Ettorre. Rome, Italy.

- P-540 ACUTE CHOLESTASIS: AN CONFUSING FACTOR INFLUENCING INDOCYANINE GREEN (ICG) TEST RESULTS IN A POSTOPERATIVE LIVER FUNCTION DETERMINATION, A PILOT STUDY. (Abstract # P-540)**
Maciej Malinowski, Johan F. Lock, Daniel Seehofer, Eugen Schwabauer, Peter Neuhaus, Martin Stockmann. Berlin, Germany.
- P-541 NON-SURGICAL TREATMENT OF LARGE SUBCAPSULAR HEMATOMA OF LIVER GRAFT AFTER DECEASED DONOR LIVER TRANSPLANTATION: CASE REPORT. (Abstract # P-541)**
Doo Jin Kim, Joo Seop Kim, In Gyu Kim, Han Jun Kim, Jae Pil Jung, Seong Eun Chon, Samuel Lee, Kyu Jong Yoon, Jong Soek Lee, Suk Ja Hyun. Seoul, Korea.

Featured Symposium #1: Disease Related Outcome of Pediatric Liver Transplantation

9:30 AM – 11:00 AM

Room: Sutton Center, Level 2

Moderators: Sue V. McDiarmid, MD, University of California, Los Angeles, CA, USA & Anil Dhawan, MD, Kings College Hospital, London, United Kingdom

- 9:30 AM Cholestatic Liver Disorders**
*Jean Deville Degoyet, MD
 Ospedale Pediatrico Bambino Gesù
 Rome, Italy*
- 9:50 AM Liver Based Metabolic Disorders**
*Patrick Mckiernan, MD
 Birmingham Children's Hospital
 Birmingham, United Kingdom*
- 10:10 AM Liver Tumors**
*Jorge Reyes, MD
 University of Washington
 Seattle, WA, USA*
- 10:30 AM Acute Liver Failure**
*Mentor: Anil Dhawan, MD
 Young Invited Faculty: Emer Fitzpatrick, MD
 Kings College Hospital
 London, United Kingdom*
- 10:50 AM Question & Answer**

Featured Symposium #2: Basic Science

9:30 AM – 11:00 AM

Room: Sutton North, Level 2

Moderators: Luc Van der Laan, PhD, Erasmus Medical Center, Rotterdam, The Netherlands & John J. Fung, MD, PhD, Cleveland Clinic Foundation, Cleveland, OH, USA

- 9:30 AM HCV Life Cycle**
*Charles M. Rice, PhD
 The Rockefeller University
 New York, NY, USA*

- 10:00 AM Immune Responses to HCV Infected Allografts**
*Hugo R. Rosen, MD
 University of Colorado
 Denver, CO, USA*

- 10:30 AM HCV and Innate Immunity**
*Ralf Bartenschlager, MD
 University of Heidelberg
 Heidelberg, Germany*

Featured Symposium #3: Informing Candidates of Donor Risks

9:30 AM – 11:00 AM

Room: Grand Ballroom, Level 3

Moderators: Didier Samuel, MD, PhD, Hopital Paul Brousse, Villejuif, France & Susan M. Lerner, MD, Mount Sinai School of Medicine, New York, NY, USA

- 9:30 AM What Donor Risks Are Relevant?**
*Jacques Belghiti, MD
 Hospital Beaujon, University Paris
 Paris, France*
- 9:45 AM Who Should Get the High Risk Graft?**
*Ferdinand Muehlbacher, MD
 Medical University of Vienna
 Vienna, Austria*
- 10:00 AM Transmission of Infectious and Malignant Disease**
*Lewis W. Teperman, MD
 New York University Medical Center
 New York, NY, USA*
- 10:15 AM When Do You Inform?**
*Richard B. Freeman, Jr., MD
 Tufts Medical Center
 Boston, MA, USA*
- 10:30 AM Living Donation**
*Sheung-Tat Fan, MD, PhD
 University Hong Kong, Queen Mary Hospital
 Hong Kong, China*
- 10:45 AM Question & Answer**

Break

11:00 AM – 11:15 AM

State of the Art Lecture

11:15 AM – 11:45 AM

Room: Grand Ballroom, Level 3

Moderators: Michael A.E. Ramsay, MD, Baylor University Medical Center, Dallas, TX, USA & Geoffrey McCaughan, MD, PhD, Royal Prince Alfred Hospital, Sydney, Australia

- DCD and Liver Preservation**
*Paolo Muiesan, MD
 Queen Elizabeth Hospital
 Birmingham, United Kingdom*

**Presidential Address &
Distinguished Service Award**
11:45 AM – 12:45 PM

Room: Grand Ballroom, Level 3
Ronald W. Busuttil, MD, PhD
University of California, Los Angeles
Los Angeles, CA, USA

**Meet-the-Expert Luncheon:
Luncheon #1 (Ticketed Event)**
12:45 PM – 2:15 PM

Supported by an Unrestricted Educational Grant from
F. Hoffmann-La Roche Ltd

Room: Nassau Suite A, Level 2

Protection of the Kidney after Liver Transplantation
Lawton Shick, MD
Tufts Medical Center
Boston, MA, USA

**Meet-the-Expert Luncheon:
Luncheon #2 (Ticketed Event)**
12:45 PM – 2:15 PM

Supported by an Unrestricted Educational Grant from
F. Hoffmann-La Roche Ltd

Room: Nassau Suite B, Level 2

Steroid Sparing Approaches after Liver Transplantation
John R. Lake, MD
University of Minnesota Medical School
Minneapolis, MN, USA

**Meet-the-Expert Luncheon:
Luncheon #3 (Ticketed Event)**
12:45 PM – 2:15 PM

Supported by an Unrestricted Educational Grant from
F. Hoffmann-La Roche Ltd

Room: Murray Hill Suite B, Level 2

**Guidelines for the Treatment of Recurrent
Hepatitis C after Liver Transplantation**
Massimo G. Colombo, MD
University of Milan
Milan, Italy

**Meet-the-Expert Luncheon:
Luncheon #4 (Ticketed Event)**
12:45 PM – 2:15 PM

Supported by an Unrestricted Educational Grant from
F. Hoffmann-La Roche Ltd

Room: Murray Hill Suite A, Level 2

**CMV in Liver Transplantation: Direct and Indirect
Effects**
Jay A. Fishman, MD
Massachusetts General Hospital
Boston, MA, USA

**Transplant 101 Luncheon Symposium
(Ticketed Event)**
12:45 PM – 2:15 PM

Supported by an Unrestricted Educational Grant from
Genzyme Transplant

Room: Grammercy Suite, Level 2
Moderators: John J. Fung, MD, PhD, Cleveland Clinic
Foundation, Cleveland, OH, USA & Marina Berenguer, MD,
La Fe Hospital, Valencia, Spain

12:45 PM Who Should Be Evaluated/ Listed for LT
Patrizia Burra, MD
University Degli Studi Di Padova
Padova, Italy

1:00 PM Waiting List Management
Russell H. Wiesner, MD
Mayo Clinic Rochester
Rochester, MN, USA

1:15 PM LT Technical Considerations and Techniques
Chung Mau Lo, MD
University of Hong Kong
Hong Kong, China

1:30 PM Perioperative Management
Michael A. E. Ramsay, MD
Baylor University Medical Center
Dallas, TX, USA

1:45 PM Long Term Follow-Up
James M. Neuberger, MD
Queen Elizabeth Hospital
Birmingham, United Kingdom

2:00 PM Question and Answer

Break
2:15 PM – 2:30 PM

Concurrent Session: Basic Science
2:30 PM - 4:00 PM

Room: Sutton North, Level 2
Moderators: Luc van der Laan, PhD, Erasmus MC University
Medical Center, Rotterdam, The Netherlands & Jerzy Kupiec-
Weglinski, PhD, University of California, Los Angeles, CA, USA

**2:30 PM THE ROLE OF ERYTHROPOETIN IN
HEPATIC INJURY INDUCED BY IN-
VIVO ISCHEMIA-REPERFUSION AND
IN TRANSGENIC ERYTHROPOIETIN
OVEREXPRESSION MICE. (Abstract # O-85)**
Ziv Ben Ari, Orit Pappo, Evgeni Shevtsov, Amiram
Ravid, Orna Avlas, Edith Hochhauser. Petah Tiqva,
Israel.

**2:40 PM AGE-RELATED SUSCEPTIBILITY TO
HEPATIC ISCHEMIA/REPERFUSION
INJURY: ROLE FOR HEAT SHOCK
PROTEIN EXPRESSION? (Abstract # O-86)**
Markus Selzner, Nazia Seznar, Limin Chen, Ivan
Borozan, Jing Sun, Max Xue-Zhong, Jianhua
Zhang, Ian D. McGilvray. Toronto, ON, Canada.

- 2:50 PM GENOMICS ANALYSIS OF FORMALIN-FIXED PARAFFIN-EMBEDDED LIVER BIOPSIES TO PREDICT SEVERITY OF HCV RECURRENCE. (Abstract # O-87)**
Valeria Mas, Daniel Maluf, Amiee Potter, Kellie Archer, Jihee Suh, Valeria Descalzi, Federico Villamil. Richmond, USA; Buenos Aires, Argentina.
- 3:00 PM GLYCOGEN SYNTHASE KINASE (GSK)-3 IS A KEY REGULATOR OF LIVER IMMUNE RESPONSES AGAINST ISCHEMIA AND REPERFUSION INJURY. (Abstract # O-88)**
Feng Ren, Xiuda Shen, Feng Gao, Ronald W. Busuttil, Yuan Zhai. Los Angeles, CA, USA.
- 3:10 PM ENDOGENOUS BILE SALTS ARE ASSOCIATED WITH BILE DUCT INJURY IN THE RAT LIVER TRANSPLANTATION MODEL. (Abstract # O-89)**
Jiahong Dong, Geng Chen, Shuguang Wang, Ping Bie, Xiaowu Li. Chongqing, China; Beijing, China.
- 3:20 PM NK CELL CHIMERISM IS A UNIQUE FEATURE OF LIVER TRANSPLANTATION AND MAY MODULATE RECIPIENT'S RESPONSE AGAINST THE GRAFT. (Abstract # O-90)**
Viviana Moroso, Herold J. Metselaar, Brenda M. Bosma, Shanta Mancham, Luc J. W. van der Laan, Nicole M. van Besouw, Hugo W. Tilanus, Ernst J. Kuipers, Geert Kazemier, Arnold van der Meer, Diana Eissen, Irma Joosten, Jaap Kwekkeboom. Rotterdam, Netherlands; Nijmegen, Netherlands.
- 3:30 PM FETAL LIVER FRAGMENTS ARE SUPERIOR TO ISOLATED HEPATOCYTES IN CORRECTION OF WILSON DISEASE: A NEW APPROACH FOR THE TREATMENT OF CHRONIC LIVER FAILURE. (Abstract # O-91)**
Helena Katchman, Orna Tal, Smadar Eventov-Friedman, Anna Aronovich, Dalit Tchorsh, Elias Shezen, Yair Reisner. Rehovot, Israel; Tel-Aviv, Israel.
- 3:40 PM HUMAN LIVER HEMATOPOIETIC STEM CELLS HAVE A MULTI-POTENT AND SELF-RENEWAL CAPACITY AND MAY FUNCTION AS LOCAL PROGENITORS FOR LIVER-RESIDENT LEUKOCYTES. (Abstract # O-92)**
Qiuwei Pan, Fatima S. F. Aerts-Kaya, Geert Kazemier, Jaap Kwekkeboom, Herold J. Metselaar, Hugo W. Tilanus, Harry L. A. Janssen, Gerard Wagemaker, Luc J. W. van der Laan. Rotterdam, Netherlands.
- 3:50 PM SUICIDAL EMPERIPOLESIS: A NOVEL MECHANISM CONTRIBUTING TO THE T CELL TOLERANCE EFFECT IN LIVER TRANSPLANTATION. (Abstract # O-93)**
Volker Benseler, Alessandra Warren, David G. Bowen, Lauren E. Holz, David LeCouteur, Michelle Vo, Anthony Allison, Nico van Rooijen, Hans-Juergen Schlitt, Geoffrey W. McCaughan, Patrick Bertolino. Sydney, NSW, Australia; Regensburg, Bavaria, Germany; Mountain View, CA, USA; Amsterdam, Netherlands.

Concurrent Session: Outcomes

2:30 PM - 4:00 PM

Room: Grand Ballroom, Level 3

Moderators: Scott W. Biggins, University of California, San Francisco, CA, USA & Andres Ruf, MD, Favaloro Foundation, Buenos Aires, Argentina

- 2:30 PM WHICH RISK FACTOR ARE WE ABLE TO CONTROL TO OPTIMIZE THE RESULTS OF SPLIT LIVER TRANSPLANTATION? A MULTIVARIATE ANALYSIS OF 299 SPLIT LIVER TRANSPLANTATIONS. (Abstract # O-94)**
Jessica Walter, Christian Lenk, Christine zu Eulenburg, Jan F. Kersten, Xavier Rogiers, Dieter C. Broering, Kiel, Germany; Hamburg, Germany; Gent, Belgium.
- 2:40 PM DONOR HEPATIC STEATOSIS: AN ADDITION TO THE DONOR RISK INDEX. (Abstract # O-95)**
Austin L. Spitzer, Andre A. S. Dick, Ramasamy Bakthavatsalam, Jorge D. Reyes, James D. Perkins. Seattle, WA, USA.
- 2:50 PM PRE TRANSPLANT TROPONIN LEVELS ARE A NOVEL PREDICTOR OF PATIENT AND GRAFT SURVIVAL FOLLOWING LIVER TRANSPLANTATION. (Abstract # O-96)**
Elizabeth Coss Zevallos, Kymberly Watt, Rachel Pedersen, Michael Charlton. Rochester, MN, USA.
- 3:00 PM CHINA LIVER TRANSPLANT REGISTRY. (Abstract # O-97)**
Sheung Tat Fan, Hai Bo Wang, Pokfulam, Hong Kong, China.
- 3:10 PM IMPACT OF CCRΔ32 MUTATION ON ISCHEMIC TYPE BILIARY LESIONS AFTER LIVER TRANSPLANTATION. (Abstract # O-98)**
Ines Ruth, Maria Hoppe-Lotichius, Anja Lautem, Christian Mönch, Gerd Otto. Mainz, Germany; Frankfurt, Germany.
- 3:20 PM ISCHEMIC PRECONDITIONING OF THE LIVER IN DECEASED DONORS – SUGGESTIVE EVIDENCE OF REMOTE PRECONDITIONING IN KIDNEY ALLOGRAFTS. (Abstract # O-99)**
Kunj K. Desai, Asif Shareef, Ali Raza, Shamkant Mulgaonkar, David Laskow, Adena Osband, Michael Shapiro, John Radomski, Stephen Guy, Melvin Goldblatt, George Dikdan, Baburao Koneru. Springfield, NJ, USA.
- 3:30 PM AN EVALUATION OF MORTALITY IN ADULTS AND CHILDREN WHO HAVE SURVIVED IN EXCESS OF 5 AND 10 YEARS SINCE LIVER TRANSPLANTATION. (Abstract # O-100)**
Rachel H. Westbrook, Andrew D. Yeoman, Kosh Agarwal, Varuna Aluvihare, Georgina Mieli-Vergani, Anil Dhawan, Mathew Bowles, Mohamed Rela, John G. O'Grady, Nigel D. Heaton, Michael A. Heneghan. London, United Kingdom.

3:40 PM LONG TERM OUTCOMES OF LIVING DONOR LIVER TRANSPLANTATION: ANALYSIS OF CONSECUTIVE 1000 PATIENTS AT A SINGLE CENTER. (Abstract # O-101)
Satoshi Kaihara, Kenji Uryuhara, Takako Yamada, Yasuhiro Ogura, Koichi Tanaka, Shinji Uemoto. Kobe, Japan; Kyoto, Japan.

Concurrent Session: Fulminant Hepatic Failure

2:30 PM - 4:00 PM

Room: Regeant Parlor, Level 2

Moderators: Julia Wendon, PharmaD, Kings College London, London, United Kingdom & David Kramer, MD, Mayo Clinic, Jacksonville, FL, USA

- 2:30 PM MECHANISMS OF HEPATOCELLULAR DEATH IN ACUTE LIVER FAILURE OF INDETERMINATE AETIOLOGY IN CHILDREN. (Abstract # O-102)**
Ahlam Mustafa, Ragai Mitry, Kandala Ngianga-Bakwin, Munther Hussain, Anil Dhawan. London, United Kingdom; Coventry, United Kingdom.
- 2:40 PM RARE CAUSES OF ACUTE LIVER FAILURE: DIFFICULTY FOR DIAGNOSIS AND FOR TIMING FOR LIVER TRANSPLANTATION. (Abstract # O-103)**
P. Ichai, F. Saliba, C. Guettier, A. M. Roque-Afonso, T. M. Antonini, D. Castaing, D. Samuel. Villejuif, France.
- 2:50 PM LIVER TRANSPLANTATION FOR FULMINANT LIVER FAILURE. (Abstract # O-104)**
Isabel Conde, Victoria Aguilera, Marina Berenguer, Angel Rubin, Cecilia Ortiz, Martin Prieto, Jose Mir. Valencia, Spain.
- 3:00 PM CADAVERIC AND LIVING DONOR LIVER TRANSPLANTATION FOR ACUTE ON CHRONIC LIVER FAILURE PATIENTS CAUSED BY HEPATITIS B: A PRELIMINARY REPORT OF 100 CASES. (Abstract # O-105)**
Shi-chun Lu. Beijing, China.
- 3:10 PM RETRANSPLANTATION IN FULMINANT HEPATIC FAILURE-A SINGLE CENTRE EXPERIENCE OVER 15 YEARS. (Abstract # O-106)**
Vivekanandan Shanmugam, Chandrashekar Bhatti, Ravi Maruthanayagam, John Buckels, David Meyer, Darius Mirza, Bridget Gunson, Simon Bramhall. Birmingham, West Midlands, United Kingdom.
- 3:20 PM PREDICTIVE CRITERIA FOR PATIENTS OUTCOME WITH ACUTE LIVER FAILURE: ALBUMIN DIALYSIS MARS. (Abstract # O-107)**
Gilardo Novelli, Massimo Rossi, Francesco Pugliese, Simone Novelli, Vincenzo Morabito, Pasquale Berloco. Rome, Italy.

3:30 PM THERAPY OF ACUTE HUMORAL REJECTION AFTER HUMAN LIVER TRANSPLANTATION. (Abstract # O-108)
Sascha Weiss, Constanze Schoenemann, Andreas Pascher, Frank Ulrich, Anja Reutzel-Selke, Ulf Neumann, Peter Neuhaus, Johann Pratschke. Berlin, Germany.

3:40 PM INTRACRANIAL PRESSURE IN ACUTE LIVER FAILURE: VALUABLE INFORMATION OR CONFOUNDING TOOL? (Abstract # O-109)
Sergio Alvarez, Mario Arcos, Jorge Contreras, Giulio Innocenti. Santiago, Chile.

Video Submission Session #2

2:30 PM – 4:00 PM

Room: Sutton Center, Level 2

Moderators: Milan Kinkhabwala, MD, Montefiore Medical Center, New York, NY, USA & Elizabeth A. Pomfret, MD, PhD, Lahey Clinic Medical Center, Burlington, MA, USA

Coffee Break

4:00 PM – 4:45 PM

Room: America's Hall I, Level 3

Poster Grand Rounds III

4:00 PM – 4:45 PM

Presenters in Attendance

Room: America's Hall I, Level 3

Categories:

- Anesthesia/Critical Care Medicine
- Basic Sciences
- Extended Criteria Donors/Disease Transmission
- Living Donor
- Outcomes

Poster Session III*

4:00 PM – 4:45 PM

**Refer to pages 47-59 for poster listing*

Concurrent Session: Pediatrics

4:45 PM - 6:15 PM

Room: Sutton Center, Level 2

Moderators: Douglas D. Farmer, MD, Dumont-UCLA Transplant Center, Los Angeles, CA, USA & Anil Dhawan, MD, Kings College Hospital, London, United Kingdom

4:45 PM SURGICAL OUTCOME OF LIVING DONOR LIVER TRANSPLANTATION TO NEONATAL/ INFANTILE FULMINANT HEPATIC FAILURE. (Abstract # O-110)
Takuya Kimura, Mureo Kasahara, Akinari Fukuda, Takanobu Shigeta, Kazunari Sasaki, Satoshi Nakagawa, Shuichi Ito, Atsuko Nakagawa, Akira Matsui. Setagaya, Tokyo, Japan.

- 4:55 PM SPLIT LIVER TRANSPLANTATION IN CHILDREN: A 10 YEARS SINGLE CENTER EXPERIENCE. (Abstract # O-111)**
V. Corno, M. C. Dezza, A. Lucianetti, D. Pinelli, F. Tagliabue, M. Guizzetti, M. Zambelli, A. Aluffi, M. Bravi, P. Stroppa, D. Codazzi, G. Torre, M. Colledan. Bergamo, Italy.
- 5:05 PM LONG-TERM OUTCOME AFTER URGENT REVASCLARIZATION FOR HEPATIC ARTERY THROMBOSIS AFTER PEDIATRIC LIVER TRANSPLANTATION. (Abstract # O-112)**
Nienke Warnaar, Wojciech G. Polak, Paul M. Peeters, Koert P. de Jong, Marieke T. de Boer, Maarten J. Slooff, Henk Jan Verkade, Robert J. Porte. Groningen, Netherlands.
- 5:15 PM PROGNOSTIC FACTORS OF LIVING DONOR LIVER TRANSPLANTATION FOR CHILDREN AT A SINGLE CENTER. (Abstract # O-113)**
Seak Hee Oh, Joo Young Jang, Kyung Mo Kim, Dae Yeon Kim, Kwang Min Park, Young Joo Lee, Sung Gyu Lee. Seoul, Korea.
- 5:25 PM AGE AND ETIOLOGY RELATED OUTCOME OF ACUTE LIVER FAILURE IN PAEDIATRIC AGE GROUP. (Abstract # O-114)**
Naresh P. Shanmugam, Sathyaseelan Jayaseelan, Anil Dhawan. London, United Kingdom.
- 5:35 PM LIVER TRANSPLANTATION IN CHILDREN WITH GLYCOGEN STORAGE DISEASE: REVISITING THE LONG-TERM OUTCOME. (Abstract # O-115)**
Chao-Long Chen, Allan M. Concejero, Chin-Hsiang Yang, Chih-Chi Wang, Shih-Ho Wang, Yueh-Wei Liu, Chee-Chien Yong, Tsan-Shiun Lin, Bruno Jawan, Yu-Fan Cheng. Kaohsiung, Taiwan.
- 5:45 PM PEDIATRIC LIVER TRANSPLANTATION AT THE EXTREMES OF BODY MASS INDEX. (Abstract # O-116)**
Andre A. Dick, James D. Perkins, Oliver Lao, Austin L. Spitzer, Patrick J. Healey, Jorge D. Reyes. Seattle, WA, USA.
- 5:55 PM LIVER DYSFUNCTION FOLLOWING PEDIATRIC MULTIVISCERAL TRANSPLANTATION. (Abstract # O-117)**
Robert S. Venick, Khiet Ngo, Sue V. McDiarmid, Joanie Colangelo, Yvonne Esmailian, Sherilyn Gordon, John Duffy, Marvin E. Ament, Ronald W. Busuttil, Douglas G. Farmer. Los Angeles, CA, USA.
- 6:05 PM GLOMERULAR FUNCTION FOLLOW UP AFTER SIROLIMUS IMMUNOSUPPRESSION CONVERSION IN PEDIATRIC OLT PATIENTS WITH RENAL IMPAIRMENT. (Abstract # O-118)**
Carlos E. Gonzalez Cambaceres, Alexia Diaz Moreno, Maria C. Fernandez, Luis D. Rojas, Oscar C. Imventarza. Buenos Aires, Argentina.

Concurrent Session: Recurrent Disease/ Pathology

4:45 PM - 6:15 PM

Room: Nassau Suite, Level 2

Moderators: Sammy Saab, MD, MPH, University of California, Los Angeles, CA, USA & Didier Samuel, MD, PhD, Hopital Paul Brousse, Villejuif, France

- 4:45 PM WEANING OF HBV PROPHYLAXIS AFTER LIVER TRANSPLANTATION: PRELIMINARY RESULTS IN PATIENTS WITH UNDETECTABLE cccDNA IN LIVER TISSUE. (Abstract # O-119)**
Giuseppe Tisone, Ilaria Lenci, Luca Toti, Tommaso M. Manzia, Daniele Sforza, Matteo Manuelli, Manuele Berlanda, Mario Angelico. Rome, Italy.
- 4:55 PM LONG TERM SURVIVAL AND FIBROSIS PROGRESSION ANALYSIS IN RETRANSPLANTED PATIENTS FOR HCV RECURRENCE – RESULTS FROM A MATCHED GROUP. (Abstract # O-120)**
R. Sobesky, V. Delvart, P. Carrier, T. M. Antonini, B. Roche, F. Saliba, P. Ichai, D. Azoulay, R. Adam, A. M. Roque-Afonso, M. Sebagh, C. Guettier, D. Castaing, D. Samuel, J. C. Duclos-Vallee. Villejuif, France.
- 5:05 PM RECURRENCE OF HEPATOCELLULAR CARCINOMA AND HEPATITIS B REINFECTION IN HBsAg POSITIVE PATIENTS AFTER LIVER TRANSPLANTATION. (Abstract # O-121)**
Sammy Saab, Melina Yeganeh, Kelvin Nguyen, Myron J. Tong, Ronald W. Busuttil. Los Angeles, CA, USA.
- 5:15 PM STEATOHEPATITIS RECURS FREQUENTLY AFTER LIVER TRANSPLANTATION FOR NONALCOHOLIC FATTY LIVER DISEASE. (Abstract # O-122)**
Nazia Selzner, Oyedele Adeyi, Verendra Sandur, Krishna Gurram, Arash Kashfi, George Therpondos, Leslie Lilly, Gary Levy, Eberhard Renner. To, Canada.
- 5:25 PM SINGLE CENTER EXPERIENCE WITH LIVER TRANSPLANTATION FOR SARCOIDOSIS: LONG TERM FOLLOWUP AND RECURRENCE. (Abstract # O-123)**
Muhammad Bilal, Amanda Dean, Mankanwal Sachdev, Mohammad Ismail, James D. Eason, Jason M. Vanatta. Memphis, TN, USA.
- 5:35 PM FIBROSIS PROGRESSION AFTER ANTIVIRAL TREATMENT (AT) FOR HCV RECURRENCE FOLLOWING LIVER TRANSPLANTATION. (Abstract # O-124)**
Eleonora De Martin, Annalisa Masier, Marco Senzolo, Sara Boninsegna, Francesca R. Ponziani, Raffaella Viganò, Luca Belli, Giovambattista Pinzello, Michele Colledan, Francesca C. Donato, Daniele Di Paolo, Mario Angelico, Maria Rendina, Maurizio Pompili, Antonio Gasbarrini, Francesco P. Russo, Umberto Cillo, Stefano Fagioli, Patrizia Burra. Padova, Italy; Roma, Italy; Bergamo, Italy; Milano, Italy; Bari, Italy.

- 5:45 PM ASSOCIATION OF CLASS I HISTONE DEACETYLASE EXPRESSION WITH TUMOR RECURRENCE AFTER LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA. (Abstract # O-125)**
Li-Ming Wu, Zhe Yang, Lin Zhou, Feng Zhang, Hai-Yang Xie, Xiao Xu, Xiao-Wen Feng, Shu-Sen Zheng. Hangzhou, Zhejiang, China.
- 5:55 PM RECURRENCE OF HEPATITIS B VIRUS AFTER LIVER TRANSPLANTATION CAN BE MANAGED EFFECTIVELY WITH ANTIVIRAL AGENTS. (Abstract # O-126)**
Kwan Chul Lee, Choon Hyuck D. Kwon, Jae Won Joh, Jae Berm Park, Gyu-Sung Choi, Jae Min Chun, Gum O. Jung, Ju Ik Moon, Jong Man Kim, Sung Joo Kim, Suk-Koo Lee. Seoul, Korea.
- 6:05 PM HIGH PREVALENCE OF HYPOXAEMIA IN CIRRHOTIC PATIENTS BEING WORKED UP FOR LIVER TRANSPLANTATION. IS THIS HEPATOPULMONARY SYNDROME? (Abstract # O-127)**
Edmund Tse, Kenny Sze, Edmund Lau, Geoff McCaughan, Simone I. Strasser. Sydney, New South Wales, Australia.

Concurrent Session: Radiology

4:45 PM - 6:15 PM

Room: Regeant Parlor, Level 2

Moderators: Bachir Taouli, MD, New York University Medical Center, New York, NY, USA & Ihab Kamel, MD, PhD, Johns Hopkins Hospital, Baltimore, MD, USA

- 4:45 PM SPLEEN STIFFNESS BY MAGNETIC RESONANCE ELASTOGRAPHY (MRE) CORRELATES WITH PORTAL HYPERTENSION IN A LARGE ANIMAL MODEL OF CIRRHOSIS. (Abstract # O-128)**
Geir L. Nedredal, Meng Yin, Jayant A. Talwalkar, Travis J. McKenzie, Jennifer L. Luebke-Wheeler, Richard L. Ehman, Scott L. Nyberg. Rochester, MN, USA.
- 4:55 PM OPTIMAL DOPPLER ULTRASONOGRAPHIC AND CT CRITERIA FOR RIGHT HEPATIC VEIN STENOSIS AT ANASTOMOSIS IN PATIENTS AFTER RIGHT-LOBE LIVING DONOR LIVER TRANSPLANTATION: RECEIVER OPERATING CURVE ANALYSIS. (Abstract # O-129)**
Kyoung Won Kim, Hye Jeon Hwang, Woo Kyoung Jeong, Gi-Young Ko, Kyu-Bo Sung, Tae-Yong Ha, Deok-Bog Moon, Ki-Hun Kim, Chul-Soo Ahn, Shin Hwang, Sung-Gyu Lee, Ja Young Cho. Seoul, Korea; Guri, Korea.
- 5:05 PM ENDOVASCULAR THERAPY FOR HEPATIC ARTERY STENOSIS AND OCCLUSION FOLLOWING LIVER TRANSPLANTATION. (Abstract # O-130)**
Timothy M. Schmitt, Sean Kumer, Kenneth L. Brayman, Ulku C. Turba, John F. Angle, Timothy L.

Pruett, Saher Sabri. Charlottesville, VA, USA.

- 5:15 PM HEPATIC VENOUS-OUTFLOW OBSTRUCTION AT MIDDLE HEPATIC VEIN TRIBUTARIES OR INFERIOR RIGHT HEPATIC VEINS AFTER LIVING DONOR LIVER TRANSPLANTATION WITH MODIFIED RIGHT-LOBE GRAFT: COMPARISON OF CT AND DOPPLER ULTRASOUND. (Abstract # O-131)**
Kyoung Won Kim, Hye Jeon Hwang, Woo Kyoung Jeong, Gi-Young Ko, Kyu-Bo Sung, Tae-Yong Ha, Deok-Bog Moon, Ki-Hun Kim, Chul-Soo Ahn, Shin Hwang, Sung-Gyu Lee. Seoul, Korea; Guri, Korea.
- 5:25 PM TREATMENT OF ARTERIAL STEAL SYNDROME IN LIVER TRANSPLANT RECIPIENTS. (Abstract # O-133)**
Fatih Boyvat, Hamdi Karakayali, Sinasi Sevmis, Cuneit Aytekin, Mehmet Haberal. Ankara, Turkey.
- 5:35 PM MRI FEATURES OF HCC DO NOT PREDICT MICROVASCULAR INVASION IN LIVER TRANSPLANT FOR HEPATOCELLULAR CARCINOMA. (Abstract # O-134)**
Emma Robinson, Hersh Chandarana, Leonid Drozhinin, Cristina Hajdu, Ruliang Xu, Lewis Teperman, Bachir Taouli. New York, NY, USA.
- 5:45 PM ROUTINE ULTRASONOGRAPHY HAS LIMITED VALUE IN PATIENTS LONG AFTER LIVER TRANSPLANTATION. (Abstract # O-135)**
Marieke van Rhijn, John J. Hermans, Geert Kazemier, Bettina E. Hansen, Roy Dwarkasing, Rob J. de Knecht, Rob A. de Man, Herold J. Metselaar. Rotterdam, Netherlands.
- 5:55 PM SIMULTANEOUS PERCUTANEOUS MULTIPLE PLASTIC STENTS FOR RESISTANT BILIARY ANASTOMOTIC STRICTURES AFTER LIVER TRANSPLANTATION: PRELIMINARY REPORT. (Abstract # O-136)**
Fatih Boyvat, Hamdi Karakayali, Umut Ozyer, Sinasi Sevmis, Ali Harman, Mehmet Haberal. Ankara, Turkey.

Concurrent Session: Surgical Techniques/Complications

4:45 PM - 6:15 PM

Room: Grand Ballroom, Level 3

Moderators: Paolo Chapchap, MD, PhD, Hospital Sirio Libanes, Sao Paulo, Brazil & Peter Neuhaus, PhD, Campus Virchow Clinic, Berlin, Germany

- 4:45 PM A NEW DEFINITION OF INITIAL POOR GRAFT FUNCTION – IMMEDIATE FUNCTIONAL GRAFT CLASSIFICATION BY THE LiMAX TEST IN A PROSPECTIVE CLINICAL TRIAL. (Abstract # O-137)**
Martin Stockmann, Johan F. Lock, Constantin Weber, Johann Pratschke, Peter Neuhaus. Berlin, Germany.

- 4:55 PM LONG-TERM OUTCOMES AND HEMODYNAMIC CHANGES AFTER HEMI-PORTOCAVAL SHUNT IN RECIPIENTS WITH SMALL-FOR-SIZE GRAFT. (Abstract # O-138)**
Takako Yamada, Koichi Tanaka, Kenji Uryuhara, Satoshi Kaihara. Kobe, Japan.
- 5:05 PM THE EFFECT OF ARTERIAL REPERFUSION ON INTRA-OPERATIVE HEMODYNAMIC PROFILE AND RECIPIENT OUTCOME IN ADULT LIVER TRANSPLANT RECIPIENTS USING MARGINAL GRAFTS. (Abstract # O-139)**
Adam Bartlett, Federica Merella, Manuela Fanciulli, Robert Ginsburg, Nigel Heaton. London, United Kingdom.
- 5:15 PM DUAL GRAFT LIVING DONOR LIVER TRANSPLANTATION WITH RIGHT AND LEFT LIVER GRAFT COMBINATION. (Abstract # O-140)**
Gi-Won Song, Sung-Gyu Lee, Shin Hwang, Ki-Hun Kim, Chul-Soo Ahn, Kwan-Woo Kim, Nam-Gyu Choi, Young-Dong You, Gil-Chun Park. Seoul, Korea.
- 5:25 PM INDIVIDUAL SURGEON VARIABILITY MODULATES THE IMPACT OF CONSECUTIVE OPERATIONS ON SURVIVAL AFTER LIVER TRANSPLANTATION. (Abstract # O-141)**
Jeffrey B. Halldorson, Ramasamy Bakthavatsalam, Jorge Reyes, James Perkins. Seattle, WA, USA.
- 5:35 PM THE SPANISH EXPERIENCE IN TWO-STAGE TOTAL HEPATECTOMY AND LIVER TRANSPLANTATION. RESULTS OF A NATIONAL SURVEY. (Abstract # O-142)**
Mikel Gastaca, Patricia Ruiz, Evaristo Varo, Manuel Gomez, Joan Fabregat, Ricardo Robles, David Calatayud, Ignacio Gonzalez-Pinto, Miguel A. Gómez-Bravo, Eloy Tejero, Javier Nuño, Fernando San Juan, Fernando Pardo, Jorge Ortiz de Urbina. Bilbao, Vizcaya, Spain; Santiago de Compostela, Spain; La Coruña, Spain; Barcelona, Spain; Murcia, Spain; Oviedo, Spain; Sevilla, Spain; Zaragoza, Spain; Madrid, Spain.
- 5:45 PM SPLIT LIVER TRANSPLANTATION (SLT) WITH RIGHT TRISEGMENT: NATURAL HISTORY OF SEGMENT IV. (Abstract # O-143)**
Ailton Sepulveda, Hadrien Tranchart, Mircea Chirica, Hervé Gouya, Pierre Philippe Massault, Fabien Stenard, Olivier Soubrane, Olivier Scatton. Paris, France.
- 5:55 PM INTIMAL DISSECTION OF HEPATIC ARTERY FOLLOWING TRANS-ARTERIAL EMBOLIZATION FOR HEPATOCELLULAR CARCINOMA: AN INTRA-OPERATIVE PROBLEM IN ADULT-TO-ADULT LIVING DONOR LIVER TRANSPLANTATION. (Abstract # O-144)**
Johnson C. Yang, Tsan-Shiun Lin, Yuan-Cheng Chiang, Chao-Long Chen. Kaohsiung County, Taiwan.

- 6:05 PM DECISION-ANALYSIS FOR SELECTION OF GRAFT TYPE IN RIGHT LOBE LIVING RELATED LIVER TRANSPLANTATION. (Abstract # O-145)**
 V. Vivek, B. Lenin, D. Puneet, S. Ajitabh, G. Neerav, G. Subash. New Delhi, India.

Featured Symposium #4: Anesthesia/Critical Care

4:45 PM - 6:15 PM

Room: Sutton North, Level 2

Moderators: Roman Schumann, MD, Beth Israel Deaconess Medical Center, Boston, MA, USA & Dinesh Ranjan, MD, University of Kentucky Medical Center, Lexington, KY, USA

- 4:45 PM Perioperative Transfusion Practices in OLT: Emphasis on ICU Care, Impact on Outcomes - Is There Evidence for "Best Practice" Yet?**
Robert J. Porte, MD, PhD
 University Medical Center Groningen
 Groningen, The Netherlands
- 5:05 PM Perioperative Vasopressor Use in OLT: What is the Evidence for Rational Use?**
James Y. Findlay, MD
 Mayo Clinic Rochester
 Rochester, MN, USA
- 5:25 PM Infectious Complications and Risk Factors for Infection in Liver Transplant Patients**
Fuat H. Saner, MD
 University of Essen
 Essen, Germany
- 5:45 PM Perioperative ICP Monitoring: Which Modality Should Be Used? (Indications, Intraoperative Experience, Postoperative Experience, and Duration of Monitoring)**
Devin E. Eckoff, MD
 University of Alabama
 Birmingham, AL, USA
- 6:05 PM Question & Answer**

ILTS Business Meeting

6:15 PM - 6:30 PM

Room: Sutton North, Level 2

ILTS Reception at Rockefeller Center*

7:30 PM - 10:30 PM

Rockefeller Center

**Ticketed Event*

The 2009 International Congress of ILTS Day-at-a-Glance, Saturday, July 11, 2009

6:30 AM – 12:00 PM Registration Open

Room: Grand Ballroom Foyer, Level 3

8:00 AM – 10:00 AM Plenary Session III

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Room: Grand Ballroom, Level 3

10:00 AM – 10:15 AM Coffee Break

Room: Grand Ballroom Foyer, Level 3

10:15 AM – 11:45 AM Featured Symposium #5

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Registries and Transparency

Room: Grand Ballroom, Level 3

10:15 AM – 11:45 AM Featured Symposium #6

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**Transplanting the MELD > 30
Patients**

Room: Sutton North, Level 2

11:45 AM – 12:00 PM Coffee Break

Room: Grand Ballroom Foyer, Level 3

12:00 NN – 1:30 PM Future Presentation

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Room: Grand Ballroom, Level 3

Saturday, July 11, 2009

Registration Open

6:30 AM – 12:00 PM

Room: Grand Ballroom Foyer, Level 3

Plenary Session III

8:00 AM - 10:00 AM

Room: Grand Ballroom, Level 3

Moderators: Chung Mau Lo, MD, The University of Hong Kong, Hong Kong, China & Lewis W. Teperman, MD, New York University Medical Center, New York, NY, USA

- 8:00 AM AUXILIARY LIVER TRANSPLANTATION FOR ACUTE LIVER FAILURE: A REAPPRAISAL. (Abstract # O-146)**
Daniele Sommacale, Claire Francoz, Venicius Rochas-Santos, Federica Dondero, Safi Dokmak, Catherine Paugam-Burtz, Francois Durand, Jacques Belghiti. Clichy, France.
- 8:10 AM PROGNOSIS OF CRITICALLY ILL CIRRHOTIC PATIENTS UNDERGOING MECHANICAL VENTILATION: IMPLICATIONS FOR THE MANAGEMENT OF ACUTE-ON-CHRONIC LIVER FAILURE. (Abstract # O-147)**
Wael Abdelrazek, Claire Francoz, Richard Moreau, Antonella Pironi, Dominique Valla, Francois Durand. Clichy, France.
- 8:20 AM DUCT-TO-DUCT ANASTOMOSIS USING FUNNEL SHAPE RECIPIENT BILE DUCT: A NOVEL TECHNIQUE TO REDUCE BILE DUCT COMPLICATION IN LIVING DONOR LIVER TRANSPLANTATION. (Abstract # O-148)**
Kwang-Woong Lee, Seong Yeon Cho, Seong Hoon Kim, Sung-Sik Han, Young-Kyu Kim, Yumi Lee, Sang Jae Park. Goyang-si, Gyeonggi-do, Korea.
- 8:30 AM ADULT TO ADULT LIVING DONOR LIVER TRANSPLANTATION (A-A LDLT) IN FULMINANT HEPATIC FAILURE (FHF): SHOULD IT AFFECT THE TREATMENT ALGORITHM IN COUNTRIES WITH SEVERE ORGAN SHORTAGE? (Abstract # O-149)**
Menahem Ben-Haim, Richard Nakache, Ran Oren, Patrick Sorkine, Adi Nimrod, Michal Carmiel-Haggai. Tel-Aviv, Israel.
- 8:40 AM EFFICACY OF ANTIVIRAL THERAPY IN LIVER TRANSPLANT RECIPIENTS WITH RECURRENT HEPATITIS C: EFFECT OF BASELINE CALCINEURINIC AGENT. (Abstract # O-150)**
Angel Rubin, Victoria Aguilera, Marina Berenguer, Josep L. Melero, Cecilia Ortiz, Maria Rodriguez-Soler, Martín Prieto. Valencia, Spain.

- 8:50 AM USE OF OLDER LIVING LIVER DONOR GRAFTS FOR HEPATITIS C VIRUS (HCV) POSITIVE RECIPIENTS: ANALYSIS FROM UNITED NETWORK FOR ORGAN SHARING (UNOS) DATABASE. (Abstract # O-151)**
Randeep Kashyap, Saman Safadjou, Rajeev Sharma, Benedict Maliakkal, Mark Orloff. Rochester, NY, USA.
- 9:00 AM TWO-YEAR EXPERIENCE WITH MELD-BASED LIVER ALLOCATION IN EUROTRANSPLANT SHOWS A SUBSTANTIAL DECREASE IN MORTALITY ON THE WAITING LIST IN THE FIRST 6 MONTHS AFTER LISTING. (Abstract # O-152)**
Axel O. Rahmel, Laura Boogert, Xavier Rogiers, for the Eurotransplant Liver and Intestine Advisory Committee. Leiden, Netherlands; Ghent, Belgium.
- 9:10 AM A NOVEL APPROACH TO PROTECT LIVER GRAFT AGAINST ISCHEMIA/ REPERFUSION INJURY VIA A CELL PENETRATING HEME OXYGENASE PROTEIN. (Abstract # O-153)**
Yan Liu, Kwan Man, Björn Nashan, Hans J. Schlitt, Tung Yu Tsui. Hong Kong, China; Hamburg, Germany; Regensburg, Germany.
- 9:20 AM THE PREDICTIVE POWER OF DONOR RECIPIENT MATCH. A 4-YEARS ANALYSIS OF THE OPTN DATABASE. (Abstract # O-154)**
A. W. Avolio, M. Siciliano, M. Barone, W. Perilli, R. Gaspari, B. Annicchiarico, N. Nicolotti, M. C. Liroi, L. Vargiu, S. Agnes. Rome, Italy; Bary, Italy.
- 9:30 AM PEDIATRIC LIVER TRANSPLANT RECIPIENTS 20 YEARS LATER: GUARDED OPTIMISM. (Abstract # O-155)**
Robert S. Venick, Sue V. McDiarmid, Douglas G. Farmer, Susan Feist, John Duffy, Johnny Hong, Jorge H. Vargas, Marvin E. Ament, Ronald W. Busuttil. Los Angeles, CA, USA.
- 9:40 AM USE OF TISSUE PLASMINOGEN ACTIVATOR IN DONOR HEPATIC ARTERY OF DONATION AFTER CARDIAC DEATH DONORS: CAN WE LOWER THE RISK OF ISCHEMIC-TYPE BILIARY STRICTURE AFTER LIVER TRANSPLANTATION? (Abstract # O-156)**
K. Hashimoto, B. Eghtesad, N. Ahmed, G. Gunasekaran, C. Quintini, F. Aucejo, D. Kelly, C. Winans, D. Vogt, B. Parker, S. Irefin, C. Miller, J. Fung. Cleveland, OH, USA.
- 9:50 AM EMTRICITABINE/TENOFOVIR DF (FTC/ TDF) FIXED DOSE COMBINATION IN PATIENTS WITH NORMAL AND IMPAIRED RENAL FUNCTION POST ORTHOTOPIC LIVER TRANSPLANT (OLT) FOR PREVENTION OF CHRONIC HEPATITIS B (CHB) RECURRENCE IN THE PRESENCE OR ABSENCE OF HBIG: UPDATED SAFETY ANALYSIS. (Abstract # O-157)**
Lewis Teperman, James Spivey, Fred Poordad, Thomas Schiano, Derek Coombs, Jane Anderson, David Oldach, Franck Rousseau. New York, USA; Atlanta, USA; Los Angeles, USA; Durham, USA.

Coffee Break

10:00 AM – 10:15 AM

Room: Grand Ballroom Foyer, Level 3

Featured Symposium #5: Registries and Transparency

10:15 AM – 11:45 AM

Room: Grand Ballroom, Level 3

*Moderator: Lisa M. McMurdo, RN, NY State Department of Health,
Troy, NY, USA*

10:15 AM China

*Shu Sen Zheng, MD
The First Affiliate Hospital, Zhejiang University
Hangzhou, China*

10:30 AM ELTR/UK EU Registries

*Rene Adam, MD, PhD
University Paris Sud
Villejuif, France*

10:45 AM Argentina/South America

*Luis G. Podesta, MD
Favaloro Foundation
Buenos Aires, Argentina*

11:00 AM UNOS/OPTN/SRTR North America

*Robert M. Merion, MD
University of Michigan
Ann Arbor, MI, USA*

11:15 AM Australia/New Zealand

*Geoffrey McCaughan, MD, PhD
Royal Prince Alfred Hospital
Sydney, Australia*

11:30 AM Question & Answer

Featured Symposium #6: Transplanting the MELD > 30 Patients

10:15 AM – 11:45 AM

Room: Sutton North, Level 2

*Moderators: Ronald W. Busuttil, MD, PhD, University of
California, Los Angeles, CA, USA & Juan Carlos Garcia Valdecasas,
Hospital Clinic I Provincial, Barcelona, Spain*

10:15 AM Preoperative Care

*David J. Kramer, MD
Mayo Clinic Jacksonville
Jacksonville, FL, USA*

10:30 AM Waiting List Management

*Yoo Goo Kang, MD
Thomas Jefferson University Hospital
Philadelphia, PA, USA*

10:45 AM Liver/Kidney

*Michael R. Charlton, MD
Mayo Clinic Rochester
Rochester, MN, USA*

11:00 AM Post Operative Critical Care

*Claus U. Niemann, MD
University of California, San Francisco
San Francisco, CA, USA*

11:15 AM Perioperative Management

*Nigel Heaton, MD
Kings College Hospital
Beckenham, United Kingdom*

11:30 AM Question & Answer

Coffee Break

11:45 AM – 12:00 PM

Room: Grand Ballroom Foyer, Level 3

Future Presentation

12:00 NN – 1:30 PM

Room: Grand Ballroom, Level 3

*Moderators: Richard B. Freeman, Jr., MD, Tufts Medical Center,
Boston, MA, USA & Chung Mau Lo, MD, University of Hong Kong, Hong
Kong, China*

12:00 NN Bioartificial Liver and Bridging Techniques

*Scott L. Nyberg, MD, PhD
Mayo Clinic Rochester
Rochester, MN, USA*

12:15 PM Future Immunosuppression

*Francois Durand, MD
Hospital Beaujon
Paris, France*

12:30 PM Small for Size Living Donor Liver Transplants

*Charlie M. Miller, MD, MBA
Cleveland Clinic Foundation
Cleveland, OH, USA*

12:45 PM Converging Hep C Therapies

*Timothy M. McCashland, MD
University of Nebraska Medical Center
Omaha, NE, USA*

1:00 PM Making DCD Livers Work Better

*Juan Carlos Garcia Valdecasas, MD
Hospital Clinic I Provincial
Barcelona, Spain*

1:15 PM Question & Answer

**The International Liver Transplantation Society
15th Annual International Congress
July 8-11, 2009
Hilton New York
New York, NY
United States of America**

2009 Abstracts

Plenary Session I

Abstract# O-1

EXTRACELLULAR ADENOSINE PRODUCTION BY ECTO-5'-NUCLEOTIDASE PROTECTS DURING MURINE HEPATIC ISCHEMIC PRECONDITIONING. Tobias Eckle¹, Melanie L. Hart², Susan Mandel¹, Holger K. Eltzschig¹.

¹Anesthesiology, University of Colorado Denver, Denver, CO, USA; ²Anesthesiology, University Hospital of Tuebingen, Tuebingen, Baden Wurttemberg, Germany

BACKGROUND & AIMS: The liver tolerates ischemia/reperfusion (IR) poorly. The discovery of ischemic preconditioning (IP) has raised hopes that natural pathways could be activated to increase hepatic resistance to ischemia. However, mechanisms of hepatic IP remain largely unknown. Extracellular adenosine has been implicated as an innate anti-inflammatory metabolite, particularly during ischemia. We investigated whether ecto-5'-nucleotidase (CD73), the "pacemaker" enzyme of extracellular adenosine production, is critical for hepatic protection by IP.

METHODS: Mice were subjected to 4 cycles of portal triad occlusion and reperfusion (3 minutes of ischemia/3 minutes of reperfusion) prior to IR or IR alone. **RESULTS:** Hepatic IP was associated with a significant induction of CD73 transcript and protein. Targeted gene deletion or pharmacologic inhibition of CD73 abolished hepatic protection by IP as measured by lactate dehydrogenase, aspartate aminotransferase, and alanine aminotransferase serum levels or histologic injury. Increases in extracellular adenosine with IP were significantly attenuated in cd73-deficient (cd73^{-/-}) mice. Reconstitution of cd73^{-/-} mice with soluble 5'-nucleotidase resulted in complete restoration of hepatoprotection by IP, and hepatic injury following ischemia was attenuated by treatment of WT mice with soluble 5'-nucleotidase. Mice deficient in CD73 did not demonstrate the same degree of IP-dependent inhibition of acute phase complement gene expression/activation as did wild-type mice suggesting that extracellular adenosine attenuates hepatic IR via complement regulation.

CONCLUSIONS: Extracellular adenosine production by CD73 mediates protection during murine hepatic IP. Use of soluble 5'-nucleotidase may be a potential therapeutic for hepatic ischemia.

Abstract# O-2

OUTCOMES OF SEVERE PREGNANCY RELATED LIVER DISEASE – SHOULD STANDARD TRANSPLANT LISTING CRITERIA BE APPLIED? Rachel H. Westbrook, Andrew D. Yeoman, Deepak Joshi, Mohamed Rela, Alberto Quaglia, John G. O'Grady, William Bernal, Nigel D. Heaton, Julia A. Wendon, Michael A. Heneghan. Institute of Liver Studies, Kings College Hospital, London, United Kingdom

Introduction: Liver disease in pregnancy is rare but carries a significant mortality for mother and baby. Liver transplantation (LT) is uncommon as most cases are self limiting, following delivery. Little is known about the indications and outcomes of LT in this cohort. Patients who were transferred to our centre with pregnancy related liver disease of severity sufficient to warrant specialist intensive care management were reviewed over a twelve year period (1997 – 2008).

Results: In total, 49 patients were admitted to our unit with deranged liver enzymes. Median age was 33 years (range 21-40) and median gestation 35 weeks (range 27-40). Forty deliveries were within 24 hours of presentation and 37 were by emergency caesarean section. Clinical diagnoses were haemolysis, elevated liver enzymes and low platelets syndrome (HELLP)/Pre-eclamptic liver disease (n=19), acute fatty liver disease of pregnancy (AFLP) (n=21), pancreatitis (n=2), small vessel veno-occlusive disease (n=2), ischemic hepatitis (n=2) and cholestasis of pregnancy (n=1). In 2 cases the diagnosis was unclear. Five patients were listed for LT, 4 of which had HELLP/pre-eclamptic liver disease. Three underwent LT, 1 died whilst on the list, one recovered. Listed patients had a higher AST (3156 vs 1141 iu/ml P=0.0079), lactate (7.98 vs 2.81 P=0.0037) and lower platelets (34.6 vs 96 p=0.0087), need for CVVHD (P<0.05) compared to non listed patients. There was no statistical difference in bilirubin, creatinine, INR and encephalopathy. Using original King's criteria to predict those unlikely to survive, no patient who was listed would have qualified for LT on these criteria alone. Indications for LT were failure to control severe hepatic bleeding in one case and worsening hepatic function with liver failure in the other four. All transplanted patients have excellent graft function on median follow up

of 8 years. In the series, there were 5 maternal and 4 fetal deaths. Bleeding was the most common complication occurring in 30 patients, and involved the liver in 10 cases.

Conclusions: Severe liver disease in pregnancy rare. Our experience suggests 10% of admitted patients are listed for LT and following LT graft survival is excellent. Standard listing criteria may be inaccurate in this individual patient cohort.

Abstract# O-3

¹⁸F-FDG-UPTAKE OF HEPATOCELLULAR CARCINOMA ON PET INDEPENDENTLY PREDICTS TUMOR RECURRENCE AFTER LIVER TRANSPLANTATION.

Arno Kornberg¹, Bernadett Küpper², Katharina Thrum³, Olaf Habrecht¹, Martin Freesmeyer³, Kathrin Katenkamp⁴, Annette Sappl¹. ¹General, Visceral, and Vascular Surgery, Friedrich-Schiller-University, Jena, Germany; ²Surgery, Rhön Klinikum, Bad Berka, Germany; ³Nuclear Medicine, Friedrich-Schiller-University, Jena, Germany; ⁴Pathology, Friedrich-Schiller-University, Jena, Germany

Background:

Grading and vascular invasion of hepatocellular carcinoma (HCC) are major risk factors for poor outcome after liver transplantation (LT). The aim of this study was to assess the value of preoperative positron emission tomography (PET) using ¹⁸F-fluorodeoxyglucose (¹⁸F-FDG) in liver transplant candidates with HCC for predicting parameters of aggressive tumor biology and posttransplant tumor recurrence.

Patients and methods:

Since 1999, a total of 55 patients with HCC underwent LT. In all of them, ¹⁸F-FDG-PET scans were performed pre-LT. We distinguished between patients with (PET + status) and patients without (PET – status) ¹⁸F-FDG-uptake, when compared to surrounding liver tissue. PET-findings were correlated with pathohistological findings at explant explantation (Milan status, number, size and stage of tumor, grading, microvascular invasion [MVI]) and posttransplant recurrence rate.

Results:

Current overall 5-year survival rate is 81,7%. Ten patients suffered from HCC recurrence (18,1%). PET + status (n=15) was significantly correlated with presence of MVI (P < 0,001) and poor grading (P = 0,008) of the tumor. In univariate analysis, Milan-status, tumor size, grading, MVI, tumor stage and PET status were significantly related with tumor recurrence (P < 0,05). In multivariate analysis, only poor tumor grading and PET + status were identified as independent risk factors of tumor recurrence (P = 0,001). Calculated 5-year recurrence-free survival rate was significantly lower in PET + patients (19%) compared to PET- recipients (93%; log rank < 0,001). Milan Out patients with PET + status (n=14) demonstrated a 5-year recurrence-free survival rate (80%) that was comparable to Milan In recipients (n= 25, 95%), but significantly higher than in Milan Out patients with PET + tumors (n=16, 18,7%; log rank < 0,001).

Conclusion:

PET + status of HCC is an independent predictor of tumor recurrence post-LT, triggered by its association with parameters of tumor aggressiveness. Pretransplant PET assessment might help identifying patients with advanced HCC beyond Milan criteria that will nevertheless benefit from LT.

Abstract# O-4

CONVERSION FROM PROGRAF TO ADVAGRAF IN ADOLESCENTS WITH NORMAL GRAFT FUNCTION AFTER LIVER TRANSPLANTATION: BIOEQUIVALENCE ON 1:1 DAILY DOSE. Paloma Jara¹, Loreto Hierro¹, Enrique Piñana², Carmen Camarena¹, Angela de la Vega¹, Esteban Frauca¹, Gema Muñoz Bartolo¹, Carmen Díaz¹, Francisco Hernandez², Nuria Leal³, Javier Murcia³, Manuel Gámez³, Manuel López Santamaría³, Antonio J. Carcas². ¹Hepatology, Children's Hospital La Paz, Madrid, Spain; ²Pharmacology, Hospital La Paz, Madrid, Spain; ³Transplant Surgery, Children's Hospital La Paz, Madrid, Spain

AIMS
Study of the pharmacokinetics (PK) of the extended release formulation of tacrolimus (Advagraf) once daily, compared to tacrolimus (Prograf) twice-a-day.

METHODS

The study was approved by the Institutional Review Board. Twenty adolescents (9 males; age: 12-17 years) fulfilled selection criteria: normal graft

function, no rejection in preceding months, and informed consent. Median time from OLT was 11.7 years (range:1.4-15.5). Present immunosuppression consisted of prednisolone (19 patients, median:4 mg every other day), plus tacrolimus. Four patients received Mycophenolate 11.5-25 mg/kg/day. After 7 days of taking their current doses of tacrolimus bid they were admitted for PK (samples at 0, 0.5, 1, 1.5, 2, 3, 4, 6, 8, 11.5, 12, 12.5, 13, 13.5, 14, 15, 16, 18, 20, 24 h). On day 8 they were converted to Advagraf on a 1:1 (mg/mg) basis for their total daily dose, given once daily. On day 14 a PK study of Advagraf was done (samples at 0, 0.5, 1, 1.5, 2, 2.5, 3, 4, 6, 8, 12, 15, 24 h).

Pharmacokinetics analysis was performed using a non-compartmental approach (WinNonlin 2.0). The relative bioavailability was assessed by the ratio: Area under the concentration–time curve (AUC) of Advagraf/ AUC of Prograf and its corresponding 90% confidence interval (CI).

RESULTS

(Tacrolimus levels in ng/mL)

Day 7: PK of Prograf: Cmax of the afternoon dose was lower than Cmax of the morning dose. Mean values were C0:7.09 C12:7.08 Cmax:19.5 AUC:234.8 ng/ml*h.

Day 14: PK of Advagraf: Mean values were C0:7.09 Cmax:18.9 AUC:238.5 ng/ml*h.

The mean ratio between formulations ($AUC_{Advagraf}/AUC_{Prograf}$) was 101% (90% CI:91.3-111.85%).

The correlation of trough level with AUC was $r^2:0.72$ (Prograf) and $r^2:0.74$ (Advagraf).

Patients were assessed 1 month after conversion. Dose was modified after day 14 in 5/20 patients. Trough levels at 1 month were: 6.3 ± 2.2 . Renal and graft function did not show changes compared to baseline. Patients were satisfied with the once daily administration of the drug.

CONCLUSIONS

In adolescents with normal graft function, tacrolimus (Prograf) bid and extended-release tacrolimus (Advagraf) once daily are bioequivalent.

Abstract# O-5

LAPAROSCOPY-ASSISTED LIVE DONOR HEPATECTOMY – ITS SIGNIFICANCE AND INITIAL RESULTS. Go Wakabayashi¹, Hiroyuki Nitta¹, Takeshi Takahara¹, Minoru Tanabe², Ken Hoshino², Motohide Shimazu³. ¹*Surgery, Iwate Medical University School of Medicine, Morioka, Japan*; ²*Surgery, Keio University School of Medicine, Tokyo, Japan*; ³*Surgery, Tokyo Medical University School of Medicine, Tokyo, Japan*

Background: Approximately 20% of living donors for liver transplantation feel wound discomfort even 2 years after surgery.

Methods: We first performed laparoscopy-assisted donor lateral sectionectomy in 2004. Based on the success of our first case and our experience of 150 cases of laparoscopic liver resection, we started a laparoscopy-assisted donor hepatectomy program from July 2007 and accumulated 12 cases by November 2008. We reviewed our initial results of these cases.

Results: Twelve grafts include 8 right lobes and 2 left lobes for adults and 2 lateral sectors for children. All procedures of 12 laparoscopy-assisted donor hepatectomies were smooth and uneventful, and there has been no conversion to open surgery since the program started. Mean operative time was 393 minutes (ranging from 326 to 510 minutes). Mean blood loss was 228 ml (ranging from 52 to 447 ml). Graft weights ranged from 194 to 740 g. All donors started oral intake on the next day after surgery and went home by the eighth post-operative day without having any complications. Graft function was good in all recipients. No recipient had any complication related to the graft surgery, including bleeding, hepatic artery thrombosis, and bile leakage.

Conclusions: Laparoscopy-assisted donor hepatectomy is safe and feasible with mini-laparotomy. To minimize the burden imposed on living donors, we will continue this laparoscopy-assisted donor hepatectomy program for every living donor liver transplantation.

Initial results from our series

case	graft	time	blood loss	graft weight	LOS	complication
1*	lateral sector	510 min	70 ml	244 g	8 d	no
2	lateral sector	330 min	77 ml	194 g	8 d	no
3	right lobe	465 min	85 ml	716 g	8 d	no
4	left lobe	388 min	425 ml	523 g	8 d	no
5	right lobe	358 min	177 ml	575 g	8 d	no
6	right lobe	417 min	447 ml	541 g	8 d	no
7	right lobe	390 min	320 ml	740 g	8 d	no
8	right lobe	391 min	418 ml	654 g	7 d	no
9	right lobe	364 min	52 ml	630 g	8 d	no
10	left lobe	375 min	273 ml	365 g	7 d	no
11	right lobe	396 min	132 ml	598 g	7 d	no
12	right lobe	326 min	260 ml	703 g	7 d	no
mean		393 min	228 ml			

*performed at Keio University in 2004, then from July 2007 to November 2008, eleven consecutive cases performed at Iwate Medical University

Abstract# O-6

THE DISTINCT REGENERATION PATTERN OF SMALL-FOR-SIZE FATTY LIVER GRAFT-THE SIGNIFICANCE OF ALDOSE REDUCTASE SIGNALING ON OVAL CELL ACTIVATION. Yan Liu, Kwan Man, Qiao Cheng, Kevin T. Ng, Xiao-Bing Liu, M. V. H. de Villa, Chung-Mau Lo. *Surgery, The University of Hong Kong Li Ka Shing Faculty of Medicine, Queen Mary Hospital, Hong Kong, China, Hong Kong*

Background and aims: Aldose Reductase (AR), which is involved in “polyol pathway”, has been found to be up-regulated in prolonged cardiac ischemia. We have identified AR to be specifically over-expressed in small-for-size fatty liver graft by cDNA microarray screening after liver transplantation. We aim to investigate the mechanism of AR on small-for-size fatty liver graft regeneration. **Materials and methods:** Rat orthotopic liver transplantation model using recipients with cirrhotic liver was established. Small-for-size fatty (40% fatty change) or normal grafts were applied. Graft regeneration patterns were compared by Ki67 (hepatocyte) and OV-6 (stem like cell) staining. Intra-graft gene expression of AR was detected by RT-PCR. The gene signaling linking to energy metabolism and liver regeneration was analyzed. The role of AR on liver regeneration and glucose metabolism were further studied in AR-/- mice with fatty liver that underwent major hepatectomy. **Results:** Normal hepatocytes regeneration (with Ki67 staining) was delayed, but a number of activated oval cells (OV-6 staining) were found in small-for-size fatty grafts during the first 2 weeks after liver transplantation. Intra-graft gene expression of AR was significantly increased in small-for-size fatty graft compared to normal graft at day 2 after transplantation (4.31 vs 2.13 folds of normal liver, $p=0.005$). The up-regulated AR expression correlated with down-regulation of cell signaling of liver regeneration (PCNA etc) and metabolism (FABP and PPAR etc). In the *in vivo* functional study, hepatocytes regeneration pathway (Ki67 and BrdU staining) was promoted and oval cell activation was inhibited in AR-/- mice compared to wild type mice with fatty liver after major hepatectomy. Blood glucose was also restored in fatty AR-/-mice compared to wild type mice (6.1mmol/L vs 3.45 mmol/L $p=0.01$) at day 2 after major hepatectomy. **Conclusion:** Activation of oval cells instead of normal hepatocytes regeneration was present in small-for-size fatty liver graft. Over-expression of Aldose Reductase (AR) initiated oval cell activation and inhibited hepatocyte regeneration by impairment of energy metabolism through FABP/PPAR pathway in small-for-size fatty liver graft.

Abstract# O-7

EXPLANTED LIVER INFLAMMATORY GRADE PREDICTS FIBROSIS PROGRESSIVE IN HEPATITIS C RECURRENCE.

M. Ghabril¹, R. C. Dickson², M. Kishna³, V. Machicao⁵, J. Aranda-Michel², H. Bonatti⁶, J. Nguyen⁴. ¹*Gastroenterology, Clarian/Indiana Univ, Indianapolis, IN, USA*; ²*Gastroenterology*; ³*Pathology*; ⁴*Surgery, Mayo Clinic, Jacksonville, FL*; ⁵*Gastroenterology, Univ of Florida, Gainesville, FL*; ⁶*Surgery, Univ of Virginia, Charlotte, VA*

Fibrosis progression in hepatitis C infection (HCV) following liver transplant (LT) is related to a complex interaction of donor, recipient, viral & LT factors. **Aim:** To determine if explant histologic grade of HCV activity, a potential surrogate marker of the recipients' aggregate immune response to HCV, predicts fibrosis progression in recurrent HCV. **Method:** All 159 primary LT for HCV at our center from 1998 to 2001 were reviewed for patient, viral, donor, and operative characteristics through 6/08. 25 were excluded for: graft loss <90 days, none due to HCV (19); recidivism (4); unavailable explant or follow up biopsies (2). Prospectively scored liver biopsies (protocol months

1, 4, annually & as indicated clinically) were reviewed for development of advanced fibrosis (AF) (bridging/cirrhosis). Explants were scored (Ishak) in a blinded fashion by a single pathologist. Patients were grouped by explant inflammatory grade (EG) ≤ 4 (group1) & >4 (group2). Cox proportional hazard regression was used to analyze the association of EG, donor, viral & LT factors with progression to AF. **Results:** Study groups characteristics & clinical outcomes are described in figure1.

	Group 1 EG ≤ 4 n=81	Group 2 EG > 4 n=53	p
Recipient age (years)	51 $\pm$ 7	52 $\pm$ 9	0.8
Recipient Gender (%male)	77%	62%	0.08
Recipient race (%caucasian)	83%	74%	0.2
Raw MELD at LT	15 $\pm$ 7	14 $\pm$ 6	0.4
Recipient Weight (kg)	85 $\pm$ 20	80 $\pm$ 17	0.2
Recipient BMI	29 $\pm$ 8	28 $\pm$ 5	0.2
Genotype 1/4 (%)	85%	81%	0.6
Viral load at LT > 1MEQ/ml (%)	53%	58%	0.5
CMV serology status donor+recipient- (%)	19%	23%	0.6
Donor age % > 50	45 $\pm$ 22 43%	48 $\pm$ 22 51%	0.4
Donor race caucasian (%)	78%	77%	0.7
Warm Ischemia Time (minutes)	37 $\pm$ 12	36 $\pm$ 11	0.6
Cold Ischemia Time (hours)	7.9 $\pm$ 2.6	7 $\pm$ 2	0.03
Received steroid boluses for rejection (%)	38%	36%	0.8
Treated for HCV recurrence (%)	66%	76%	0.3
Sustained Viral Response (%)	31%	14%	0.07
Follow up duration (months)	76 $\pm$ 30	75 $\pm$ 31	0.9
Graft survival 1 / 5 year	93% / 74%	88% / 56%	0.08
Patient survival 1 / 5 year	94% / 83%	94% / 85%	0.7
Advanced fibrosis free survival 1 / 5 years	91% / 63%	81% / 28%	<0.001
Graft loss related to HCV (%)	14/31 (45%)	21/27 (78%)	0.01
Death related to HCV (%)	9/25 (36%)	7/14 (50%)	0.4

64% of patients developing AF in both groups lost their grafts/died during the study. EG >4 was associated with increased HCV related graft loss at 1 (6% vs 3%) & 5 (36% vs 14%) years post LT (p 0.003). On uni/multivariate Cox regression analysis, predictors of AF were EG >4 [HR 3.3, 95%CI 1.9-5.6, p<.001] donor age >50 [HR3.3, 95%CI 1.9-5.7, p<.001] and viral load at LT >1 MEQ/ml [HR 1.8, 95%CI 1.05 -3.1, p0.03]. Overall 5 year graft survival was 48% in EG ≤ 4 /donor age >50 , 70% in EG >4 /donor age <50 & 30% in EG >4 /donor age >50 . **Conclusion:** Explant or preLT histologic grade can identify patients requiring more aggressive monitoring & intervention for HCV recurrence post LT, but should not preclude LT with appropriate donor selection based on age.

Abstract# O-8

GENE-EXPRESSION PROFILES OF HUMAN LIVER BIOPSIES CORRELATE WITH POST-TRANSPLANT ALLOGRAFT FUNCTION AND ARE DETERMINED BY DONOR TYPE. C. Fondevila, J. Muñoz, J. J. Lozano, M. A. Loera, S. Jimenez-Galanes, O. Sanchez, J. Fuster, P. Taura, A. Rimola, J. C. Garcia-Valdecasas. *Hospital Clinic, CIBERHD, University of Barcelona, Barcelona, Spain*

Ischemia-reperfusion injury in liver transplant leads to early allograft dysfunction (EAD) and failure. Our objective was to study major transcriptional alterations in livers procured from different types of human donors to identify gene profiles predictive of post-implant function.

Sixty-six samples were taken from 33 grafts: sample A immediately before cold perfusion (baseline) and B 2 h after portal reperfusion. Donors were from one of four groups: living (LD); after cardiac death (DCD); after brain death, with subsequent post-implantation EAD in the recipient (DBD-EAD); and after brain death without EAD (DBD). EAD was defined when one or more of the following occurred in the week: bilirubin ≥ 10 ng/dl, INR ≥ 1.6 , or AST or ALT >2000 U/L. RNA was extracted and analyzed using Illumina Beadarray technology. Results were confirmed in a subset of genes by Multiplex Taqman real-time PCR.

Functional pathways significantly over-represented in the microarrays were largely associated with oxidative stress, cell adhesion and migration, apoptosis, and cell-cycle regulation. Forty-five genes involved in these pathways were individually analyzed by RT-PCR. Representative genes that demonstrated the highest statistical difference among groups included C3, SOD2, NFKB1, HSPA4, HMOX1, IL6, TNF, HSPD1, IL1B, TNFAIP3, SELL and MMP9. We identified clear differences in gene expression patterns according to donor source. Both samples A and B from DBD-EAD and DCD demonstrated over-expression of pro-apoptotic and inflammatory transcripts. However, in DBD and LD, expression of these genes was low at baseline and rose only after reperfusion. DBD and LD demonstrated the greatest increase in overall genetic expression after reperfusion when sample B was contrasted with A, indicating less baseline graft injury in these two groups. Grafts from

LD were characterized by activation of transcripts related to anti-ischemic and regenerative processes and fewer pro-inflammatory gene transcripts.

In summary, we have identified transcriptional events occurring in liver allografts that may allow for the prediction of post-transplant function. Pro-inflammatory and ischemic transcriptional changes are directly related to donor type and may be useful targets for the development of future therapeutic strategies.

Abstract# O-9

LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA WITH GRAFT COMING FROM DECEASED OR LIVING DONORS. A COMPARATIVE ANALYSIS.

Alessandro Giacomoni, Abdallah Slim, Andrea Lauterio, Stefano Di Sandro, Luciano De Carlis. *Hepatobiliary Surgery and Liver Transplantation Unit, Niguarda Hospital, Milano, Italy*

Introduction. Liver transplantation (LTx) for selected hepatocellular carcinoma (HCC) is a well codified treatment. The waiting list drop out due to HCC progression is increasing worldwide as a consequence of organ shortage. In this scenario the living donor (LD) LTx is considered a valuable option. Controversies remain when comparing long term results between patients with HCC transplanted with a graft from living or deceased donors (DD).

Methods. From Jan. 2000 to Dec. 2007, 179 patients with HCC have been transplanted in our Unit. Among them 25 (13.9%) received a LD graft (Group A), while 154 (86.1%) received a DD graft (Group B). Mean MELD (13 vs 14) and mean recipient's age (57 years vs 54 years) were similar in both groups (LD vs DD) at time of Tx, while the mean days in waiting list before Tx were significantly less for patients transplanted with a LD (264 vs 404). Accidental HCC diagnosis has been made in 26 (16.8%) group B patients. Twentyone patients (84%) in group A and 107 (69.4%) in group B underwent aggressive downstaging procedure (liver resection, radiofrequency ablation and/or transarterial chemoembolization) while on waiting list. HCC nodule number and their dimensions have been determined on the explanted livers. As far as Milan criteria are concerned 15 (60%) patients in group A and 107 (69.4%) in group B were "Milan in" at time of Tx.

Results. Data have been retrospectively analyzed. No significant differences appeared from long-rank test comparing the 5 years long term survival rate (60% vs 77%) and the disease free survival rate (88.1% vs 89.4%) between the two groups (group A vs group B). The neoplastic recurrence itself as cause of death is different between the 2 groups but has no statistical relevance. Two patients (8%) developed HCC recurrence in group A and they are still alive, while 16 patients (10.3%) had HCC recurrence in group B showing a mortality rate of 7.1 %.

Conclusions. Our data show a comparable long term survival and disease free survival rate between patients with HCC transplanted using graft coming from living or deceased donors. Moreover an aggressive HCC downstaging policy while on waiting list for transplantation and an intensive use of graft coming from LD in order to face the organ shortage, are able to decrease the drop out rate as a consequence of neoplastic progression.

Rising Star Symposium

Abstract# O-10

THE NOVEL FUNCTION OF T CELL Ig MUCIN-1 (TIM-1) IN THE MECHANISM OF LIVER ISCHEMIA AND REPERFUSION INJURY. Yoichiro Uchida¹, Bibo Ke¹, Maria Cecilia S. Freitas¹, Elizabeth R. Benjamin¹, Nader Najafian², Mohamed H. Sayegh², Ronald W. Busuttil¹.

¹Surgery, The Dumont-UCLA Transplant Center, Los Angeles, CA, USA; ²Transplantation Research Center, Brigham and Women's Hospital, Boston, MA, USA

Background: TIM (T cell Ig and mucin domain-containing molecules) gene family, expressed by T cells, plays a crucial role in regulating immunity. However, its role in local inflammation, such as organ ischemia and reperfusion injury (IRI) remains unknown. **Methods:** Partial warm ischemia was produced in the left/middle liver lobes of BL/6 mice for 90min, followed by 6-24h of reperfusion. Mice were treated with antagonistic anti-TIM-1 Ab (RMT 1-10; 0.5mg i.p.) at 16h prior to the ischemia insult. After 6h or 24h of reperfusion, sALT levels and intrahepatic neutrophil accumulation (MPO activity) were assessed. The expression of pro-inflammatory cytokines (TNF- α , IL-6, IL-1 β), chemokines (CXCL-1, -2, and -10) and immune-related genes (IFN- γ , CD3) was screened by qRT-PCR. The expression of NF- κ B, Caspase-3, Bcl-2 and Bcl-xl was examined by Western blots. Liver

samples were collected for histological grading, detection of neutrophils (Ly-6G), T cells (CD3), macrophages (CD68), and apoptosis (TUNEL). **Results:** Anti-TIM-1 Ab treatment significantly reduced sALT levels, as compared with controls (26638±1874 vs 10474±3146; $p<0.01$ at 6h, and 6212±1323 vs 2873±1595; $p<0.01$ at 24h). The induction of pro-inflammatory cytokines, chemokines and immune-related genes was markedly reduced in the treatment group (TNF- α at 6 and 24h, $p<0.01$ and $p<0.05$, resp; IL-6 at 6 and 24h, $p<0.05$; IL-1 β at 6h, $p<0.01$; CXCL-1 and CXCL-2 at 6 and 24h, $p<0.01$ and $p<0.05$, resp; CXCL-10 at 6 and 24h, $p<0.05$; IFN- γ and CD3 at 6h, $p<0.05$). MPO activity (U/g) was also diminished following treatment ($p<0.05$). The expression of Caspase-3 and NF- κ B was depressed, whereas that of Bcl-2/Bcl-xl remained increased after treatment. Histological examination of liver sections has revealed that unlike in controls, TIM-1 Ab treatment reduced edema, centrilobular ballooning/sinusoidal congestion, ameliorated hepatocellular necrosis, decreased local neutrophil infiltration, inhibited the accumulation of lymphocytes/ macrophages, and reduced apoptosis. **Conclusion:** This is the first study, which provides evidence for the novel role of TIM-1 signaling pathway in the mechanism of liver IRI. Indeed, TIM-1 regulates not only T cells but may also affect macrophage function in the local inflammation response.

Abstract# O-11

LIVER TRANSPLANTATION FOR HIV: LONG TERM OUTCOMES FROM THE UK. Deepak Joshi, Varuna Aluvihare, Ajay Belgaumkar, John O'Grady, Abid Suddle, Michael Heneghan, Kosh Agarwal. *Institute of Liver Studies, King's College Hospital, London, United Kingdom*

Background

Experience in liver transplantation (LT) in HIV+ patients is limited with only a few centres participating worldwide.

Methods

UK Transplant maintains a prospective centralised database which we analysed to investigate the long term outcomes in HIV+ patients undergoing LT in the UK. Adult (>18 years) patients undergoing first cadaveric LT (March 1994 - April 2008) were included. The following groups were compared: [HIV+/HCV], [HIV+/Other] and HCV mono-infection [HCV].

Results

33 HIV+ (29 male; 0.6% of total LT activity), 847 [HCV] (15 % of LT activity) and 5435 HIV- patients underwent LT during the study period. Of the 33 HIV+ patients 16 were HCV Ab positive, 6 were HBsAg positive and 11 were neither HCV Ab nor HBsAg positive (HIV+/Other). HIV+ patients were younger compared to HIV- patients (mean 42.2 years +/- 9 versus 51.2 +/- 11.06; $p=0.001$) and had poorer mean survival rates post-LT (44 months +/- 32 versus 57.1 +/- 0.4; $p=0.0001$). [HIV+/HCV] were younger (mean 39.9 years +/- 7 versus 51.8 +/- 8.3; $p=0.0001$) and had significantly lower mean survival (29 +/- 28.2 versus 47.7 +/- 35.4; $p=0.04$) compared to [HCV]. MELD scores were comparable between the three groups.

Compared with the [HCV] group, survival rates at 1 and 5 years differed significantly in the HIV+ patients (73% and 53% [HIV+/HCV] versus 100% and 100% [HIV+/Other] versus 87% and 69% [HCV], Log rank test, $p=0.04$). No difference in survival rates at 1 and 5 years was demonstrated between the HIV- and HIV+ groups (86.5% and 74% versus 87.1% and 78%, Log rank test, $p=NS$).

Univariate analysis demonstrated HCV infection was a significant predictor of death after LT in HIV+ patients (Odds Ratio 10, 95% CI 1.03 to 97.04, $p=0.047$). In a multivariate logistic regression model, using HCV co-infection, MELD score, recipient and donor ages to predict survival, HCV co-infection was not independent of the other covariates (OR 8.8, 95% CI 0.66 to 118.9, $p=0.612$).

Conclusion

Our data suggests that HIV+ patients have a good long term prognosis post-LT. However, HIV+/HCV co-infected patients have a significantly worse survival post-LT compared with both HCV mono-infected and HIV+ patients without HCV. The mechanism of this requires further investigations.

Abstract# O-12

URINARY NGAL AS A SENSITIVE MARKER FOR RENAL INJURY DURING LIVER TRANSPLANTATION. Gebhard Wagener, Moury Minhaz, Fallon Mattis, Stephen Yap, Mihwa Kim, H. T. Lee. *Anesthesiology, Columbia University, New York, NY, USA*

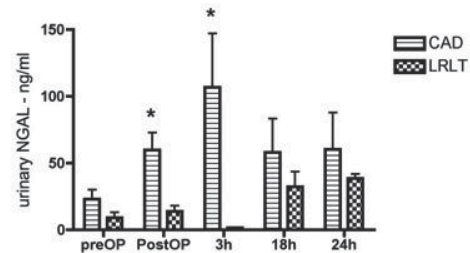
Introduction: Acute kidney injury (AKI) is a frequent cause of morbidity after liver transplantation (OLT). Its diagnosis is hampered because the current marker of AKI - serum creatinine - is insensitive and increases

too late. Urinary Neutrophil Gelatinase-associated Lipocalin (NGAL) is a novel biomarker that increases rapidly after renal injury and is a sensitive predictor for AKI in various clinical scenarios (3, 4). The present study evaluates whether urinary NGAL increases after OLT and whether living related liver transplants (LRLT) recipients who sustain less renal injury than cadaveric transplants (CAD-OLT) (2) demonstrate less NGAL increase than CAD-OLT.

Methods: After IRB approval, urine was collected from 17 patients undergoing OLT (12 CAD-OLT and 5 LRLT) before, immediately after reperfusion of the liver and then 3, 18 and 24 hours later. Urine was analyzed for NGAL using ELISA (Antibodyshop, Entofte, Denmark).

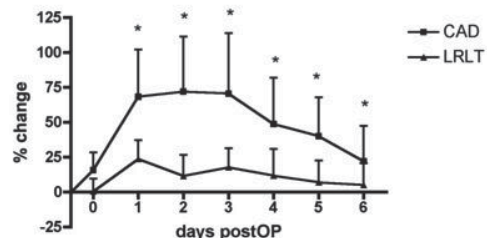
Results: PreOP urinary NGAL was similar in CAD-OLT compared to LRLT but significantly higher immediately (59.9 +/- 12.9 ng/mL vs. 13.8 +/- 4.4 ng/mL, $p=0.005$) and 3 hours 106.8 +/- 40.4 ng/mL vs. 1.5 +/- 0.3 ng/mL, $p=0.03$) after reperfusion.

Figure 1: Urinary NGAL before and after orthotopic liver transplantations: comparison of cadaveric (CAD) versus living related liver transplants (LRLT) (mean +/- SEM) postOP - immediately after reperfusion of the graft
* - $p<0.05$



LRLT had significantly lower postOP serum creatinine and delta % change of serum creatinine compared to CAD-OLT recipients.

Figure 2: Percent change of serum creatinine (compared to preoperative values) after orthotopic liver transplantations: comparison of cadaveric (CAD) versus living related liver transplants (LRLT) (mean +/- SEM)
* - $p<0.05$



Discussion: This is the first study evaluating urinary NGAL - the most promising novel biomarkers for AKI - after OLT. We observed a large early rise in urinary NGAL after CAD-OLT. LRLT exhibited lower urinary NGAL levels and lower postOP serum creatinine compared to CAD-OLT. Further studies will be required to establish urinary NGAL as a predictor of AKI after OLT.

References:

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2. Transplant Proc 2003; 35: 429-30
3. AJKD 2008; 52: 595-605
4. AJKD 2008; 52: 425-33.

Abstract# O-13

NO EVIDENCE THAT FK506 DIRECTLY INTERFERES WITH THE ANTIVIRAL ACTION OF INTERFERON-ALPHA ON HEPATITIS C VIRUS. Qiuwei Pan¹, Herold J. Metselaar¹, Jaap Kwekkeboom¹, Geert Kazemier², Harry L. A. Janssen¹, Hugo W. Tilanus², Luc J. W. van der Laan². ¹Departments of Gastroenterology & Hepatology, Erasmus University Medical Center, Rotterdam, Netherlands; ²Surgery, Erasmus University Medical Center, Rotterdam, Netherlands

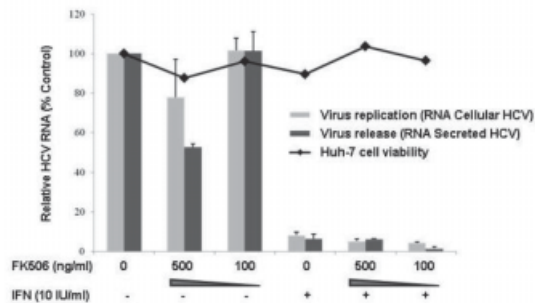
Immunosuppressive medications could significantly alter the course of hepatitis C recurrence after liver transplantation and interfere with interferon-

alpha (IFN- α)-based therapy. A recent study (Hirano et al, Liver Transpl. 2008, 14: 292) provided evidence that the commonly used calcineurin inhibitor, FK506 (tacrolimus, Tac), inhibits IFN- α signaling and can hamper its antiviral activity. Given the important clinical implications, the aim of this study is to confirm this finding in independent and well-established in vitro models of hepatitis C virus (HCV).

Methods: Viral replication in the subgenomic model (Huh-7 ET) was monitored by luciferase activity. Viral replication and production in the infectious model (Jc1) were determined by quantitative RT-PCR. Cell viability was determined by MTT assay.

Results: In Huh7 ET model, IFN- α (2.5 IU/ml) almost completely inhibited HCV replication (98.6%), whereas no inhibition was observed with Tac (100-500 ng/ml). Simultaneously treated Tac neither attenuate the action of IFN- α on HCV replication at 24 and 72h ($p>0.05$) nor affect cell viability. Pre-treatment with Tac for 16h had no effect on IFN- α induced inhibition of HCV replication ($p>0.05$). As further confirmation in Jc1 model, Tac had no effect on IFN- α mediated inhibition of HCV RNA replication and virion production in supernatant. At clinically irrelevant high doses (500 ng/ml), Tac did reduce secretion of viral RNA ($p<0.05$) but not cellular HCV RNA levels.

Discussion: This study shows that there is no evidence of interference by Tac on the anti-HCV effects of IFN- α using two state-of-the-art HCV models of viral replication and virion production. The previous study demonstrating a negative effect could be related to the in vitro HCV model that was used, rather than a general effect of this drug. Therefore we would caution interpreting and translating these laboratory findings into clinic.



Abstract# O-14

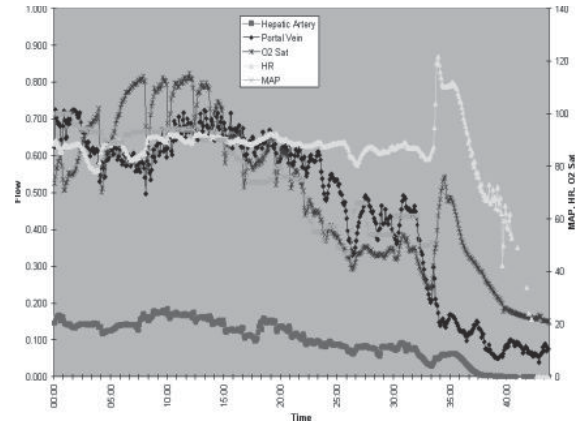
PORCINE MODEL REPLICATING THE HUMAN SCENARIO OF DONATION AFTER CARDIAC DEATH.

Jason Y. Rhee¹, Kevin O'Connor², Francis L. Delmonico², Richard Lusk², Richard B. Freeman¹. ¹Transplant Surgery, Tufts Medical Center, Boston, MA, USA; ²New England Organ Bank, Newton, MA, USA

Background: Published donation after cardiac death (DCD) animal models do not duplicate the clinical scenario because they do not include a slow cessation of oxygen delivery after withdrawal of life support (WLS). We have developed a porcine model in which ventilation is withdrawn and sedation administered to produce a slow decline in cardiopulmonary function to more accurately portray the physiologic conditions during human DCD. In this report, we characterize the hepatic and systemic hemodynamics from WLS to cessation of organized electrical activity.

Methods: Our Protocol was approved by Institutional Animal Care Committee. After the pigs were placed under general anesthesia, a laparotomy was performed to place flow probes around the hepatic artery and portal vein. Cardiac monitoring, pulse oximetry and systemic pressure were also measured. WST was accomplished under thiopental sedation. Hepatic flow (HF) is defined as the sum of hepatic flow and portal vein flow.

Results: Time from WST to cessation of cardiac electrical activity ranged from 31-66 minutes, (N=4). In all animals, organized cardiac electrical activity persisted for a mean of 17 ± 10 (range (4-29) minutes longer than hepatic flow. Plateau of MAP and HF occurred within 3 minutes of each other. The decrease in oxygen saturation paralleled the decrease in hepatic flow, however hepatic flow never decreased prior oxygen saturation.



Conclusions: We have established an animal model that more accurately portrays the human clinical scenario of donation after cardiac death. In our model, organized cardiac electrical activity persists well after cessation of hepatic flow. The combination of decline in oxygen saturation and absence of hepatic flow prior to the cessation of organized cardiac electrical activity signifies a substantial occurrence specific to DCD. Further investigation using this model may provide further insight into the nature of complications unique to DCD liver transplantation.

Abstract# O-15

CO-CULTURE WITH MESENCHYMAL STEM CELLS RESULTS IN IMPROVED VIABILITY AND FUNCTION OF HUMAN HEPATOCYTES; POTENTIALLY A NEW STRATEGY FOR THE CELLULAR THERAPY OF LIVER DISEASE.

Emer Fitzpatrick, Christina Philippeos, Robin Hughes, Ragai Mitry, Anil Dhawan. King's College Hospital, London, United Kingdom

Aim: Mesenchymal stem cell (MSC) transplantation has been shown to improve survival in animal models of liver disease and in pilot clinical studies of liver failure. It is not known whether this therapeutic effect is due to the potential of MSC to differentiate into hepatocytes or to their immunomodulatory effects. The aim of this project is to determine the effect of MSC on human hepatocyte viability and function in vitro.

Methods: Human hepatocytes (HC) were isolated from livers donated but unsuitable for transplantation and from liver resection specimens using a collagenase perfusion technique. A human adipose-derived MSC line was used. Co-culture was performed using direct cell-cell contact (ratio from 1:1 to 10:1 MSC:HC) and indirectly using a porous transwell membrane. Viability of hepatocytes was assessed by flow cytometry (propidium iodide / Annexin V) and real time PCR. Albumin production was measured by ELISA. PCR was used to detect expression of liver-specific genes in co-cultured MSC to identify trans-differentiation. MSC and HC were also co-cultured in alginate beads to determine if there was any effect on viability and function of HC. Results: A 20% increase in the viability of hepatocytes indirectly co-cultured with MSC versus control was detected using flow cytometry. PCR demonstrated a 3 fold down-regulation in expression of caspase 3 in the co-cultured group. Hepatocyte albumin production in direct co-culture with MSC increased to $180\% \pm 23\%$ ($p<0.05$) of control values at a ratio of 2:1 on day 2 and to $480\% \pm 121\%$ ($p<0.01$) at a ratio of 10:1 on day 4. This effect was not seen in cells which were indirectly co-cultured. Partial trans-differentiation of MSC into hepatocytes was detected in indirect co-culture as PCR revealed albumin expression by MSC. Increased albumin production to 180% and 310% of control values was seen in hepatocytes which were co-encapsulated with MSC, at day 7 and day 11 respectively.

Conclusion: An improvement in viability was seen in hepatocytes indirectly co-cultured with MSC, direct contact was needed between hepatocytes and MSC to demonstrate an improvement in albumin production. Co-encapsulation with MSC improved long-term hepatocyte function. The use of MSC to improve the function and viability of hepatocytes may be beneficial in the cellular therapy of liver disease.

Immunosuppression

Abstract# O-16**EFFECT ON HCV-ANTIGEN SPECIFIC PBMC RESPONSE BY CALCINEURIN ANTAGONISTS IN LIVER TRANSPLANTED PATIENTS WITH VIRAL RECURRENCE.**

Alessandro Perrella¹, Donatella Pisaniello¹, Bernardino Rampone¹, Anna D'Antonio², Oreste Perrella², Oreste Cuomo¹. ¹Specialistic Laparoscopic Unit and Liver Transplantation Center, AORN Cardarelli Hospital, Naples, Italy; ²Infectious Disease and Immunology Dpt, Hospital D. Cotugno, Naples, Italy

Background and Aim: Hepatitis C virus (HCV) RNA recurrence after Liver transplantation is almost always present. Because T-cell reactivity plays a role in recovery from HCV infection, virus-specific T-cell effectors responses were investigated in patients experiencing viral recurrence after liver transplantation. **Patients and Methods:** We enrolled 36 patients (pts) (22 Male – 14 Female; mean age 62 yrs) with HCV recurrence without documented episode of reject (histologically proven) on the following immunosuppressive regimen: Tacrolimus 3mg/daily (20 pts) with FK mean serum level of 6 ± 1.2 ng/mL and Cyclosporin 400mg/daily (14 pts) with mean serum C2 level of 565 ± 112 ng/mL. All sample were collect within 18 months from transplantation in mean. Peripheral blood mononuclear cells were isolated and after stimulation with a pool of HCV antigens (Core, NS3 and NS4 2mcg/mL) ELISpot assay was performed to evaluate IFN-gamma specific immune response measured as spot forming colonies (SFC) (at least 200,000 cells per well). To evaluate effect of calcineurin inhibitors on non specific IFN-gamma production, Elispot was performed on PMBC after PHL-A stimulation. Further lymphocytes number was measured by Flow cytometry. **Results:** Patients undergoing Tacrolimus treatment had higher IFN- γ SFCs than those underwent Cyclosporin therapy when stimulated with PHL-A (201 ± 69 vs 122 ± 56 ; $p < .05$ U Mann Whitney) and HCV pool antigen (88 ± 50 vs 63 ± 21 , $p < .05$ U Mann Whitney). Finally no differences have been found in Lymphocytes number among the two groups (900 ± 26 vs 846 ± 38). **Conclusion:** Patients with HCV recurrence undergoing Tacrolimus therapy, without episodes of reject, seem to have a stronger HCV-specific and non specific Th1 immune network than those on cyclosporine treatment. This evidence may suggest different role of immune network in modulating viral recurrence and infections in those under tacrolimus regimen but need further investigation.

Abstract# O-17**HOMEOSTATIC PROLIFERATION OF MEMORY-TYPE CD8⁺ T CELLS AS A CAUSE OF ACUTE REJECTION UPON IMMUNOSUPPRESSION WITHDRAWAL IN LIVER TRANSPLANT RECIPIENTS.**

Vincent Donckier¹, Valerio Lucidi¹, Roberto Troisi², Xavier Rogiers², Alexis Buggenhout¹, Myriam Rimmelink³, Isabelle Salmon³, Christophe Moreno¹, Nathalie Boon¹, Nadine Bourgeois¹, Isabelle Colle², Hans Van Vlierberghe², Ligia Craciun¹, Patrick Stordeur¹, Bernard de Hemptinne², Michel Goldman¹. ¹Liver Transplantation and Immunology, Hôpital Erasme, Université Libre de Bruxelles, Brussels, Belgium; ²Liver Transplantation, Universitair Ziekenhuis Gent, Ghent, Belgium; ³Pathology, Hôpital Erasme, Université Libre de Bruxelles, Brussels, Belgium

Background: Peritransplant T cell depletion was suggested to favour tolerance induction in solid organ transplantation. In a pilot trial in liver transplantation (LT), we used high doses anti-thymocyte globulins (ATG) induction therapy followed by Sirolimus and investigated whether such regimen would allow early immunosuppression (IS) withdrawal.

Methods: Patients received 3.75 mg/kg ATG/day from day 1 to 5 after LT followed by Sirolimus. In these patients, we characterized the phenotype of circulating lymphocytes, monitored interleukin (IL)-7 serum levels, interferon (IFN)- γ and IL-17 mRNA accumulation in mixed leucocyte reaction (MLR) and intra-graft IFN- γ mRNA and IL-17 expression by qPCR and immunohistochemistry respectively.

Results: Ten patients were included. In all cases, ATG therapy induced a profound early CD4⁺ and CD8⁺ T cells depletion. CD4⁺ T cells remained low for more than 12 months, but, in contrast, CD8⁺ T cells, mostly of memory phenotype (T_{EMRA}, CCR7-CD45RA⁺), recovered from month 2, reaching levels above pretransplant counts at month 6. After ATG administration, increased IL-7 serum levels were measured, peaking at day 25 and remaining elevated until day 300. In the first 3 patients, attempts of IS discontinuation

at days 140, 206 and 124 was followed by reversible acute rejection (AR), 140, 40 and 39 after IS withdrawal. At the time of AR, significant levels of IFN- γ and IL-17 mRNA were measured in MLR between recipient T-cells and donor spleen cells. Consistently, high levels of IFN- γ mRNA and IL-17 were measured within rejecting liver grafts.

Conclusions: Lymphopenia-induced IL-7 production following ATG induction might lead to homeostatic proliferation of memory-type CD8⁺ T-cells, potentially responsible for AR after IS withdrawal through IFN- γ and IL-17 secretion.

Abstract# O-18**PROPOSAL TO TREAT ACUTE CELLULAR REJECTION (ACR) IN PRESENCE OF HEPATITIS C VIRAL (HCV) INFECTION IN POST LIVER TRANSPLANT RECIPIENTS IN RELATION TO HEPATITIS ACTIVITY INDEX (HAI). SINGLE CENTRE EXPERIENCE.**

Ashokkumar Jain¹, Vrishali Patil², Charlotte Ryan², Rajeev Sharma², Saman Safadjou², Baber Sheikh¹, Randeep Kashyap², Mark Orloff². ¹Surgery, Solid Organ Transplant, Temple University, Philadelphia, PA, USA; ²Surgery, Solid Organ Transplant, University of Rochester, Rochester, NY, USA

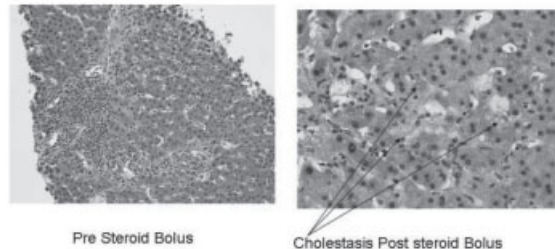
Introduction: Recurrence of hepatitis post Liver Transplantation (LTx) in a HCV positive recipient is almost uniform. However some patients may also experience an acute cellular rejection (ACR) and may require steroid bolus which has a detrimental effect on increasing the viral load and inadvertently making hepatitis worse.

The aim of the present report is to examine the treatment of ACR in HCV positive post LTx recipients and develop a guideline to treat ACR in relation to the Rejection Activity Index (RAI) and Hepatitis Activity Index (HAI).

Material and Methods: Between January 2003 and December 2006, 169 patients received LTx. All patients were followed until April 2008. Additional use of steroid bolus was correlated with RAI and HAI scores on liver biopsy.

Results: Out of 169 patients 30 did not have liver biopsy. 139 patients had 362 biopsies (mean 2.6 per patient).

Liver Biopsy and histological findings: Over all mean RAI score was 3.4 ± 1.9 and HAI score was 3.4 ± 3.1 . Nineteen patients (13.6%; 78 biopsies) received total 26 steroid bolus of Methyl prednisone; (200 mg to 1500 mg over 2 to 4 days). Remaining 120 patients (86.3%; 289 biopsies) did not receive steroid bolus. Mean RAI and HAI score for patients who received steroid bolus was 4.7 ± 1.4 (median 4.0) and 2.4 ± 2.1 compared to who did not receive steroid 1.6 ± 1.3 (median 2.0) and 3.4 ± 2.6 (median 3) respectively. Steroid bolus can cause cholestasis if a great care is not exercised.



Out of 19 patients with steroid bolus 13 (64.4%) died while 78 patients (65%) out of 120 who did not receive steroid are alive.

Conclusion: Based on our data, steroid bolus to treat ACR in HCV positive patients should only be given when RAI score ≥ 4 in addition to RAI score $\geq$ HAI score+2 on the liver biopsy. Great care needed to avoid post steroid cholestasis.

Abstract# O-19**LONG-TERM IMMUNOSUPPRESSION WITH ANTI-CD25 MONOCLONAL ANTIBODIES IN LIVER TRANSPLANT PATIENTS WITH CHRONIC KIDNEY DISEASE.**

M. Cantarovich, J. Tchervenkov, P. Metrakos, M. Deschênes, P. Wong, P. Ghali, P. Chaudhury, M. Hassanain, G. Arena, S. Paraskevas, J. Barkun. Liver Transplant Program, McGill University Health Center, Montreal, QC, Canada

Purpose: To describe the safety of a long-term anti-CD25 mAb-based immunosuppression strategy and its efficacy regarding renal function

salvage. **Methods:** 15 LTx pts (63±12 yrs) with chronic kidney disease on CNi were converted (T-zero) to long-term anti-CD25 mAb (8±3 yrs post-Tx). Basiliximab (Bas) was used in 3 pts and daclizumab (Dac) was used in 12 pts. The dosing interval was based on the CD25 saturation rate of peripheral blood CD4 T-cells. Additional immunosuppression included MMF (n=9), Rapa (n=3) and Pred (n=3). Three pts with HCV received anti-CD25 mAb monotherapy. The pts were matched for age, gender and date of Tx with 15 LTx pts with stable renal function. **Results:** Anti-CD25 mAb were given over 26±15 mo (2-51). Dosing interval was 2-3 mo. Two pts experienced skin lesions on Bas and were converted to Dac, which was well tolerated. Three pts experienced acute rejection at 2, 2.5 and 23 mo, respectively. Two of them had been converted to anti-CD25 mAb 1-yr post-Tx and had previously experienced an acute rejection episode. In these pts, CNi were re-initiated and Dac was discontinued. The third pt required Rapa dose reduction because of impaired wound healing post-hip replacement. Rapa was increased and Dac was continued. Acute rejection was reversed in 2 pts. One pt experienced chronic rejection and died 2 mo thereafter. One pt was started on chronic dialysis at 18 mo.

Table 1: Outcome of the CrCl (mL/min)

	6-mo	3-mo	T-zero/CNI discontinuation*	3-mo post	6-mo	Last visit**
Long-term anti-CD25 mAb	45±16	45±14	40±16	46±29	44±20	46±22
Controls	76±26	73±27	71±26	75±26	74±29	71±27

*CNI were not discontinued in controls. **26±15 mo. post-discontinuation of CNI and 26±15 mo. in controls. The change in slope of the CrCl (mL/min/mo) was -1.0 pre (95% CI: -1.94 -0.07) and -0.35 post (95% CI: -1.24-0.54) in pts in whom CNI were discontinued and -1.0 pre (95% CI: -1.37- -0.63) and 0.53 post (95% CI: -0.13-1.19) in controls (P=0.33). **Conclusion:** Our results suggest that long-term anti-CD25 mAb-based therapy has the potential to replace CNI-based immunosuppression. This approach appears safe except in pts with history of recent acute rejection, in whom other alternatives should be evaluated. A randomized controlled trial is required to confirm the benefits of this strategy.

Abstract# O-20

ARTERIAL HYPERTENSION IN LIVER TRANSPLANTATION: RATE OF CONTROL WITH ANTIHYPERTENSIVE THERAPY. Jhon Prieto¹, Marina Berenguer², Manuel de la Mata³, Belinda Martinez¹, Victoria Aguilera², Pilar Barrera³, Lourdes Rafael¹, Angel Rubin², Enrique Fraga³, Antoni Rimola¹. ¹Hospital Clinic, Barcelona, Spain; ²Hospital La Fe, Valencia, Spain; ³Hospital Reina Sofia, Cordoba, Spain

Background: Hypertension is a common complication after liver transplantation (LT), but there is scarce information on the control rate of hypertension in LT patients.

Aim: To investigate the rate of control of hypertension in LT patients receiving antihypertensive therapy.

Methods: Prospective, cross-sectional, multicenter study including 644 LT patients fulfilling the following criteria: a) age ≥18 yr; b) follow-up after LT ≥1 yr; c) periodic outpatient control in the 3 participating centers, and d) clinically stable condition. During a standard outpatient visit, after 5 minutes of resting, blood pressure (BP) was measured on 3 occasions separated by 2 minutes each, and the mean value of systolic and diastolic BP (SBP and DBP, respectively) was calculated. Hypertension was considered controlled when SBP was <140 mm Hg (130 in diabetics) and DBP was <90 mm Hg (80 in diabetics), and uncontrolled when BP was higher. Thirty variables (demographic, clinical, laboratory and metabolic data, and data related to immunosuppression and antihypertensive therapy) were collected.

Results: 352 (55%) out of the 644 patients had been diagnosed of hypertension after LT and were consequently taking antihypertensive drugs: diuretics in 115 patients, angiotensin blocking agents in 169, calcium channel blockers in 143, beta blockers in 56 and alpha antagonists in 41, alone or in combination (1 drug in 209 patients, 2 in 103, and ≥3 in 40). Hypertension was controlled (SBP: 124±10, DBP: 72±8 mm Hg) in 248 (71%) out of the 352 patients treated with antihypertensive drugs, and uncontrolled (SBP: 152±14, DBP: 85±11 mm Hg) in 104 (29%). Failure in controlling hypertension was significantly (p<0.05) associated with female gender (men: 25%, women: 38%) and diabetes (no: 20%, yes: 49%). Among the remaining 292 patients of the study, who had not been previously diagnosed with hypertension and were therefore not receiving antihypertensive therapy, 64 (22%) had increased BP on the day of the study (SBP: 151±14, DBP: 85±11 mm Hg).

Conclusion: BP is not adequately controlled by antihypertensive therapy in a substantial proportion of LT patients with hypertension, especially women

and diabetic patients. A relatively high percentage of LT patients may have previously undetected hypertension.

Abstract# O-21

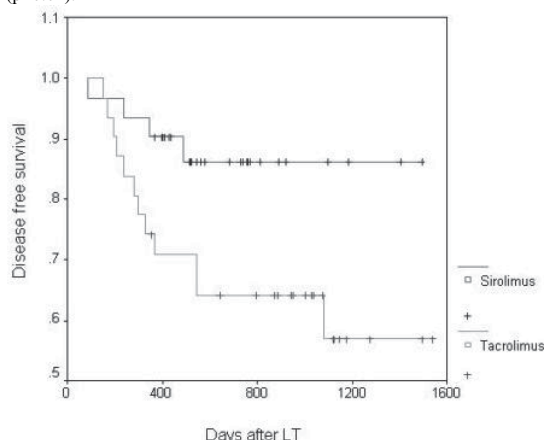
LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA WITH UNFAVOURABLE PROGNOSTIC FACTORS: RECURRENCE FREE SURVIVAL IS IMPROVED BY ADEQUATE IMMUNOSUPPRESSION. Marco Vivarelli, Alessandro Dazzi, Matteo Zanello, Alessandro Cucchetti, Matteo Ravaioli, Matteo Cescon, Massimo Del Gaudio, Gian Luca Grazi, Antonio D. Pinna. *Surgery and Transplantation, University of Bologna, Bologna, Italy*

Tumor recurrence represents the main limitation of liver transplantation (LT) in patients with hepatocellular carcinoma (HCC).

In a recent report we demonstrated that exposure to the calcineurin inhibitors is a prognostic factor for HCC recurrence together with microvascular tumor invasion, histological grading and preoperative serum alphafetoprotein level.

In the present report we investigate the effect of an immunosuppressant schedule that minimizes the exposure to calcineurin inhibitors on a population of patients transplanted in the presence of HCC with poor prognostic factors to ascertain whether the tumor recurrence rate can be reduced by such a policy. For this purpose we reviewed the records of 31 patients with HCC transplanted between 2004 and 2007 who received sirolimus as part of their immunosuppression and compared them with a control group of 31 patients (group B) transplanted in the same period who had the same prognostic factors but were given standard immunosuppression based on tacrolimus and steroids.

Three-year recurrence free survival was 86% in group A and 56% in group B (p=0.04).



While the prevalence of microvascular invasion G3-G4 grading and alphafetoprotein above 200 ng/mL was identical in the two groups, exposure to tacrolimus was significantly higher in patients of group B (median 8.54 range 5.5-13.5) in comparison to those of group A (median 4.6 range 1.8-9.1) (p=0.0001).

In patients with HCC, immunosuppression should aim at minimizing the exposure to calcineurin inhibitors; sirolimus may allow to reach this target.

Abstract# O-22

USEFULNESS OF ImmuKnow® ASSAY AS A TOOL TO DIFFERENTIATE THE AETIOLOGY OF LATE ALLOGRAFT DYSFUNCTION IN LIVER TRANSPLANT RECIPIENTS. Silvia Rosado Garcia¹, Raquel Castejon Diaz¹, Isolina Baños Perez², Maria Jesus Citores Sanchez¹, Ana Noblejas Mozo², Juan Antonio Vargas Nuñez¹, Valentin Cuervas-Mons Martinez². ¹Laboratorio de Medicina Interna. Hospital Universitario Puerta de Hierro Majadahonda, Madrid, Spain; ²Unidad de Trasplante Hepático. Hospital Universitario Puerta de Hierro Majadahonda, Madrid, Spain

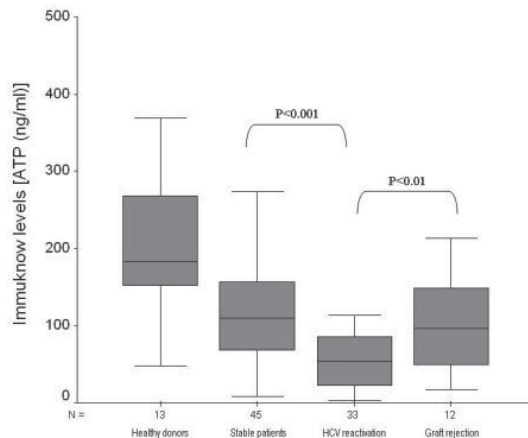
The "gold standard" for assessing the status of allograft in the liver post-transplantation period is the biopsy. Because symptoms of Hepatitis C virus (HCV) resurgence and allograft rejection appear similar, a non-invasive

method is needed to assist with distinguishing between the two and measuring net immunity state.

The aim of the study was to evaluate the potential contribution of ImmuKnow® assay in the posttransplant follow-up of liver transplant recipients. The ImmuKnow® assay determine cellular immunity status by quantitative measurement of intracellular ATP level in CD4+ stimulated lymphocytes.

A total of 90 immune function measures were assessed at 53 liver transplant recipients at different times after six months posttransplant. Patients were characterized retrospectively as "stable" (n=45), "HCV reactivation" (n=33), "graft rejection" (n=12) on clinical information in chart histories.

The normal values of cellular immune function were determined in a group of 13 no transplanted healthy donors. The stable o "normal allograft function" patients had a median ATP concentration of 110.28ng/ml similar to the patients with graft rejection (96.43ng/ml) and statistically significantly lower than control group (182.63ng/ml, p=0.002 and 0.02 respectively). The median values of ATP concentration of the patients with recurrence of HCV, was lower than the stable patients (54.0ng/ml, p=0.000) or patients with rejection (p=0.03).



Not correlation was found between ATP concentration and blood levels of tacrolimus or absolute lymphocyte and platelet counts. These data reveal that cellular immunity status measure by ImmuKnow® assay correlate with clinical outcome in liver transplant recipients and it would provide a useful adjunct tool to differentiate late rejection from recurrence of HCV.

Abstract# O-23

CONVERSION TO A SIROLIMUS-BASED CALCINEURIN INHIBITOR (CNI) FREE IMMUNOSUPPRESSION FOR NEUROTOXICITY IN LIVER TRANSPLANTION. Greg J. McKenna, Edmund Q. Sanchez, Srinath Chinnakotla, Henry B. Randall, Richard Ruiz, Nicholas Onaca, Robert M. Goldstein, Marlon F. Levy, Goran B. Klintmalm. *Baylor Regional Transplant Inst, Dallas, TX, USA*

Introduction

CNI neurotoxicity is common and is a reason to convert liver transplant (OLT) pts to a CNI-free regimen. Concerns of rejection (ACR) and other complications can deter this conversion. We report the largest experience of converting OLT pts to sirolimus (SRL) for CNI neurotoxicity.

Materials & Method

All 3080 OLT pts from 1988-2008 were retrospectively reviewed identifying a cohort where CNI were stopped and SRL started for neurotoxicity, comparing it to a control where SRL was started for non-neuro reasons. The cohort was evaluated for ACR, complications and post-conversion survival.

Results

From 11/1999-12/2008, 401 pts were converted to a SRL-based CNI free IS, 36 pts (9%) due to CNI neurotoxicity with a median time to SRL conversion of 117d post OLT (range 6d-10 yrs) vs 950d in those converted to SRL for non-neuro reasons. All CNI neurotoxicity pts had resolution of symptoms.

Complications Post Conversion to SRL-Based CNI Free Regimen

Complication	SRL for Neurotoxicity (n=36)	SRL for Non-Neuro (n=365)	p value
ACR	5 (13.8%)	24 (6.6%)	0.05
CMV	2 (5.5%)	12 (3.2%)	NS
HAT	1 (2.8%)	2 (0.5%)	NS
BD Stricture/Leak	1 (2.8%)	8 (2.2%)	NS
Incisional Hernia	7 (19.4%)	30 (8.2%)	0.04

All 5 ACR in those converted for neurotoxicity occurred when converted within the first 47d post OLT and 4 (80%) occurred in those converted within 17d post OLT. Median time to develop ACR post SRL conversion was 7d vs 58d in those converted for neuro vs non-neuro reasons.

Incidence of ACR and Hernia Based on Timing From OLT to SRL Conversion for Neurotoxicity

Timing of Conversion Post OLT	# of Pts	Incidence ACR	Incidence of Incisional Hernia
>30 d	9	4 (44.4%)	3 (29.7%)
<30 d	27	1 (3.7%)	4 (14.8%)

Comparing SRL conversion for neuro vs non-neuro reasons, the 1 yr pt survival was 91.6% vs 89.5% respectively, while 62% vs 77% remained on SRL for >1 yr (median duration 670d vs 1048d). Reasons for eventual SRL cessation in neuro vs non-neuro pts: pending surgery (22.2% vs 11.5%), ACR (14.3% vs 5.2%), infection (5.6% vs 4.3%) and patient death (2.8% vs 10.4%).

Conclusions

SRL conversion for CNI neurotoxicity can be successful but has a higher ACR and incisional hernia rates compared to other SRL conversion pts. Delaying the conversion after the first 30d post OLT significantly reduces this risk.

Abstract# O-24

MYCOPHENOLATE MONOTHERAPY IN PATIENTS AFTER LIVER TRANSPLANTATION: A PROSPECTIVE RANDOMIZED TRIAL. Ulf P. Neumann, Anja Kiessling, Maximilian Schmeding, Johann Pratschke, Peter Neuhaus. *Dept. of Surgery, Charité, Virchow Clinic, Universitätsmedizin Berlin, Berlin, Germany*

Side effects related to long-term immunosuppressive therapy with calcineurin inhibitors (CNI) are a major cause for morbidity and mortality in patients after liver transplantation (OLT). Several studies have proven the beneficial effect of CNI sparing in combination with introduction of mycophenolate mofetil. The aim of this study was to prove the feasibility of CNI withdrawal and replacement with MMF.

Overall 146 patients a minimum of 6 months after OLT were included in this prospective randomized trial. Patients received their maintenance CNI treatment (n=71, controls) or stepwise replacement of CNI with MMF (MMF group, n=75) within 3 months. Renal function, blood pressure, and cardiovascular combinations were monitored prior to study entry and every 3 months thereafter. Follow up was 24 months in all patients. Liver biopsies were performed routinely.

A complete cessation of CNI in the MMF group was possible in 50/75 patients. Incidence of histological proven rejection was 10.7% in the MMF group compared to 1.4% in controls. None of the patients developed a steroid resistant rejection. None of the patients showed signs of chronic rejection or ductopenia. All rejections occurred after complete cessation of CNI treatment. Renal function significantly improved in the MMF group (p<0.01). In contrast creatinine levels increased in the control group. This effect was pronounced in patients with impaired renal function (creatinine levels > 1.3mg/dl) at study entry and MMF monotherapy when compared to the CNI group (p<0.05). 8 patients of the control group showed a fast significant deterioration of renal function during the study and were switched to MMF monotherapy to avoid chronic dialysis. We could not identify changes in blood pressure and cardiovascular complications between groups.

Replacement of CNI with MMF after OLT is safe and feasible. However, in 1/3 of the patients a complete cessation of CNI was not possible. None of the patients developed a severe complication. The replacement of CNI with MMF significantly improved renal function.

Patient Selection/Organ Allocation

Abstract# O-25**PRE-TRANSPLANTIMAGINGCORRELATEPOORLYWITH EXPLANT PATHOLOGY IN LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA.** Ahmed Fahmy,Ivo Mitsiev, Vincent Peyregne, Thomas Diflo, Devon John, Glyn Morgan, Lewis Teperman. *Department of Transplantation, New York University Medical Center, New York, NY, USA*

Accurate clinical staging is critical for proper allocation of deceased donor livers to ensure acceptable outcomes from OLT. The aim of this study was to establish the accuracy of preoperative imaging in staging HCC patients and define the correlation between pretransplant imaging and explant characteristics. We also looked at tumor characteristics associated with inaccurate staging.

Methods and Results: We analyzed data from all patients undergoing liver transplant for HCC at our center from 1/2003 to 11/2008. A total of 157 patients were transplanted with HCC. Only patients with an imaging study (MRI or CT) within 3 months of transplant were included. Data from 143 patients were analyzed. Recurrence rate was 10 % after a median follow up of 20.2 months. Patients were staged using the TNM staging classification of the American Liver Tumor Study Group and the Milan criteria. Eight patients (5.6%) had no tumor on explant and were considered overstaged, and 9 patients (6.3%) with HCC on pathology had no tumor on imaging studies; these were considered understaged. Accurate TNM staging was achieved in 74 patients (51.7%). Forty two patients (29.4%) were understaged by imaging studies and 27 patients (18.9%) were overstaged. This inaccurate staging affected the Milan status of 46 patients (32.2%). After excluding patients with incidental tumors and those with no tumor on explant, 20 patients (13.9%) were understaged and had tumors that exceeded Milan criteria on explant, and 9 patients (5.6%) were overstaged and would have wrongly been denied transplant. Patients who were understaged had a mean tumor diameter on imaging of 2.7cm, not different from those accurately staged, and a mean tumor number of 1.2, significantly less than those accurately staged ($P=.043$). Comparing the pathologic characteristics of the two groups; understaged patients had significantly larger tumors, with a mean diameter of 5.7cm, compared to 2.7 cm in those accurately staged ($P<0.001$) and mean tumor number of 3.6, significantly more than those accurately staged ($P<0.001$). **Conclusion:** Our data suggest that despite imaging every 3 months a significant percentage of patients are inaccurately staged with more being understaged than overstaged. If we wish to expand the transplant criteria for HCC, accurate staging must be achieved to avoid poor outcomes.

Abstract# O-26**RESULTS OF THE IMPLEMENTATION OF A MELD SCORE-BASED ALLOCATION SYSTEM IN AN EUROPEAN CENTER.** Claire Francoz¹, Daniele Sommacale², Hamza Boudjema¹, Antonella Pironti¹, Federica Dondero², Catherine Paugam-Burtz³, Dominique Valla¹, Jacques Belghiti², Francois Durand¹. ¹Hepatology, Hopital Beaujon, Clichy, France; ²Surgery, Hopital Beaujon, Clichy, France; ³Anesthesiology, Hopital Beaujon, France

Background/aims: MELD score is a simple and robust prognostic tool for predicting outcome in cirrhotic patients. It also proved a reliable tool for prioritization of candidates for liver transplantation (LT). MELD score-based allocation system has been adopted since 2002 in the US and more recently in several European countries. The aim of this study was to determine the impact of the implementation of a continuous score based on MELD, presence of HCC and the distance between the donor and the recipient in a single French transplantation center.

Patients and methods: Between Sept 2005 and Sept 2008, 187 cirrhotic patients listed for a first liver transplantation were retrospectively studied. There were 147 males and 40 females. Mean age was 54 years. The cause of cirrhosis was alcohol in 83, HBV infection in 27, HCV infection in 49 and others in 28. Ninety nine patients had HCC (53%). Two groups were considered: Group 1, within 18 months preceding MELD score-based allocation (allocation based on waiting time); Group 2, within 18 months following the implementation of MELD score-based allocation.

Results: Groups 1 and 2 included 79 and 108 patients, respectively. Mean MELD score (independent of HCC) at listing was significantly higher in Group 2 patients compared to Group 1: 14 ± 5 vs 16 ± 7 ($p=0.01$). The proportion of HCC was comparable between groups. The rate of waiting list mortality or removal from the list due to deterioration was significantly lower

in Group 2 (7%) than in Group 1 (17%, $p<0.05$). One-year post LT survival tended to be higher in Group 2 than in Group 1 although the difference did not reach a significant level (93% vs 80%). Survival after listing (including transplantation) was of 16% in Group 2 compared to 30% in Group 1 ($p<0.05$). Finally, the rate of primary non function requiring retransplantation was 5% in Group 2 compared to 9% in Group 1 (ns).

Conclusion : The results of this study confirm that in a European population, MELD score-based allocation system reduces waiting list mortality or dropout without affecting post transplant outcome. Overall MELD-score based allocation system improves the results of LT on an intention-to-treat basis.

Abstract# O-27**REVIEWING THE CAUSES FOR OVER THOUSAND DISCHARGED LIVER DONORS. CAN DONATIONS BE INCREASED?** Ilka F. S. F. Boin¹, Helbert O. M. Palmiero¹, Patricia Kajikawa¹, Helder Zambelli². ¹Unit of Liver Transplantation, Faculty of Medical Science - State University of Campinas, Campinas, Sao Paulo, Brazil; ²Organ Procurement Organization HC/Unicamp, State University of Campinas, Sao Paulo, Campinas, Brazil

Introduction: Thousands of patients are waiting for a liver transplantation mainly due to lack of donors.

Aim: The aim of this study is to analyze the characteristics of discharged liver donors in a unit of reference of transplantation and to verify how to increase the graft number.

Method: A retrospective analysis was carried out in the in the period between 1994 and 2007 referring to 1432 discarded donors. Data was stored in a database and standardized in accordance with the expanded criteria donor. An average age of 35.2 years was identified; 67.7% were males and 20.9% of them were over 50. The main cause of donor discarding was family refusal (46.6%), followed by cardiorespiratory arrest (CRA) in 28.3% and doctor team discarding (16.9%), principally due to sepsis in 24.5% of them. Vasopressor drugs were used in 97.2%. Alcoholism was detected in 44.56% and drug addiction in 12.4%. There was infection in 23.9% of records, mainly of the respiratory type (75%). Intensive care time was over 120 hours in 11.0% of them. HVB was detected in 22.5%, from 338 tests, and 3.5% of 593 tests for HVC. Finally, there was hypotension in 45.7% (516 out of 1130) and also loss due to CRA.

Conclusion: As family refusal was the principal cause for discarding it is necessary to investigate the role of information in respect to organ transplantation in order to increase acceptance and the medical team should verify the records avoiding discharged.

Abstract# O-28**TRANSJUGULAR INTRAHEPATIC PORTOSYSTEMIC SHUNT (TIPS) FOR CIRRHOTICS AWAITING LIVER TRANSPLANTS.** Marcelo A. F. Ribeiro, Eleazar Chaib, Regina F. Friedberg, Felipe M. V. Lopes. *Department of Surgery, Universidade Cidade de São Paulo, São Paulo, Brazil; Universidade de São Paulo, São Paulo, Brazil*

Purpose: Evaluate and validate transjugular intrahepatic portosystemic shunt (TIPS) placement as an effective measure to bridge cirrhotic patients to liver transplants.

Background: The Transjugular intrahepatic portosystemic shunt consists of a non-surgical anastomosis performed by interventional radiologists aiming to decompress portal pressure. By establishing a communication between the hepatic portal system and the hepatic veins, management of symptoms such as variceal bleeding and refractory ascitis due to cirrhosis may be achieved with great success in patients with poor liver prognosis (based on the Child-Pugh scores).

Methods: Studies were gathered and thoroughly analyzed regarding many aspects of the transjugular intrahepatic portosystemic shunt: its historical background; indications and contra-indications; complications and results, in order to validate its efficacy in the treatment of portal hypertension and its complications, creating an up-to-date revision of this procedure's importance in healthcare, bridging certain patients safely to liver transplantation.

PATIENT SELECTION/ORGAN ALLOCATION

INDICATIONS, POSSIBLE INDICATIONS AND CONTRA-INDICATIONS

Accepted indications	Possible indications	Contra-indications
•Acute variceal hemorrhage refractory to endoscopic or pharmacological treatment	•Refractory ascitis	•Congestive cardiac insufficiency
•Recurrent variceal hemorrhage refractory to endoscopic or pharmacological treatment	•Budd-Chiari syndrome	•Polycystic hepatic disease
•Variceal hemorrhage prior to liver transplantation	•Hepatic hydrothorax	•Hepatic insufficiency
•Hemorrhage due to portal gastropathy		•Uncontrolled extra- or intra-hepatic infections*
•Inaccessible intestinal variceal bleeding		•Uncontrolled hepatic encephalopathy*
		•Hypervascularized intra-hepatic neoplasia*
		•Portal vein thrombosis*

* relative contra-indications

Results: A careful analysis of the data collected allows us to reaffirm TIPS' excellency in the control of liver deterioration in patients with poor prognosis awaiting a liver transplant. The literature gathered speaks in favor of its placement in selected patients, with promising results such as the reduction of the portosystemic pressure gradient, lower rebleeding rates and a reduction in ascitis. TIPS has proven to be excellent in bridging patients safely to liver transplants, with few episodes of hemorrhagic recidivism.

Abstract# O-29

RESTRICTIVE USE OF BLOOD PRODUCTS DURING LIVER TRANSPLANTATION: A COST ANALYSIS. Christian S. Van der Hilst, Alexander J. C. IJtsma, Maarten J. H. Slooff, Marieke T. de Boer, Ton Lisman, Robert J. Porte. *Department of Surgery, Division of Hepatobiliary Surgery and Liver Transplantation, University Medical Center Groningen, University of Groningen, Groningen, Netherlands*

Introduction

The use of blood products is known to adversely affect outcome after liver transplantation. In this study based on the Dutch COLT study, we evaluated the effect of a restrictive blood transfusion policy versus a more liberal policy on outcome after liver transplantation.

Methods

All Dutch adult, non-fulminant patients undergoing a first liver transplant, using a full-size graft from a deceased donor, were included. The Netherlands has three centers in which liver transplantations are performed. One center has a policy of restricted transfusion (RT) while the other two centers have a conventional, more liberal transfusion (CT) policy. All patients are listed in a single national waitinglist utilizing a MELD-score based allocation system. Intra- and postoperative outcome variables as well as cost data were collected until discharge from the hospital.

Results

Of 404 liver transplant procedures performed between September 2004 and December 2007, 222 were included in this study. A CT policy was used in 150 and RT was used in 72 patients. The two groups were comparable with respect to diagnosis and operative characteristics. The percentage of patients who did not receive blood products was significantly higher in the RT group. Postoperative length of stay in ICU and ward, however, were markedly longer in the RT group.

	Conventional transfusion	Restricted transfusion
Gender (male)	61%	67%
Age (years)	50	50
MELD-score	21.7	21.4
WIT (min)	31	45
CIT (hours:min)	8:19	7:14
No RBC	16%	39%
No FFP	18%	58%
No TC	34%	75%
ICU stay (days)	6.9	8.0
Ward stay (days)	18	27

The in-hospital mortality was less than 3% in both groups indicating no difference in clinical outcome. Cost of blood products were €4264 and €2504 for the CT and RT group, respectively. Costs for reinterventions after LTx were similar in both groups. However, due to the shorter ICU stay and ward stay, total in-hospital costs were lower in the CT group (€49,008 versus €57,449).

Conclusions

ART protocol clearly increases the number of patients who can be transplanted without any blood products. It also reduces the costs associated with blood transfusion. However, in this study, total in-hospital costs were not lower in the RT group, due to a longer postoperative admission time.

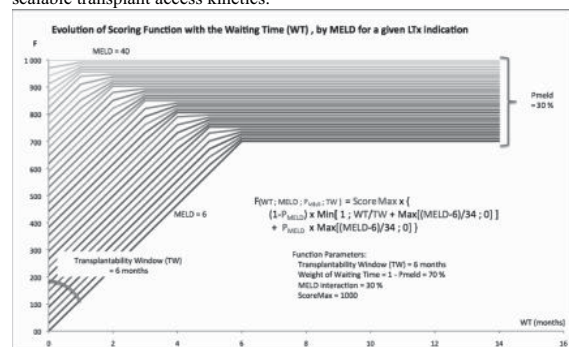
Abstract# O-30

TUNING TRANSPLANT ACCESS KINETICS FOR LIVER MALIGNANCIES. Christian Jacquelin, Benoit Audry, Corinne Antoine. *Direction Médicale et Scientifique, Agence de la Biomédecine, Saint-Denis, France*

Introduction : MELD score emerged as a major evidence-based allocation criteria for Liver Transplantation (LTx) for it is a relevant criteria to support the urgency to access to LTx in cirrhotic patients and because it helps to avoid too early LTx for patients with no individual benefit from LTx. Nevertheless, periodic reviews of liver allocation schemes demonstrated that its use for other indications including Hepatocarcinoma (HCC) resulted in inappropriate transplant access rates, and thus to unstable liver allocation algorithms through the time.

Methods: To avoid such pitfalls, we designed our liver allocation scheme to prioritize access to LTx (i) for cirrhotic patients when they reach high MELD scores whatever their WT and (ii) for patients with HCC when they reach either a high MELD or the end of their assigned transplantability window (6 mo for TNM2, 12 mo for TNM1). In absence of evidence based metric to forecast the risk of dead or too sick patient delisting, an increasing amount of points with the waiting time (WT) was given until a plateau when one reach the end of the assigned transplantability window. A first version of the new Liver Allocation Score (LAS) has been implemented since march 2007, adding MELD and Waiting Time (WT) for HCC with distinct plateau thresholds according to TNM staging.

Results: The one-year LAS review showed us good results for patients with high MELD indications. But HCC with low MELD cirrhosis had limited access to LTx and inappropriate kinetics. Indeed an interaction between MELD and WT was required. This led us to define a generic function F with 2 parameters and to simulate its impact on the transplant access kinetics. This function demonstrated by simulation to be helpful in providing accurate and scalable transplant access kinetics.



Conclusion: HCC requires a composite approach for LTx allocation, based on a model combining MELD and a decreasing influence of the WT with the MELD. An univariate MELD based allocation scoring function is not appropriate because an artificial MELD or extra points give the same access to LTx as cirrhotic patients having the same amount of points.

Abstract# O-31

BILIARY COMPLICATIONS AFTER ORTHOTOPIC LIVER TRANSPLANTATION FROM DONORS AFTER CARDIAC DEATH: SPECTRUM OF DISEASE. Ahmad Abou Abbass¹, Atsushi Yoshida¹, Rob Slater¹, Marwan Abouljoud¹, Dean Kim¹, Dilip Moonka², Marwan Kazimi¹, John Hundley¹. *¹Transplant and Hepatobiliary Surgery, Henry Ford Health System, Detroit, MI, USA; ²Hepatology, Henry Ford Health System, Detroit, MI, USA*

Background: Over the past decade, liver transplantation from donors after cardiac death (DCD-LT) has increased in the United States in an attempt to increase the donor pool. DCD-LT carries higher complication rates compared to liver donation after brain death (DBD-LT). In this report we describe our experience with biliary complications in DCD-LT with emphasis on anatomical patterns and outcomes.

Materials and Methods: We performed a retrospective review of patients' medical records from 2004 to 2008. 26 DCD-LT's were performed (mean recipient age = 51.6 yrs, range 21-68 yrs; mean donor age = 19 yrs, range 7-61 yrs). Biliary reconstruction was duct to duct (n=21) or biliary-enteric anastomosis (n=5). Mean warm ischemia time was 39 minutes (range 19-68 mins) and mean cold ischemia time was 5.3 hrs (range 4-9 hrs). Mean follow up was 29 months (range 3-51 months).

Results: Biliary complications occurred in 12 patients (46%); 9 were related to DCD (35%): anastomotic strictures (n=5); intrahepatic strictures (n=4); biliary leaks (n=3); stone/sludge (n=3); casts (n=3). Four of these patients had more than one complication. Four had concomitant arterial problems (stricture/thrombosis). Treatment of complications included: ERCP (n=5, 3 resolved), conversion to roux (n=5, 2 resolved), revision of roux (n=1), PTC (n=1), artery revision (n=3). Three patients with casts had operative extraction depicting a "mummified" biliary tree; histology showed casts, fibrosis, and anastomotic suture material. Enteric anastomosis was performed to the hilar plate; 1 required retransplant. Six patients underwent retransplantation (23%), 1 for poor graft function, 3 with associated arterial problems, and 5 with biliary strictures/leaks. Among retransplanted patients, 2 deaths occurred (7.7%).

Conclusions: Our experience with DCD-LT reveals a high prevalence of biliary complications with a new and wide spectrum of clinicopathologic findings. Radiologic and pathologic findings are unique and will be reviewed pictorially in detail. Although a survival benefit is achieved, better strategies for prevention of these unique biliary complications are needed to better justify the added risks and costs for performance of DCD-LT.

Abstract# O-32

VALIDATION OF THE BCLC PROGNOSTIC SYSTEM IN SURGICAL HCC PATIENTS. IS NECESSARY TO MODIFY THE BCLC TREATMENT ALGORITHM? Davide F. D'Amico¹, Alessandro Vitale², Paola Violi¹, Patrizia Boccagni¹, Alberto Pauletto¹, Michele Scopelliti¹, Domenico Bassi¹, Francesco E. D'Amico¹, Umberto Cillo¹. ¹Clinica Chirurgica I^o, Università di Padova, Padova, Italy; ²Istituto Oncologico Veneto, IRCCS, Padova, Italy

Objectives. To investigate the value of known prognostic systems in 400 Italian patients with hepatocellular carcinoma (HCC) treated with surgical radical therapies.

Background. Prognosis assessment in surgical HCC patients remains controversial. The most widely used HCC prognostic tool is the BCLC classification, but its prognostic ability in surgical patients has not been yet validated.

Methods. A prospective database collection including 400 surgical HCCs observed at a single Institution from 2000 and 2007 was analyzed. By using survival time as the only outcome measure (Log-rank test), the performance of BCLC classification was compared with that of Okuda, CLIP, UNOS-TNM, and JIS staging systems. A cohort of 315 non surgical patients enrolled in the same period was used to test the prognostic power of surgery in each BCLC stage.

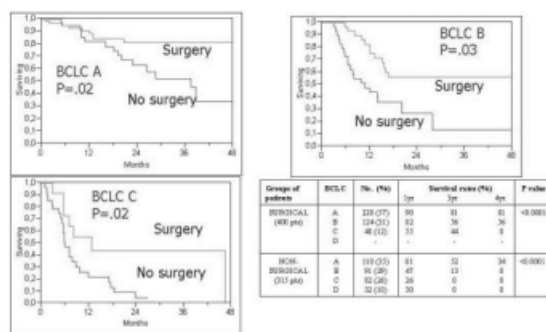
Results. 225 patients underwent to laparotomic resection, 55 to laparoscopic procedures (ablation and/or resection), 120 to liver transplantation. In the particular cohort studied, BCLC proved the best HCC prognostic system. Three year survival rates of patients in BCLC A, B, and C stages were respectively 81%, 56%, and 44% (p<.01), whereas all other tested staging systems did not prove a significant stratification ability.

Figure 1. Univariate analysis comparing the prognostic ability of available HCC staging systems in patients undergoing to surgery.

STAGING SYSTEM	Surgery	3 yr survival (%)	Log Rank test
OKUDA			
I	57%	70	P= NS
II	40%	66	
III	-	-	
CLIP			
0	33%	66	P= NS
1	28%	63	
2	33%	71	
≥3	7%	88	
UNOS-TNM			
I	20%	74	P= NS
II	48%	74	
III	19%	57	
IV	20%	62	
JIS			
0	11%	64	P= NS
1	33%	64	
2	36%	68	
≥3	20%	73	
BCLC			
A	57%	81	P= .03
B	31%	56	
C	12%	44	
D	-	-	

When all 715 HCC patients were considered, surgery proved to be a significant survival predictor in each BCLC stages A, B, and C.

Figure 2. Prognostic ability of surgical therapy in different BCLC stages



Conclusions. BCLC staging showed the best interpretation of the survival distribution in a surgical HCC population. BCLC treatment algorithm should consider the role of surgery also for intermediate-advanced stages of liver disease.

Abstract# O-33

SEVERITY OF PREOPERATIVE RENAL FAILURE PREDICTS 30 DAY MORTALITY BUT NOT 1 YEAR SURVIVAL: A POTENTIAL IMPACT IN THE MELD ERA.

Richard K. Gilroy¹, Ryan Taylor¹, Erik Schadde², Jay Montgomery⁴, Christina Jones⁴, Victor Le⁴, James Kindscher³. ¹Dept. of Internal Medicine, Kansas University Medical Center (KUMC), Kansas City, KS, USA; ²Dept. of Surgery, KUMC, Kansas City, KS, USA; ³Dept. of Anesthesiology, KUMC, Kansas City, KS, USA; ⁴School of Medicine, KUMC, Kansas City, KS, USA

Purpose: Review the impact of renal dysfunction upon transplant outcome and identify those factors predicting poor outcome and the measures that may reduce this.

Methods: Patients receiving orthotopic liver transplantation (OLT) between June 1, 2001 and September 30, 2007 (n=70) with serum Creatinine (sCr) levels >1.5 mg/dL at the time of transplant. Patients were grouped for the purpose of analysis by sCr at the time of transplant into mild sCr 1.6-1.9 (n=26), moderate sCr=2.0-3.9 (n=20) and severe sCr>3.9 or dialysis (n=24). Data was collected from 1 year pre-operatively to 5 years post-operatively or until the date of the study. MDRD6 was used to estimate creatinine clearance.

Results: In patients transplanted with severe renal dysfunction, bilirubin, INR, average MELD score (38.6 versus 25.9) were higher, and while average age was lower (47.6 Vs 54.4 years) when compare to mild and moderate groups combined. Severe renal dysfunction 1 month 29.2% Vs 6.5% (p=0.01) and 1 year mortality were 41.7% Vs 23.9% (p=0.12) as compared to mild and moderate groups combined. When censored for combined kidney-liver transplantation (n=4) 30 day survival was 33% Vs 6.7% (p=0.005). In the patients with severe renal dysfunction who survived 1 month creatinine values returned to values similar to those with mild dysfunction (1.34 Vs 1.62 mg/dL) and this difference persisted out to 2 years. A direct relationship was seen between pre-operative severity of renal dysfunction and total hospital length of stay of survivors (mild 17, moderate 32, severe 49 days respectively). Duration of pre-operative renal dysfunction did not predict survival. In the 4 patients receiving combined liver-kidney transplantation, no mortality occurred.

Conclusions: Patients with severe renal dysfunction have a very high early mortality and morbidity when compared to other groups with renal dysfunction. Concurrent renal transplantation appears to reduce the mortality in this group. This data suggest that the utility of a liver allograft allocated with a kidney in situations of severe dysfunction is improved, irrespective of structural renal disease.

Abstract# O-34**ROLE OF PREOPERATIVE TREATMENTS OF HEPATOCELLULAR CARCINOMA IN PATIENTS UNDERGOING LIVING -DONOR LIVER TRANSPLANTATION: THE JAPANESE EXPERIENCE.**

Hiroyuki Furukawa, Satoru Todo, the Japanese Liver Transplantation Study Group. *First Department of Surgery, Hokkaido University School of Medicine, Sapporo, Japan*

[Background] Diseased donor liver transplantation (DDLT) is the first choice of treatment for patients who have early hepatocellular carcinoma (HCC) within the Milan criteria, with underlying liver cirrhosis in North America and Europe. In Asian countries where DDLTs are scarce, HCC patients are repeatedly treated by various adjuvant modalities before living-donor liver transplantation (LDLT).

[Object] To determine the influence of preoperative treatments on patient survival (PS) and disease-free survival (DFS) of patients who received LDLT for HCC in Japan.

[Methods] From Mar 1998 till Dec 2006, 801 patients received LDLT for HCC at 62 centers; mean age of 56 years, 585 male / 216 female, 248 HBV / 467 HCV / 83 others, 93 child A / 267 child B / 415 child C, and median MELD score of 13. Type and frequency of the treatments and duration from the last treatment till LDLT were analysed. All explants were subjected to pathological determination of size and number of HCC lesions with or without vascular invasion. Median follow-up was 770 days.

[Results] Of 801 recipients, 573 (71.5%) received various treatments; TAE alone (n=299), TAE+RFA or MCT (n=95), Chemo or PEIT (n=48), RFA or MCT (n=46), TAE+Hx (n=51), TAE + Hx + RFA or MCT (n=16), Hx alone (n=13), and Hx + RFA or MCT (n=5). Patients who received preoperative treatments had more advanced liver failure than those who did not (p<0.01); median MELD of 15 vs 12. Preoperative treatments were found not to jeopardize PS and DFS, when they were compared between the patients within and beyond the Milan criteria, although DFS of those who exceeded the criteria without treatments was slightly inferior to those with treatment. Although More than 3 times of non-resectional treatments showed lower PS and DFS, the type of treatments or the duration from the last treatment till LDLT showed no influence on PS and DFS. More importantly, 23 patients whose HCC lesions became completely necrotic by the treatments developed no recurrence with PS of 75%.

[Conclusion] Although the analysis has limitations due to its retrospective nature, adjuvant treatments of HCC before LDLT afford satisfactory outcome as after DDLT, if they enable to confine HCC lesions within the Milan criteria. Besides, they permit the best outcome if HCC lesions are completely controlled.

Abstract# O-35**SIGNALING MODIFICATION IN KAPOSI'S SARCOMA BY SIROLIMUS IN A LIVER RECIPIENT: EVIDENCE OF MALIGNANCY CURED BY IMMUNOSUPPRESSANT.**

Cheng-Maw Dominic Ho^{1,2}, Shiu-Feng Kathy Huang³, Yao-Ming Wu², Ming-Chih Ho², Rey-Heng Hu², Po-Huang Lee². ¹*Institute of Liver Studies, King's College Hospital, London, United Kingdom;* ²*Department of Surgery, National Taiwan University Hospital, Taipei, Taiwan;* ³*Division of Molecular and Genomic Medicine, National Health Research Institutes, Zhunan, Taiwan*

Sirolimus is one of the treatment modalities in organ transplant recipients with Kaposi's sarcoma (KS) which involves abnormal dysregulation of Akt-mTOR signaling pathway. Signal modifications after sirolimus therapy in organ recipients with KS are unknown. The immunosuppressants were shifted from tacrolimus, MMF and prednisolone to sirolimus alone after the confirmed diagnosis of KS in a liver recipient. Biopsies were performed before, two months, and 1 year after the start of sirolimus. VEGF, p-Akt, p-mTOR, and p-p70 S6 kinase were detected by immunohistochemistry and p-tuberin/TSC2 by Western blotting. Sequential expression changes of these signaling proteins were compared. Diseased skin, which was found to have KS after two-month treatment of sirolimus, was removed completely on the last biopsy and no residual KS was found pathologically. The patient went well without graft rejection. VEGF expression was suppressed thoroughly in two-month use of sirolimus. p-Akt, p-mTOR expression was decreased in two months, and disappeared in one year of treatment. p-p70 S6 kinase, expressed strongly in overlying epidermis initially, was suppressed

completely in two-month and one-year treated specimens. p-tuberin/TSC2 was not detected in all the specimens, suggesting not a prominent event in this KS. In conclusion, sirolimus can cure KS in organ recipients without graft rejection. Long-term use of sirolimus has major effects on suppression of VEGF, p-Akt and p-mTOR in KS.

Abstract# O-36**LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA: THE ROLE OF TUMOR MARKERS IN EXPANDED SELECTION CRITERIA.** Yasutsugu Takada, Shinji Uemoto. *Surgery, Kyoto University, Kyoto, Japan*

Background/Aims: The Milan criteria (MC) are currently widely accepted as an effective way of selecting patients with early-stage HCC for curative liver transplantation (OLT). However, it is thought that a substantial subset exists with the potential for good outcome after OLT among patients with HCC beyond the MC. The issue of concern is thus how to preoperatively identify categories beyond the MC that still offer predictably good outcomes. Although several studies have proposed extended criteria based on tumor number and size as an estimate of tumor burden, these are considered insufficient to stratify patients in such categories, and additional parameters for tumor biological features related to risk of recurrence are necessary. Recently we noted the importance of chemical tumor markers such as AFP and PIVKA-II (or DCP).

Methodology: Between February 1999 and August 2007, 144 patients with preoperatively identified HCC underwent living donor liver transplantation (LDLT) at Kyoto University. Based on preoperative imaging studies, 79 patients met the MC and 65 did not.

Results: Overall patient survival rate at 5 years was 69%. Cumulative recurrence rate at 5 years was 19%. Univariate analysis showed that, among preoperative tumor variables, ≥ 11 tumors, maximal tumor diameter > 5 cm, MC, AFP level > 400 ng/ml and PIVKA-II level > 400 mAU/ml were significant risk factors for recurrence. Furthermore, multivariate analysis revealed that number ≥ 11 , maximal diameter > 5 cm, and PIVKA-II > 400 mAU/ml were significant independent risk factors. Based on these results, we defined new criteria as $n \leq 10$ and all ≤ 5 cm and PIVKA-II ≤ 400 mAU/ml. Patients (n=93) who met the new criteria showed significantly lower 5-year recurrence rate than those (n=44) who exceeded them (4% vs. 56%, p<0.001). Similarly, the 5-year survival rates significantly differed between the two groups (87% vs. 31%, p<0.001). On the explant pathology, the positive rate of microvascular invasion (62% vs. 29%, p=0.002) and incidence of tumor grade of poor differentiation (38% vs. 17%, p=0.027) were significantly higher for patients with preoperative PIVKA-II > 400 mAU/ml than for those with PIVKA-II ≤ 400 mAU/ml.

Conclusions: These results suggest that preoperative PIVKA-II level offers additional information on tumor biological behavior related to histological findings usually obtained by explant pathology, and represents a useful predictor of recurrence in conjunction with tumor size and number.

Abstract# O-37**LIVER VOLUME AND CREATININE CLEARANCE ARE INDEPENDENT PREDICTORS OF MORTALITY IN PATIENTS AWAITING LIVER TRANSPLANTATION.** Patrick P. McHugh, Roberto Gedaly, Thomas D. Johnston, Hoonbae Jeon, Dinesh Ranjan. *Department of Surgery, University of Kentucky, Lexington, KY, USA*

The Model for End-stage Liver Disease (MELD) score has been shown to predict overall mortality in patients awaiting liver transplantation (LT), although its predictive ability is decreased in some populations. We hypothesized that other factors, such as a small liver volume (indicating loss of functioning hepatocytes) or decreased creatinine clearance may be independent predictors of WL mortality, particularly in patients with malnutrition. We reviewed records of patients who were listed for LT at our center since 5/02. Survival from date of listing to date of LT, death, or last visit was calculated using Kaplan-Meier, with Cox regression to identify significant factors. After excluding incomplete records, 207 patients were analyzed; 113 of these patients underwent subsequent LT. The median MELD of patients surviving to LT was 13 compared with 12 in patients who died on the WL. One- and 3-year wait-list survival rates were 90% and 81%, respectively. Independent factors associated with mortality were an estimated liver volume less than 1500mL (Odds ratio (O.R.) 4.1, 95% Confidence interval (C.I.) 1.3-12.7, p=0.014) and MELD > 18 (O.R. 3.6, 95% C.I. 1.1-11.8, p=0.037). A creatinine clearance > 50 mL/min was associated with decreased WL mortality (O.R. 0.4, 95% C.I. 0.1-1.0, p=0.038). We

conclude that consideration of liver volume and creatinine clearance can supplement the predictive accuracy of MELD and may be valuable adjuncts in patients with advanced liver disease and malnutrition.

Abstract# O-38

PREOPERATIVE DIAGNOSIS OF POORLY DIFFERENTIATED GRADE IN PATIENTS WITH LARGE HEPATOCELLULAR CARCINOMA: A PROSPECTIVE CONTROLLED STUDY. Alessandro Vitale¹, Francesco D'Amico⁴, Maria Guido², Maurina Costantin³, Ambrogio Fassina³, Massimo Rugge², Giacomo Zanusi⁴, Alberto Brolese⁴, Davide F. D'Amico⁴, Umberto Cillo⁴. ¹Istituto Oncologico Veneto, IRCCS, Unità di Chirurgia Oncologica, Padova, Italy; ²Istituto Oncologico Veneto, IRCCS, Unità di Anatomia Patologica, Padova, Italy; ³Unità di Anatomia Patologica, Università di Padova, Servizio di Citodiagnostica, Padova, Italy; ⁴Azienda - Università di Padova, Unità di Chirurgia Epatobiliare e Trapianto Epatico, Padova, Italy

Background/Aims. In patients with a large hepatocellular carcinoma (LHCC: tumor diameter larger than 3 cm), surgical treatment is the only potentially radical surgery. Tumor grade is the main predictor of post-surgical HCC recurrence, but preoperative biopsy has shown a poor diagnostic sensibility, especially in patients with LHCC.

The aim of this study is to increase the diagnostic sensibility of preoperative biopsy in detecting pathologic poorly differentiated grade (PDG) by an association of needle and core sample procedures.

Methods. Thirty patients with LHCC undergoing both needle and core biopsies before surgery were prospectively enrolled and represented the study group. An historical cohort of 44 patients with LHCC undergoing a single diagnostic procedure (needle or core biopsy) before surgery represented the control group. In both groups, the diagnostic agreement of preoperative biopsy PDG detection was compared with the final surgical pathologic PDG diagnosis as reference.

Results. Baseline clinical characteristics were comparable in the 2 groups. Pre and post surgical histological evaluations in both groups were done in the same pathologic Institute. There were no false positive cases in both groups (specificity = 100%). In the study group, 7/11 (sensibility = 64%) PDG cases were correctly predicted before surgery, whereas there were only 4/11 (sensibility = 36%) in the control group ($p < .05$).

Conclusions. The association of needle and core biopsy in patients with LHCC has the potential to significantly increase the sensibility of preoperative PDG HCC diagnosis. Moreover, preoperative biopsy, single or double, showed a very high specificity (100%) in detecting PDG HCC cases.

Abstract# O-39

HCC RADIOLOGICAL PROGRESSION AFTER DOWNSTAGING IS A STRONG PREDICTOR OF POOR TRANSPLANTATION OUTCOME EVEN IN PATIENTS WHO MEET MILAN CRITERIA. Alessandro Giacomoni, Stefano Di Sandro, Abdallah Slim, Andrea Lauterio, Iacopo Mangoni, Luciano De Carlis. *Niguarda Hospital, Milano, Italy*

Introduction. An aggressive hepatocellular carcinoma (HCC) downstaging policy while on waiting list for transplantation (Tx) is routinely run out by many centres even in patients who meet the Milan criteria. Milan (M) criteria still remain effective in transplanting patients with HCC, but, in order to optimize the transplant's results, they can be integrated by other factors such as tumor progression after downstaging.

Methods. From January 2000 to December 2007 179 patients with HCC have been transplanted in our Unit. The study group was composed by 118 of these patients. All of them underwent one or more downstaging procedures such as liver resection (LR), radiofrequency ablation (RF) or transarterial chemoembolization (TACE). The response to these procedures monitored by CT scan or MRI before Tx has been defined as: progressive (increasing HCC nodule's number and/or their dimension) group A; complete (no evidence of HCC) group B; partial (partial nodule ablation with no HCC progression) group C; stable (no significant nodule ablation, no HCC progression), group D. Forty two patients (35.5%) were in group A (34 M in, 8 M out), 39 (33%) in group B (33 M in, 6 M out), 10 (8.4%) in group C (9 M in, 1 M out); 27 (22.8%) in group D (22 M in, 5 M out). Our analysis compares patients in group A with all other patients (group B,C and D) forming group BCD.

Results. Data have been retrospectively analyzed. The median time between the last downstaging and the Tx has been of 7.2 months for group A and 9.1

months for group BCD (T-test = ns). With a median follow-up of 41.2 months the cumulative overall patients survival rate at 3 and 5 years is 65.5% and 48.9% for group A and 84.8% and 74.6% for group BCD (p -value 0.01). The cumulative disease free survival rate at 3 and 5 years is 74% for group A and 95.7% and 93% for group BCD (p -value 0.007).

Conclusion. After an aggressive HCC downstaging throughout LR, RF or TACE a tumor progression showed by radiological examinations while on waiting list for Tx was a strong predictor of poor transplantation outcome even in patients who meet Milan criteria. On the other hand the lack of radiological tumor progression can select a good transplant candidate for HCC along with Milan criteria itself.

Abstract# O-40

DE NOVO MALIGNANCIES FOLLOWING LIVING DONOR LIVER TRANSPLANTATION. A RETROSPECTIVE STUDY AND CASE REVIEW. Wael Safwat¹, Rasha Refaie², Medhat Abdel Aal², Mahmoud El Meteiny³, Ibrahim Mostafa¹. ¹Theodor Bilharz Research Institute, Cairo, Egypt; ²Wadi Al Nile Hospital, Cairo, Egypt; ³Ain Shams University, Cairo, Egypt

Introduction: Data on de novo malignancy are limited following living donor liver transplantation. The incidence varies from 3% -15%; greater than that in the general population. The potential causes for cancer after solid organ grafting are: chronic immunosuppression and human herpes viral infection. **Materials & Methods:** Since October 2001 till December 2008, 225 patients were operated upon for LDLT (193 adults & 32 children). This is a retrospective study to identify the incidence, type & outcome of de novo malignancies following adult LDLT. The study was carried on 90 patients who were living at the time of the study & passed at least one year after the operation. **Results:** Three (3.3%) patients had de novo malignancies, all were lympho & myelo-proliferative diseases. The mean time for diagnosis of de novo malignancy was 39 months after LDLT with a mean age of 54.3 years, all were males. None of our cases had Epstein Barr nor herpes virus infection or reactivation. The first case, had HCV and was on Neoral and mycophenolate mophetil for immunosuppression, was 54 years old at time of diagnosis (59 months after LDLT), presented with severe sinusitis not responding to treatment and CT showed a mass in the sinuses which was diagnosed as plasmacytoma with histopathology and then turned into multiple myeloma a few months later, the patient received chemotherapy (time since diagnosis 25 months) and is being considered for bone marrow transplantation and was converted to sirolimus. The second case, had HCV & HCC and was on tacrolimus alone, was 58 years old at time of diagnosis (43 months after LDLT), presented with severe chest infection not responding to treatment and was admitted to the hospital and on routine CBC he was diagnosed to have leukemia, patient received chemotherapy (time since diagnosis 13 months) and was cured. The third case, had cryptogenic liver disease, was 51 years old at time of diagnosis (15 months after LDLT) who was diagnosed accidentally during ERCP for biliary stricture to have a mass in the duodenum which was diagnosed as lymphoma (time since diagnosis less than 1 month). **Conclusion:** De novo malignancies in our center were all lympho & myelo-proliferative diseases with an incidence of 3.3%. De novo cancers demand strategies focusing on prophylactic and careful long-term screening protocols.

Abstract# O-41

BENEFIT OF LOCOREGIONAL THERAPY FOR THE TREATMENT OF HEPATOCELLULAR CARCINOMA PRIOR TO LIVER TRANSPLANTATION. Shawn Pelletier¹, Constance Mobley¹, Ted Welling¹, Christopher Sonndenday¹, Michael Englesbe¹, Michael Volk², Jorge Marrero². ¹Surgery, University of Michigan, Ann Arbor, MI, USA; ²Medicine, University of Michigan, Ann Arbor, MI, USA

Whether treatment for hepatocellular carcinoma (HCC) before liver transplantation (OLT) improves survival remains unclear. A U.S. national database was retrospectively reviewed to determine if radiofrequency ablation (RFA) or transarterial chemoembolization (TACE) around the time of listing for OLT led to improved survival.

All patients listed with HCC between 2/02 and 12/05 with complete data on pretransplant HCC local regional treatment were included. Univariate analysis was used to compare candidates listed with or without HCC treatment at the time of listing. A Cox model was performed to identify independent predictors of mortality.

During the study period, 2281 candidates fit the criteria for the study with 1018 (44.6%) receiving therapy (67.4% TACE, 40.0% RFA). Use of locoregional

therapy was associated with lower MELD scores, Child A cirrhosis, increased tumor diameter and number, and significantly longer waiting time. On univariate analysis, variables associated with mortality included recipient age > 60 years, black race, Child C cirrhosis, not being listed with a MELD exception, higher MELD scores, increased AFP, tumor beyond Milan criteria, nonviral etiology of liver disease, longer waiting times, and greater maximum tumor size and number. Locoregional therapy was associated with a 64.7% 3-year survival (vs. 57.9%), but was not significantly different on univariate analysis ($p=0.09$). On multivariate analysis, independent predictors of mortality at the time of listing included having Child C cirrhosis (hazard ratio (HR) 1.61, confidence interval (CI) 1.15-2.24, $p=0.005$), AFP (HR 1.01 per 100 ng/ml, CI 1.00-1.01, $p<0.001$), and greater total tumor diameter (HR 1.12/cm, CI 1.01-1.24, $p=0.05$). Independent predictors of survival included receiving a MELD exception (HR 0.27, CI 0.20-0.36, $p<0.001$), HBV (HR 0.64, CI 0.46-0.88, $p=0.006$), HCV (HR 0.55, CI 0.41-0.71, $p<0.001$), and having Child A cirrhosis (HR=0.67, CI 0.49-0.89, $p=0.007$). When controlling for confounding factors, receiving locoregional therapy prior to listing independently predicted improved survival during the follow-up period (HR 0.73, CI 0.58-0.92, $p=0.009$).

Analysis of a U.S. national database suggests that performing locoregional therapy around the time of listing candidates with HCC for OLT may improve survival.

Abstract# O-42

EXPRESSION OF EPIDERMAL GROWTH FACTOR RECEPTOR AND ITS PROGNOSTIC VALUE ON PREDICTING OUTCOME ON LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA. Guillermo Kiss¹, Maria Lúcia Zanotelli¹, Guido P. C. Cantisani¹, Carlos T. S. Cerski², Claudio A. Marroni¹, Ajácio B. M. Brandão¹, Lúcia M. Kliemann², Eduardo S. Schlindwein¹, Ian Leipnitz¹, Mário H. M. M. Meine¹, Marcos Mucenic¹, Marcus V. Osório¹. ¹Grupo de Transplante Hepático, Santa Casa - Porto Alegre, Porto Alegre, RS, Brazil; ²Pathology Department, Hospital de Clínicas de Porto Alegre, Porto Alegre, RS, Brazil

Background: Recurrent Hepatocellular Carcinoma (HCC) is a significant cause of death after liver transplantation (LT). Understanding tumor biology and correlate biomarkers is an important step to predict recurrence and establish new therapies. **Purpose:** Analyze the expression and prognostic significance of Epidermal Growth Factor receptor (EGFr) on HCC and its relationship with other prognostic factors. **Patients and methods:** Data from 59 cirrhotic patients who underwent LT from 2001 to 2006 with pathological confirmation were analyzed. **Results:** The overall and recurrence-free survival after LT at 1, 3 e 5 years was 89.3%, 74.9%, 72.4% and 84.8%, 69.6, 69.6% respectively, with a recurrence rate of 22%. EGFr was expressed in 93.2% of tumors, but no statistical relation with HCC recurrence or death was found.

Association of EGFr expression with death and recurrence

EGFr Expression (n)	Death n°	%	HR*	IC95%	pα
Negative (4)	2	50			
Weakly positive (25)	8	32	0.35	0.06 to 2.20	0.26
Strongly positive (30)	5	16.6	0.27	0.05 to 1.49	0.13
EGFr Expression (n)	Recurrence n°	%	HR*	IC95%	pα
Negative (4)	2	50.0			
Weakly positive (25)	7	28	0.19	0.02 to 1.24	0.083
Strongly positive (30)	4	13.3	0.17	0.03 to 1.02	0.052

Only vascular invasion ($p=0.046$) and tumor size > 5 cm ($p=0.046$) predicted tumor recurrence and death.

Tumor characteristics and recurrence after LT

	Recurrence	No Recurrence	pα
HCV pos.	10	39	0.0676
Nuclear grade 1/2/3	0 / 8 / 5	6 / 32 / 8	0.165
Capsule	5	14	0.738
Satellite nodule	3	5	0.357
N° of nodules 1/2/3/4	10 / 1 / 1 / 1	29 / 11 / 4 / 2	0.5526
Largest Nodule ≤ 5 cm vs > 5 cm	11 / 2	46 / 0	0.046
Vascular invasion	2	0	0.046

Conclusion: EGFr-r was widely expressed on our series of tumors, and, as so, has a poor prognostic value, with no significance among groups (negative, weak and strong expression) considering HCC recurrence. Only tumor size and vascular invasion were significant predictors of tumor recurrence.

Abstract# O-43

A CLINICALLY USEFUL PREDICTIVE MODEL FOR PROGRESSION TO DEATH IN DONATION AFTER CARDIAC DEATH (DCD). Jason Y. Rhee¹, Robin Ruthazer¹, Kevin O'Connor², Francis L. Delmonico², Richard Lusk², Richard B. Freeman¹. ¹Transplant Surgery, Tufts Medical Center, Boston, MA, USA; ²New England Organ Bank, Newton, MA, USA

Background: Predictive models for progression to death within 60 minutes of withdrawal of life sustaining treatment (WLST) in the setting of DCD have been published, however their utility in the clinical setting has been limited for a variety of reasons. Our aim was to create models that accurately predict progression to death within 60 minutes of WLST using readily available, simple clinical data obtainable 18 hours before or immediately prior to extubation.

Methods: Data from 394 consecutive DCD potential donors were collected from the New England Organ Bank (NEOB) registry for DCD cases from January, 2000 – July, 2008. All study subjects met the criteria for potential solid organ donation as defined by the NEOB. Univariate and multivariate linear regression analyses were performed with declaration of death within 60 minutes of WLST as the dependent variable.

Results: 215 subjects were identified as potential DCD liver donors, of which 113 (52.6%) subjects progressed to asystole within 60 minutes of WLST, and 102 (47.4%) subjects did not progress. 27 parameters were evaluated in univariate analysis, sixteen of which (donor age, gender, race, alcohol and smoking status, downtime, CPR, blood transfusions, use anti-hypertensives and vasopressors, cause of brain injury, time from admission to WLST, pH, MAP, O2 saturation and FiO2) met our criteria ($p<0.20$) for inclusion in multivariate models. Using data available up to 1 hour of WLST, donor age, gender, anoxia as cause of brain injury, number of days from admission to WLST, smoking history, use and number of vasopressors, and ratio of O2Sat/FiO2 < 215 were independently associated with death within 60 minutes (Model Chi-square 108.0; $p<0.0001$; ROC 0.878). Using only data available up to 18 hours before WLST, donor age, gender, anoxia as cause of brain injury, use and number of vasopressors and ≤ 7 days from admission to WLST, were independently associated with death within 60 minutes (80.0; $p<0.0001$; 0.830).

Conclusions: Asystole within 60 minutes of WLST can be accurately predicted using simple readily available clinical data at both 18 hours prior to and immediately prior to WLST. Validation on separate cohorts will help establish this model as a useful evaluation tool for decision-making prior to committing resources for DCD organ retrieval.

Abstract# O-44

LIVER TRANSPLANTATION UTILIZING HBsAg-POSITIVE GRAFTS: AN UNEXPECTED OUTCOME FOR MARGINAL LIVERS. Elisabetta Loggi¹, Lorenzo Micco¹, Stefano Gitto¹, Stefania Lorenzini¹, Maurizio Biselli¹, Carlo Sanrocco¹, Giorgio Ercolani², Gian Luca Grazi², Mauro Bernardi¹, Antonio Daniele Pinna², Pietro Andreone¹, Bologna Liver Transplant Group². ¹Dipartimento di Medicina Clinica, University of Bologna, Bologna, Italy; ²Dipartimento di Chirurgia Generale e Dei Trapianti, University of Bologna, Bologna, Italy

Background and Aim: Orthotopic liver transplantation (OLT) is the only therapeutic option for end-stage liver disease (ESLD), although seriously hampered by organ scarcity. A possibility to increase organ pool is the use of virologically compromised grafts from HBsAg-positive donors, although to date very few data are available in this setting. We reported here our experience utilizing grafts from HBsAg-positive donors. **Patients:** Between February 2005 and October 2007 eight patients with an ESLD (male/female: 5/3, median age at OLT: 58.5, range: 26-65) underwent OLT from a HBsAg-positive cadaveric donors. Four recipients were HBsAg-positive and 4 HBsAb-positive only (3 HCV-positive and 1 with a Secondary Biliary Cirrhosis). Antiviral post-OLT regimen consisted in HBV-immunoglobulins (HBIG) and nucleos(t)ide analogue(s). Clinical and serovirological evaluation was performed monthly. **Results:** The median post-OLT follow-up was 30 months (range 12-46). The 4 HBsAg-positive recipients before OLT never cleared HBsAg after transplantation despite HBIG, that were thus early withdrawn. Concerning the 4 HBsAb-positive recipients, 2 never tested positive for HBsAg while the remaining experienced an initial HBsAg appearance, followed by spontaneous HBsAg clearance and HBsAb re-seroconversion after 18th and 30th months from OLT respectively. None of

the 8 patients ever tested HBV-DNA positive in the serum or developed signs of HBV-related disease. 1 patient is dead one year after OLT due to severe HCV recurrence while the remaining 7 are in good clinical condition. **Conclusions:** OLT from HBsAg positive donor seems to be a safe procedure if followed by appropriate antiviral therapy. Interestingly, our experience, indicates that patients with a pre-OLT naturally acquired HBV immune-control (HBsAg-negative and HBeAb-positive) seem to be the best candidate to receive an HBsAg-positive liver because they are able to mount again an effective antiviral immune-response allowing the clearance of HBsAg and HBsAb re-seroconversion. In conclusions, HBsAg-positive livers should not be regarded as marginal graft if appropriately allocated.

Abstract# O-45

MULTIFACTORIAL BIOLOGICAL MODULATION OF WARM ISCHEMIA AND REPERFUSION INJURY IN LIVER TRANSPLANTATION FROM NON-HEART-BEATING-DONORS ELIMINATES PRIMARY GRAFT NON-FUNCTION AND REDUCES BILE SALT TOXICITY. Diethard Monbaliu¹, Katrien Vekemans¹, Harm Hoekstra², Lauri Vaahterä³, Louis Libbrecht⁴, Jaakko Parkkinen³, Jos Van Pelt¹, Robert Porte², Jacques Pirenne¹. ¹University Hospitals Leuven, Leuven, Belgium;

²University Helsinki, Helsinki, Finland; ³University Medical Center, Groningen, Netherlands; ⁴University Hospitals, Gent, Belgium

Background. The use of non-heart-beating-donors (NHBD) for Liver Transplantation (LTx) remains limited, partly because Warm Ischemia (WI) causes Primary Non-Function (PNF) and increases the risk for intrahepatic biliary strictures. We observed 50% PNF and more toxic bile formation in porcine NHBD-LTx if grafts were exposed to 45' WI (Tx 2005-2008). Based on previously identified mechanisms of WI and reperfusion injury (LTx 2007), a multifactorial Biological Modulation Cocktail (BMC) was designed trying to augment tolerance of livers to WI.

Methods. In our validated NHBD-LTx model, livers were exposed to 45' WI, cold stored (4hrs) and transplanted. Outcome was compared between recipients receiving BMC (n=6) vs controls/no BMC (n=9). BMC protocol: *in donors* (prior to 4°C HTK preservation), flush with *warm ringers* (avoiding cold induced vasoconstriction), *streptokinase* (eliminating thrombi) and *epoprostenol* (vasodilator and platelet aggregation inhibitor); *in recipients*, administration of *glycine* (Kupffer cell stabilizer), α_1 -acid glycoprotein (anti-inflammatory protein), *MAPK inhibitor* (pro-inflammatory cytokines inhibitor), α -tocopherol and *glutathione* (antioxidants), and *aprotinin* (redox-iron chelator). End-points measured: survival, graft function, PNF, lactate, TNF- α production, bile salt-to-phospholipid ratio).

Results. No PNF was seen in BMC pigs vs 5/9 in controls. 5/6 recipients were alive at day 3 in BMC vs 2/9 in controls (p=.038). At 180' postreperfusion, lactate was lower in BMC vs controls (5.4 $\pm$ 1.9 vs 9.13 $\pm$ 2.18 mmol/L, p=.011), TNF- α was lower in BMC vs controls (85 $\pm$ 26 pg/ml vs 499 $\pm$ 216 pg/ml; p=0.008), and bile-salt-to-phospholipid ratio post-LTx was significantly lower in BMC vs controls.

Conclusion. A "cocktail" containing several biological reagents targeting previously identified mechanisms of WI and reperfusion injury remarkably improves outcome of NHBD-LTx: elimination of PNF, reduced TNF- α , improved liver function, reduced bile salt toxicity, and improved survival. Translating this strategy into the clinics may lead to wider and safer use of NHBD.

Abstract# O-46

COMPARISON OF LIVER FUNCTION TESTS OUT TO 5-YEARS POST TRANSPLANT IN DONATION AFTER CARDIAC DEATH (DCD) COMPARED TO DONATION AFTER BRAIN DEATH (DBD) LIVER TRANSPLANT RECIPIENTS. Adam Bartlett, Paolo Muesan, Walid Faraj, Satoshi Yokoyama, Takuya Kimura, Mansoor Ahmed, Mohamed Rela, Nigel Heaton. *Institute of Liver Studies, Kings College Hospital, Denmark Hill, London, United Kingdom*

Liver transplantation (LT) with donation after cardiac death (DCD) grafts has been reported as having a higher rate of graft dysfunction and biliary complications. The data is largely from small series with short-term follow-up. We report the long-term liver function in 100 DCD LT recipients from a single centre. Blood results were compared to a control group of donation after brain death (DBD) recipients that were transplanted immediately prior to and after the DCD LT recipients (n=200).

From April 2001 to September 2008, 100 DCD LT were performed in adult recipients with chronic liver disease (n=96), fulminant liver failure (n=3) and ductopenic rejection (n=1). The median warm and cold ischaemic times were 16 minutes and 8 hours 30 minutes, respectively. Ninety-nine received a whole organ and one a right lobe split. At median follow-up of 27.7 (3 – 91) months, 87 grafts are functioning with 89% patient survival. The mean serum AST was significantly higher in DCD (2123 mmol/L) than DBD (994 mmol/L) recipients at day 1 post-LT (p<0.0001) but was not different at 3 and 6 months, or annually out to 5 years. GGT and ALP were higher in DCD recipients out to day 7 (507 vs. 372 and 278 and 226 mmol/L) but were not different from the control group at 3 and 6 months, and annually to 5 years post-LT. There was no difference in serum bilirubin, INR or albumin between DCD and DBD recipients at day 1, 3 and 6 months, and yearly to 5 years post-LT. Ten DCD recipients have developed biliary complications at a median of 7.5 months post-LT; 2 died and 8 are being treated endoscopically. Four patients developed hepatic artery thrombosis; 1 died, 2 underwent LT, and 1 was revascularised.

Our results demonstrate comparable long-term graft function in adult DCD and DBD LT recipients with acceptable graft and patient survival.

Abstract# O-47

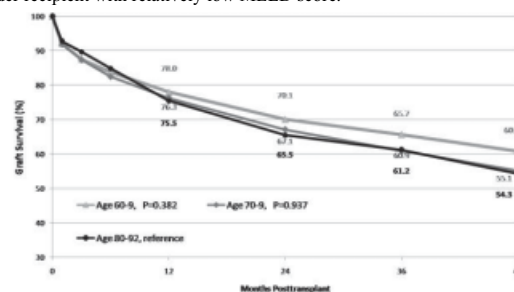
LIVER TRANSPLANTATION USING DECEASED DONORS OLDER THAN 80 YEARS DURING THE MELD ERA IN THE UNITED STATES: IS THERE ANY AGE LIMIT? Nicolas Jabbour¹, Ashish Singhal¹, Yong Ye¹, Shi-Feng Li¹, Yi Huwang¹, Ian V. Hutchinson^{2,3}, Yong W. Cho^{2,3}. ¹Integrus Baptist Medical Center, Oklahoma City, OK, USA; ²Mendez National Institute of Transplantation, Los Angeles, CA, USA; ³USC School of Medicine, Los Angeles, CA, USA

Background. The chronic shortage of organs for orthotopic liver transplantation (OLT) has led to increase utilization of marginal donors. The aim of this study is to evaluate graft and patient outcomes from deceased donor older than 80 years.

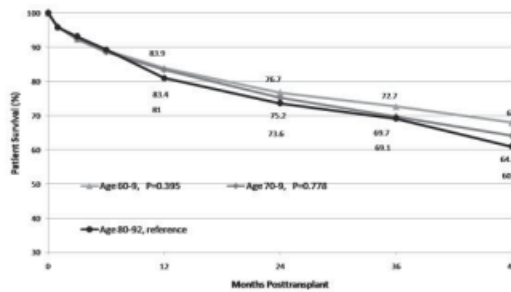
Materials. During 2003-2007, 197 OLTs from deceased donors older than 80 years (range 80-92) (extremely old donors) were identified from the OPTN/UNOS data as of Aug 20, 2008. For comparisons, 1,219 OLTs from deceased donors aged 70-79 (very old donors) and 2,784 OLTs from deceased donors aged 60-69 (old donors) were selected during the same period. Multiple organ transplants and recipients younger than 18 years were excluded.

Results. Overall graft and patients survival rates of extremely old donor OLTs were not significantly inferior to those of very old (log-rank P=0.937 for graft and P=0.778 patient) and old donors (P=0.382 for graft and P=0.395 patient). Older recipients, lower MELD score, and lower fraction of HCV-positive recipients were noticed in extremely old donor group compared with those of very old or old donor groups.

Conclusions. Extremely old donor age is not an absolute contraindication to OLT. Liver grafts from donors older than 80 years can be used safely in older recipient with relatively low MELD score.



EXTENDED CRITERIA DONORS/DISEASE TRANSMISSION



Recipient Characteristics

Factors	Old (60-69)	Very Old (70-79)	Extremely Old (80-92)	P value
Recip Age (yr)	53.9±9.9	55.8±	58.5±10.1	<0.001
Recip HCV-Positive	33.8%	26.0%	20.8%	<0.001
MELD Score	23.1±7.2	21.4±7.1	19.3±7.3	<0.001

Abstract# O-48

MACROSTEATOSIS AND INFLUENCE OF THE CRITICAL CARE MANAGEMENT BEFORE RECOVERY OF ORGANS IN DECEASED DONORS. Vincent Peyregne¹, Muriel Rabilloud².

IN DECEASED DONORS: Vincent Pyregne¹, Muriel Rabimoud, Ahmed Fahmy¹, Devon John¹, Thomas Diffo¹, Glyn Morgan¹, Lewis Teperman¹. ¹Transplant Surgery, New York University Langone Medical Center, New York, NY, USA; ²Service de Biostatistiques, Hospices Civils de Lyon, Lyon Cedex 03, France

Goal: Extended criteria donors are increasingly necessary to meet the demand for organs. Macrosteatosis is a major characteristic of such organs. Our aim was to determine if there was any relationship between the fat content and the donor management prior to recovery. **Material and methods:** from 1/2005 to 2/2008, 48 grafts with mild or moderate macrosteatosis were identified from the post-perfusion biopsy reports and matched with 137 controls (no or minimal steatosis). Variables related to the donor or management in the Intensive Care Unit with potential effect on steatosis were retrospectively recorded from the UNOS donor package. A multivariate Cox regression model was used to identify any independent risk factor with a $p < 0.05$. **Findings:** Groups' characteristics are summarized.

Characteristics of patient groups

Variables	Macrosteatosis	Control	p value
Gender ratio (female - male)	39.6 - 60.4%	46.7 - 53.3%	0.406*
Ethnicity (W - AA - H - O)	72.9 - 12.5 - 10.4 - 4.2%	66.4 - 20.5 - 8 - 5.1%	0.642*
Age (years)	46.2±15	44.9±17	0.622†
Body Mass Index	29.3±6.8	26.2±5.7	0.007†
≥2 drinks daily	58.3%	37.2%	0.017*
IV drug usage	29.2%	24.1%	0.564*
Exposure to hepatotoxic drug	50%	46.7%	0.739*
Diabetes	6.2%	16.1%	0.138*
Hyperlipidemia	4.2%	5.8%	1*
Hypothyroidism	2.1%	5.1%	0.682*
Donation after cardiac death	4.2%	5.1%	1*

1 W = white, AA = African-American, H = hispanic, O = other; *Fischer exact test, exact significance (2-sided); †Student t-test

Independent risk factors for macrosteatosis were: Body Mass Index (OR=1.1 for each increment >27, 95%CI [1.03-1.18]; p=0.005), heavy alcohol use (OR=4.4, 95%CI [3.4-24]; p<0.001), and hypernatremia (OR=1.04 for each increment >145mEq/l, 95%CI [1-1.08]; p=0.045). Dopamine use exhibited a protective effect (OR=0.23, 95%CI [0.09-0.59]; p=0.002). **Conclusions:** Pre-donation management seemed crucial for the graft fatty change. The need for a tight control of natremia should be stressed. The current levothyroxine and vasopressin protocol was not associated with a better quality of the graft. On the other hand, use of dopamine could be supported from the current results.

Abstract# O-49

PRESUMED CONSENT LAWS ARE ASSOCIATED WITH HIGHER DONATION RATES AROUND THE WORLD.

Barbara Kern, Richard B. Freeman. *Department of Surgery, Division of Transplant Surgery, Tufts Medical Center, Boston, MA, USA*

Background: Transplantation continues to expand around the world, but donor shortages limit the effectiveness of this life saving therapy. Countries

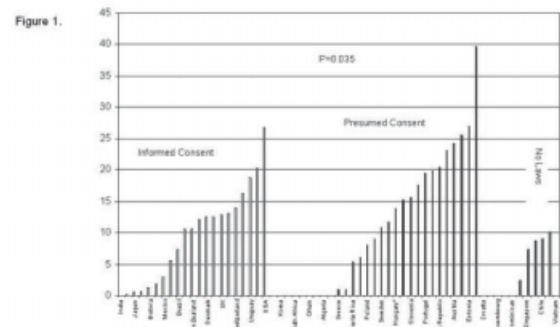
have used differing legislative approaches to address the organ shortage. Presumed consent has been advocated as one legislative maneuver to increase organ donation, however the effectiveness of this approach has not been formally tested.

Aim: The purpose of this study was to compare organ rates among countries with presumed consent dictates organ donation with countries where donor informed consent is required before donation.

Methods: We searched the internet and pub med for all relevant documents indicating organ donation rates and the presence of legislation regarding organ donation. Donation rates were recorded in donor per million population (DMP) with the most recent statistics available used for comparisons. We also assessed to presence of donation after cardiac death (DCD) programs for its relationship to DMP.

Results: We were able to obtain data for 64 countries in which some documentation of organ donation legislation was available. This represents the largest survey in the literature to date. Of these, 64 had DMP data reported within the last 5 years and 58 had information regarding presumed versus informed consent. We found a statistically significant relationship between the presence of presumed consent legislation and DPM (fig 1). Only 3 of the countries reported legislation that prohibits DCD and therefore there was no difference among DMP rates in countries practicing DCD compared with those prohibiting DCD.

Conclusion: The higher donation rates among a wide range of culturally, geographically, and socially diverse countries where presumed consent is the law, suggests that presumed consent legislation may improve organ donation rates.



Abstract# O-50

RECIPIENT AGE IMPACTS ON GRAFT SURVIVAL AND HEPATITIS C RECURRENCE OF OLDER LIVERS FOLLOWING TRANSPLANTATION. Nazia Selznier, Markus

FOLLOWING REPERFUSION: Yuzefa Selznert, Markus Selznert, Arash Kashfi, Paul D. Greig, Mark S. Catral, Gary A. Levy, Les Lilly, Eberhard L. Renner, George Therapondos, Lesley E. Adcock, David R. Grant, Ian D. McGilvray. *Multiorgan Transplant Program, Toronto General Hospital, Toronto, ON, Canada*

While increased donor age is an accepted risk factor for reperfusion injury and Hepatitis C virus (HCV) recurrence after orthotopic liver transplantation (OLT), the interaction between donor and recipient age has not been well studied. **Aim:** To determine in patients receiving an older donor graft (>60yo) the impact of recipient age on short- and long-term outcomes and on the development of fibrosis related to Hepatitis C recurrence. **Methods:** Between 08/1998 and 03/2008 822 patients underwent deceased donor OLT at our institution. 197 livers originated from donors $\geq$ 60yo. Of these, 122 were transplanted into recipients $\geq$ 50yo, while 75 were transplanted into recipients <50yo. We evaluated markers of immediate post-OLT liver injury, as well as short- and long-term graft and patient survival. In addition, the severity of HCV recurrence was determined (Metavir score). **Results:** In the entire cohort of 822 patients, recipient age did not affect markers of reperfusion injury, patient or graft survival, or HCV related graft fibrosis. However, in patients receiving an older graft ($\geq$ 60yo), recipient age $\geq$ 50yo and presence of HCV were the only independent risk factors for graft survival in multivariate analysis. In patients receiving an older graft (>60 yo) recipient age ($\geq$ 50yo vs < 50yo) was associated with increased reperfusion injury (max AST 1232 ± 840 vs 517 ± 946 p=0.02), and decreased 1-, 3-, and 5-year graft survival (84% vs 96%, 71% vs 83%, 69% vs 83%, p= 0.02). In a subgroup of HCV(+) patients receiving an older graft (>60yo), older vs younger recipient age decreased 1-, 3-, and 5-year graft survival (87% vs 94%, 63% vs 84%, 63% vs 84%, p= 0.053). In addition, older grafts transplanted into older ($\geq$ 50yo) vs younger (<50yo) HCV(+) recipients had developed an

increased fibrosis stage at 2-years post OLT (2.7 vs 1.5, $p=0.01$). For older grafts transplanted into HCV(+) patients, recipient age was an independent risk factor for graft loss (HR: 2.1, CI 1.06-3.9, $p=0.03$) and patient death (HR: 2.3, CI 1.2-4.8, $p=0.01$). **Conclusion:** Older donor grafts do worse in older recipients, and this effect is exaggerated in HCV(+) patients. If an older graft can only be offered to HCV(+) patients, consideration should be given to the younger recipient.

Abstract# O-51

“DE NOVO” AMYLOIDOSIS IN RECIPIENTS OF DOMINO LIVER TRANSPLANTATION: CLINICAL AND HISTOLOGICAL DATA. Laura Lladó¹, Carme Baliellas¹, Joan Fabregat¹, Carles Casasnovas², David Julià¹, Xavier Sanjuan³, Emilio Ramos¹, Jaume Torras¹, Rosa Rota¹, Antoni Rafecas¹. ¹Liver Transplant Unit, Hospital U Bellvitge, Barcelona, Spain; ²Neurology, Hospital U Bellvitge, Barcelona, Spain; ³Pathology, Hospital U Bellvitge, Barcelona, Spain

Domino liver transplantation have been performed in more than 400 patients through the world. However data about the real incidence of FAP symptoms and amyloid deposition on domino recipients is scarce. The aim of this study was to evaluate the incidence of intestinal amyloid deposits and clinical symptoms in domino recipients transplanted at our institution.

Patients and Methods: Since June 2000 till 2008 we have performed 31 domino liver transplantations. A transversal study of all alive patients has been performed; the study included focused gastrointestinal and neurological symptoms were evaluated, rectal mucosal biopsy and electromyography. $\pm$ 2.7 years old. From the 31 transplanted patients, 9 had died previously to the current study (without symptoms of amiloidosis). From the 22 alive patients, 2 rejected the study, and 3 had less than 6 months follow-up. The remaining patients were studied in 2008, after a mean follow-up of 88 ± 21 months. In 5 cases, the patients were asymptomatic and all the studies were normal. Six patients had amyloid deposits at the rectal biopsy. 3 patients had both neurological symptoms and electromyographic alterations. In one case sural nerve biopsy was performed, being the diagnosis of vasculitic neuropathy without amyloid.

Conclusions: Amyloid deposition in mucosal gut of domino recipients is not unrequent, however (even after a quite long follow-up) symptoms are rare. Thus, domino liver transplantation is indicated in selected patients.

Anesthesia/Critical Care Medicine

Abstract# O-52

LTrAC 201 – LOOKING FOR EVIDENCE (2). Ann Walia, Roman Schumann, Damon Michaels, Nate Mercaldo, Susan Mandell, Pratik Pandharipande. *Anesthesiology, Vanderbilt University, Nashville, TN, USA*

Introduction: Despite > 6000 liver transplants (LT)/year in the US, sparse data exists to guide intraoperative anesthetic management. This 2nd international survey by the LTrAC (Liver Transplant Anesthesia Consortium) aims to identify prevalent intraoperative monitoring strategies during LT.

Methods: US centers (>10 adult LT/yr) were contacted electronically or by mail, excluding those with independent contracting services. International centers were recruited via the LiCAGE website.

Results: 81 Anesthesiologists from 47 of 80 eligible US centers responded (59%), while 20 international Anesthesiologists (13 countries) responded. US centers were categorized as: >100 transplants/year (high volume); 50-100(mid); 11-50(low). Table 1 shows intraoperative monitors used in the US by center volume. Use of these monitors was similar in the US and International centers, though latter showed trends towards greater femoral arterial line use (40% vs. 23.5%, $p=0.22$) and lower pulmonary artery catheter use (70% vs. 86.4%, $p=0.15$).

Monitors Used for Liver Transplants in US Centers

Monitors	US Centers by Size			
	Low (n = 17)	Mid (n = 45)	High (n = 19)	p-Value
Number of responses				
Femoral arterial line (%)	18	29	16	0.43
Single central line (%)	41	33	16	0.22
Rapid infusion catheter (%)	88	71	74	0.37
Femoral CVP (%)	23	29	26	0.91
PAC (%)	94	87	79	0.41
Mixed venous Oxygen (%)	65	64	58	0.87
TEE (%)	35	42	53	0.57

Venovenous bypass (VVBP), total venous occlusion (TVO) and partial venous occlusion (PVO) was similar across US centers (Table 2), though use of intraoperative thromboelastogram (TEG) varied by center size. International

centers showed trends towards lower VVBP use (25% vs. 46.9%, $p=0.13$), TVO use (30% vs. 54.3%, $p=0.09$) and greater platelet function monitoring (40% vs. 14.8%, $p=0.03$).

Intraoperative Techniques for Liver Transplants

Intraoperative technique	US Centers by Size			
	Low (n = 17)	Medium (n = 45)	High (n = 19)	p-Value
Number of responses				
Low CVP (%)	47	60	53	0.63
VVBP (%)	53	42	53	0.64
PVO (%)	82	71	74	0.67
TVO (%)	41	56	63	0.41
TEG (%)	41	73	84	0.01
Platelet Function (%)	23	13	10	0.50
Fibrinogen (%)	88	73	68	0.35

Conclusion: LTrAC 201 is an international survey examining variations in monitoring practices during LT. Practice variability with trends depending on transplant volume and center location (US vs. International sites) persists.

Abstract# O-53

HEPATIC ARTERY FLOW AND CARDIAC OUTPUT: CORRELATION BETWEEN SYSTEMIC AND LIVER HEMODYNAMICS. Mauricio Sainz-Barriga¹, Koen Reyntjens², Eva-Line Decoster¹, Xavier Rogiers¹, Bernard de Hemptinne¹, Roberto Troisi¹. ¹General and Hepato-Biliary Surgery, Liver Transplantation Service, Ghent University Hospital & Medical School, Ghent, Belgium; ²Anesthesiology, Liver Transplantation Service,

Objective. A prospective study was carried out to investigate the relationships between systemic and liver graft hemodynamics during liver transplantation (LT). **Methods.** Hemodynamic data were collected during 85 consecutive LT between November 2006 and October 2008. Whole 72%, split 16%, living donor 6% and DCD grafts 6% were considered. Systemic hemodynamics, intraoperative flow and pressure measurements were recorded at predefined time points. Portal vein flow (PVF) and hepatic artery flow (HAF) were measured with US transit time flowmeter. The hepatic artery vascular resistance (VRHA) was calculated as the mean arterial pressure minus the central venous pressure divided by the measured HAF. Sixty-one historical living donors served as controls, creating 4 separate groups of hepatic flows for survival analysis. Correlation and the log-rank test were used where appropriate. Differences were considered significant when $p<0.05$. **Results.** Median FU was 12.1 (0.25-26) months. PVF was augmented whereas HAF decreased concomitantly respect to controls following reperfusion ($p=0.05$). Cardiac output (CO) correlated with HAF ($r=0.48$; $p=0.002$). The HAF showed an exponential negative correlation with the VRHA ($r=-0.7$; $p<0.0001$). CO showed also a negative correlation with the systemic vascular resistance ($r=-0.64$; $p<0.0001$). The PVF/HAF ratio (PAR) showed a direct correlation with VRHA ($r=0.68$; $p<0.0001$). PAR showed an exponential negative correlation with HAF ($r=-0.61$; $p<0.0001$) and a direct correlation with PVF ($r=0.5$; $p<0.0001$). One-year graft survival showed a trend for inferior survival in the low portal flow group (85.6% vs. 97%); patient survival was significantly inferior for the low portal vein flow group (78.4% vs. 88.7%; $p=0.02$). **Conclusions.** The HAF increases with CO and decreases with hepatic artery resistance. A similar relationship was observed between cardiac output and systemic vascular resistance. After LT the intrahepatic buffer response is active as showed by the opposite effect of the PAR in the hepatic artery and portal vein flows. Both, systemic hemodynamics and the intrahepatic buffer response influence the hepatic artery blood flow. We demonstrated that hepatic flow correlate with systemic flow during liver transplantation.

Abstract# O-54

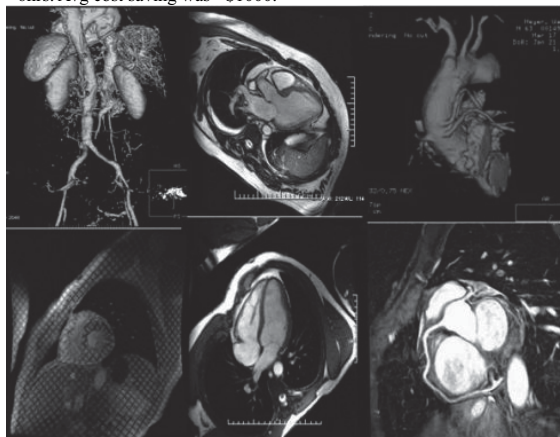
CAN A ‘ONE-STOP-SHOP’ APPROACH TO LIVER TRANSPLANTATION PRE-OPERATIVE EVALUATION EXIST VIA 3D CARDIOVASCULAR MRI? Ngoc Thai, Michael Dishart, Bryan Veynovich, Kusum Tom, Jose Oliva, Anil Singh, Sandra B. Grant, June A. Yamrozik, Ronald B. Williams, Vikas K. Rathi, Mark Doyle, Robert W. W. Biederman. *Allegheny General Hospital, Pittsburgh, USA*

Background Classical peri-operative (PO) evaluation for liver transplants (LTx) involves echocardiography and stress nuclear imaging to define risk, prognosticate and to provide cardiac clearance. Cardiovascular MRI (CMR) has emerged as the ‘gold standard’ to evaluate many important CV metrics due to its unparalleled spatial resolution, lack of ionizing radiation and 3D capabilities.

Hypothesis We hypothesize that a CMR PO evaluation of LTX candidates could be performed in a 'One-Stop-Shop' manner more efficiently, effectively obviating several days of work-up; all less expensively.

Methods Standard 1.5T CMR (GE, Milwaukee WI) was performed using a combination of SSFP, DIR, DHE [contrast (MultiHance, Bracco, NJ)] and flow sequences to evaluate LV/RV size, systolic function, valvular and structural pathology. A standard CMR Adenosine stress test was performed with myocardial viability assessment, as well as thoracic and abdominal imaging with a LAVA sequence as an HCC screen.

Results Eleven LTX candidates (7M) underwent 3D CMR without complications (time: 73±26m). Six CV and 2 extra-hepatic exams were abnormal impacting LTX decisions. CV examples: abnormal perfusion exams and dilated RV's, while a right replaced hepatic artery and celiac stenosis were also seen. No pts required additional echo, nuclear or CTS. A catheterization was performed in one pt to confirm CMR. One pt with prior MI history was demonstrated *not* to have had an MI granting him LTX consideration. Avg length of time saved (not including transportation) was >6hrs. Avg cost saving was >\$1000.



Conclusion 3D CMR has emerged as an important tool in the risk stratification of CV pts and, in limited fashion, we herein show that it can efficiently, effectively and inexpensively negate repetitive, low-yield, lower resolution CV imaging modalities accomplishing a One-Stop-Shop evaluation for pts being considered for LTX. We propose that CMR may become the new paradigm for effective CV risk stratification.

Abstract# O-55

BODY SURFACE AREA INDEX PREDICTS OUTCOME IN LIVER TRANSPLANTATION (LT). *Kyota Fukazawa, Ernesto A. Pretto. Anesthesiology, University of Miami, School of Medicine, Miami, FL, USA*

Introduction: In live donor liver (LDL) and split liver transplantation matching of donor to recipient size is critical to the success of the procedure; mismatch can result in 'small for size liver syndrome'. (1) In conventional LT matching criteria are less stringent. Therefore, data on the impact of size mismatch on recipient outcome is limited. We sought to determine whether the ratio of donor to recipient body surface areas (BSA index) is predictive of early post transplant morbidity or mortality.

Methods: We reviewed data on 120 LT recipients in our institution during 2007-2008, calculated donor to recipient BSA ratio (BSA_d) and classified this data according to three categories: small for size ($BSA_d < 0.7$), controls ($BSA_d = 0.7-1.3$) and large for size ($BSA_d > 1.3$) donors. Also, we compared intra-operative hemodynamic (MAP) and metabolic data (pH, lactic acid, base excess) and post-operative LFTs (AST, ALT, T-Bil, PT, PLT) in all three groups. We analyzed data using MANOVA, multiple regression, Kaplan-Meier survival and Cox regression analyses.

Results: There were no differences in demographic data, intra-operative blood loss or transfusion requirements among the three groups. Incidence of reperfusion hypotension was lower in the small donor ($BSA_d < 0.7$) recipients compared to controls ($p < 0.0099$). These recipients also had lower peak liver enzymes immediately post-operatively (AST 604 ± 329 ; 1566 ± 1288 , and; 1628 ± 1114 mg/dl; $p = 0.045$, ALT: 229 ± 93 ; 698 ± 618 , and; 1130 ± 1303 ; $p = 0.011$) with no difference in time to recovery. However, time to recovery of T-bil was significantly prolonged (40.6 ± 92.2 ; 12.6 ± 15.3 , and; 10.7 ± 13.5 days; $p = 0.017$) and graft survival was lower ($p = 0.036$), with no difference in the incidence of rejection-free interval in $BSA_d < 0.7$ group. In contrast,

incidence of severe PRS (MAP $< 50\%$ of baseline) was significantly higher in the $BSA_d > 1.3$ donor category ($p = 0.0001$), and the length of hospital stay (LOS) was also significantly prolonged (6.8 ± 3.3 ; 10.0 ± 11.3 , and 29.0 ± 62.7 days; $p = 0.018$).

Conclusions: We conclude that the BSA_d predicts negative outcome due to size mismatch in LT. Small for size donor grafts ($BSA_d < 0.7$) resulted in decreased graft survival. Large for size donor grafts ($BSA_d > 1.7$) were associated with a higher incidence of severe PRS and prolonged hospital stay. We hypothesize that BSA_d matches size (body mass) and recipient metabolic needs better than other indices.

Reference

1. Dahm F, Georgiev P and Clavien P; Am J Trans 2005; 5: 2605-10.

Abstract# O-56

SERUM PROTEOME FOR THE DIAGNOSIS OF EARLY SEPSIS AFTER LIVER TRANSPLANTATION (LT). *Catherine Paugamburtz^{1,2}, Miguel Albuquerque², Jacques Belghiti, Jean Mantz¹, Valerie Paradis². ¹Intensive Care Unit, Hôpital Beaujon, Clichy, France; ²U773, INSERM, Paris, France*

Infections are the leading cause of postoperative mortality after LT. Diagnosis of early septic complications in ICU after LT remains difficult. Early recognition of sepsis is crucial since delayed adequate antimicrobial therapy is responsible for an excess mortality. Reliable biomarkers of infections are still lacking. Plasma profiling coupling protein chip array with Surface-enhanced laser desorption ionisation time-of-fly mass spectrometry (SELDI-TOF) provides a powerful tool to characterize the protein profile of any biological sample and discover original biomarkers.

The aim of the study was to compare the plasma protein profiles of patients with and without documented early postoperative infections after LT, and to identify a specific profile for prediction and diagnosis of infection during the early postoperative ICU period after LT.

Protein profiles of plasma collected immediately before LT (D0) and at Day 5, were determined using SELDI-TOF (CM10 chip). Diagnosis of infection occurring during the postoperative ICU stay, was based on clinical sign of sepsis and systematically culture proven microbiological samples of normally sterile fluid. Protein profiles were compared between patients with and without infection at D0 and D5 to determine both predictive and diagnostic profiles of sepsis markers. Mean peak intensity of each protein was calculated and compared by t-test followed by the analysis of the area under the curve (AUC) of the receiver operator characteristics curves for the significant peaks.

Results : 73 patients (41 with infection and 32 without), aged 54 years [20-69], MELD 19 [6-40] have been included (median [range]). 13 plasma protein peaks at D0 and 23 at D5 were significantly differentially expressed between patients with and without sepsis. At D0, the most significant peak allowed sepsis prediction in ICU with a positive likelihood ratio (LHR+) of 4.8 [1.5-14] and a ROC curve AUC of 0.7 [0.59-0.83] [confidence interval 95]. At D5, the 2 most significant peaks allowed sepsis diagnosis with LHR+ 11.57 [1.61-83] and a ROC curve AUC of 0.864 [0.76-0.95].

At D0, a plasma protein peak can predict the occurrence of postoperative infection during the ICU period after LT. Two plasma protein peaks can help to diagnose infection occurring at D5 after LT in ICU. Further identification of these peaks will allow identification of biomarkers of sepsis in ICU after LT.

Abstract# O-57

POTENTIAL RISK FACTORS FOR PULMONARY EMBOLISM DURING ADULT LIVER TRANSPLANTATION.

Tetsuro Sakai¹, Kenichi A. Tanaka², Feng Dai¹, Ibteasm A. Hilmi¹, Raymond M. Planinsic¹. ¹Department of Anesthesiology, University of Pittsburgh Medical Center, Pittsburgh, PA, USA; ²Department of Anesthesiology, Emory University School of Medicine, Atlanta, GA, USA

Introduction: Pulmonary embolism (PE) is a major cause of morbidity/mortality during liver transplantation (LT). We attempted to identify the potential risk factors for developing intraoperative PE. **Methods:** 20 (3.3%) cases developed intraoperative PE among 598 consecutive isolated LTs during a 3-year period (1/1/2004-12/31/2006) in an adult LT center. Standardized surgical/anesthetic techniques were employed, including piggyback implantation with veno-venous bypass, PA catheter, TEE, and TEG. 40 clinical characteristics of PE group were compared to those of a randomly selected non-PE group (n=20). **Results:** The PE group came more frequently from ICU; this group had more ascites with lower serum albumin, a longer

cold ischemic time, and suffered post reperfusion syndrome. Prior to the PE episode, this group required more blood products, showed lower coagulation index at reperfusion, and developed lysis and flat TEG.

	Pulmonary Embolism (n=20)	Non-PE (n=20)	p-value (<0.05*)
In ICU (pre LT)	0.35 (0-1)	0.05 (0-1)	0.0393*
Ascites (pre LT)	0.85 (0-1)	0.55 (0-1)	0.0466*
Albumin (g/dl)	2.61 (0.43) (2-3.6)	3.30 (0.90) (2-6.4)	0.00620*
Cold Ischemic Time (hr)	11.36(3.00)(7-18.5)	8.57(3.84)(1.45-14.0)	0.0422*
Post Reperfusion Syndrome	0.83 (0-1)	0.25(0-1)	0.000911*
PRBC(U) (before PE or reperfusion)	18.7 (15.86)(1-50)	4.4 (4.30) (0-14)	0.00673*
FFP(U) (before PE or reperfusion)	14.65(14.74)(0-50)	3.7(4.43)(0-14)	0.0155*
Coagulation Index (initial)	-3.33 (4.51) (-12.8-2.45)	-1.50(5.05) (-17.1-4.74)	0.253
Coagulation Index at III+5min	-22.81(9.92) (-27.34-2.6)	-6.14(7.35)(-20.09-3.3)	0.00077*
Lysis (before PE/post reperfusion)	0.75 (0-1)	0.29(0-1)	0.00777*
Flat TEG (before PE/post reperfusion)	0.70 (0-1)	0.11(0-1)	0.000819*

Note: Continuous variables summarized in mean (sd) (range), categorical variables in mean (range).

Conclusion: Several factors were identified as potential risk factors of LT recipients for developing intraoperative PE.

Abstract# O-58

THE RELATIONSHIP BETWEEN STROKE VOLUME INDEX AND RIGHT VENTRICULAR END DIASTOLIC VOLUME INDEX DURING LIVER TRANSPLANTATION; COMPARISON OF MIDDLE-AGED AND ELDERLY PATIENTS WITH LIVER CIRRHOSIS. Ji Hyun Chin, In Gu Jun, Jun Gol Song, Young Kug Kim, Gyu Sam Hwang, *Department of Anesthesiology and Pain Medicine, University of Ulsan College of Medicine, Asan Medical Center, Seoul, Korea*

Background: Compared with younger patients, elderly patients may have limited ability to cope with a significant stress on the heart. Liver transplantation (LT) is a complex procedure which can cause the heart to be faced with stressful condition. Although it is well known that right ventricular end diastolic volume index (RVEDVI) correlates stroke volume index (SVI), there are only few reports on the association between RVEDVI and SVI in elderly recipients. We therefore aimed to investigate the differences in preoperative cardiac function assessed by transthoracic echocardiography and in cardiac response to preload change between middle-aged and elderly recipients during LT.

Methods: The anesthetic records of 60 LT recipients, which consisted of 30 recipients aged younger than 60 years (Group M) and 30 recipients aged older than or equal to 60 years (Group O). The preoperative transthoracic echocardiographic findings and several hemodynamic variables including RVEDVI, pulmonary artery occlusion pressure (PAOP), central venous pressure (CVP) and SVI at 10 minutes after induction (T1), 30 minutes after inferior vena caval clamping (T2), 1 hour after graft reperfusion (T3) and 1 hour before the end of surgery (T4) were collected, and comparisons of such variables between two groups were made.

Results: E/A (early transmitral flow velocity/late transmitral flow velocity) ratio, E' (early diastolic velocity of mitral annulus) and E/E' ratio showed significant differences between Group O and Group M (E/A ratio: 1.05 ± 0.30 vs 1.26 ± 0.44 , $P=0.035$; E': 6.56 ± 1.26 vs 8.21 ± 1.95 , $P=0.007$; and E/E' ratio: 11.63 ± 2.96 vs 9.44 ± 2.80 , $P=0.034$, respectively). RVEDVI correlated with SVI at all specific periods in Group M ($r = 0.59$ at T1, 0.68 at T2, 0.54 at T3, and 0.51 at T4, all $P < 0.05$). On the other hand, RVEDVI correlated with SVI at T1, T2 and T4 in Group O ($r = 0.65$ at T1, 0.87 at T2, 0.60 at T4, all $P < 0.05$), but not with SVI at T3. PAOP and CVP did not correlate with SVI in both groups.

Conclusions: We found that RVEDVI may not be a good indicator of preload 1 hour after reperfusion in the elderly, unlike young cirrhotic recipients. We also found that cardiac diastolic dysfunction may be manifested in the cirrhotic elderly as well as the healthy elderly.

Abstract# O-59

OPTIMIZING COST-EFFECTIVENESS IN PERIOPERATIVE CARE FOR LIVER TRANSPLANTATION: A MODEL FOR RESOURCE-LIMITED HEALTH ECONOMIES. Karina Rando, Claus U. Niemann, Pilar Taura, John Klinck. *Servicio de Enfermedades Hepáticas, Hospital Militar, Montevideo, Uruguay; Department of Anesthesia&Perioperative Care and Department of Surgery, UCSF, San Francisco, CA, USA; Hospital Clinico Provincial, Barcelona, Spain; Cambridge University Teaching Hospitals Trust, Cambridge, United Kingdom*

BACKGROUND: Liver transplantation, although highly effective, has been considered too costly for publicly-funded health systems in many countries. However, with economic growth and improving results, some governments are reconsidering this position. Data on cost-effectiveness in liver transplantation are limited, especially in perioperative care, and techniques and costs vary widely between centers without overt differences in outcome. Anesthesiologists working in new programs find it difficult to determine which modalities are essential and which may be omitted without affecting outcomes. We investigated key elements in preoperative evaluation, intraoperative management and early postoperative care that might significantly affect cost, to develop a "best value" approach for new programs in resource-limited health systems.

METHODS: We identified all modalities of care commonly used in anesthesia and perioperative care for adult liver transplantation, along with their costs. Those generally viewed as essential for safe care were excluded from the analysis, as were those considered safe and low-cost, even when evidence of efficacy was lacking. The remaining items were therefore those of uncertain value and significant cost. A systematic review of published evidence, practice surveys and institutional guidelines was carried out and the evidence graded and summarized. Each modality was then cited as strongly recommended, recommended, optional or insufficient evidence on cost-benefit grounds.

RESULTS AND CONCLUSION: 16 modalities were assessed, including preoperative cardiovascular imaging, venovenous bypass, pulmonary artery catheterization, high-flow fluid warming devices, antifibrinolytic therapy, albumin, cell salvage, anesthetic drugs, personnel requirements and early extubation. Only high-flow fluid warming was strongly recommended. Recommended modalities included preoperative echocardiography, cell-salvage, thromboelastography, tranexamic acid and early extubation. Five others were rated optional and five rated insufficient evidence. We conclude that some costly techniques and treatments can be omitted without adversely affecting outcomes.

Abstract# O-60

PRE AND INTRA-OPERATIVE PREDICTORS OF THE NEED FOR RENAL REPLACEMENT THERAPY AFTER LIVER TRANSPLANTATION. Man Ki Ju^{1,3}, Myoung Soo Kim^{1,3}, Dong Jin Joo^{1,3}, Soo Jin Kim^{1,3}, Kyu Ha Huh^{1,3}, Gi Hong Choi¹, Beom Seok Kim², Jin Sub Choi¹, Soon Il Kim^{1,3}, Yu Seun Kim^{1,3}. *¹Department of Surgery, Yonsei University College of Medicine, Seoul, Republic of Korea; ²Department of Internal Medicine, Yonsei University College of Medicine, Seoul, Republic of Korea; ³The Research Institute for Transplantation, Yonsei University College of Medicine, Seoul, Republic of Korea*

The objective of this study is to find the only pre and Intra-operative risk factor for ARF early after liver transplantation. One hundred four adult liver transplant recipients without pre-transplant renal dysfunction from September 2005 to July 2008 were enrolled in this study. Pre and intra-operative clinical data were retrospectively reviewed. The post-transplant need for renal replacement therapy was determined by the nephrologists based on hourly urine output and serum creatinine level. We used continuous veno-venous hemodialysis (CVVHD) as continuous renal replacement therapy (CRRT). We determined CRRT group as patients who needed CRRT within 3 days after liver transplantation. All recipients used basiliximab as induction therapy and tacrolimus-based immunosuppression with 8-12 ng/ml of trough level. Among 104 liver transplant recipients, 70 (67.3%) were living donor and 34 (32.7%) were deceased donor liver transplantations. There were 79 (76.0%) male and 25 (24.0%) female recipients with mean age of 51.4 ± 7.7 years old. Seventeen (16.3%) recipients needed CRRT within 3 days after liver transplantation. Comparisons between CRRT and non-CRRT group, MELD score more than 25, amount of intra-operative fluid intake more than 15 liter, and transfusion amount more than 2.5 liter, and hypotensive event was significant risk factors of post-transplant CRRT. However, pre-operative high serum creatinine level (≥ 1.5 mg/dl) didn't cause a significant difference of

CRRT requirement ($p=0.095$). In multi-variables analysis, we found the MELD score worked as independent risk factor for ARF requiring CRRT ($p=0.004$, Odds ratio=0.850, 0.760-951 in 95% confidence interval). During early (within 1 month) period, 8 (7.7%) post-operative mortality cases occurred. The early mortality rate in CRRT group (5/17, 29.4%) was significantly higher than those of non-CRRT group (3/87, 3.4%) ($p=0.003$). To summarize, pre-transplant recipient status that was represented by MELD score, not pre-transplant renal status, is an independent risk factor for developing early ARF requiring CRRT after liver transplantation.

Living Donor

Abstract# O-61

SIGNIFICANT MEDICAL ISSUES IN “HEALTHY” RIGHT HEPATIC LOBE (RHL) DONOR CANDIDATES. Mary Ann Simpson¹, Denise Morin¹, David Burns², Kristen Robson², James Pomposelli¹, Elizabeth Pomfret¹. ¹*Transplantation, Lahey Clinic, Burlington, MA, USA*; ²*Gastroenterology, Lahey Clinic, Burlington, MA, USA*

Introduction

People who volunteer to be RHL donors generally believe themselves to be healthy and able to undergo donor hepatectomy without significant adverse effects. However, review of our 10-year experience evaluating RHL donor candidates suggests that a significant number harbor occult medical conditions with potential for serious consequences.

Methods

Records of all potential donors who completed any phase of the evaluation process were reviewed. Source material included office notes, laboratory tests, ultrasound or CT scan results, and liver biopsy results (if applicable).

Results

A total of 707 potential RHL donor evaluations were begun between December 1998 and December 2008. Of that number, 193 (27.2%) were accepted, 239 (33.8%) were stopped for recipient-related issues, 54 (7%) withdrew, 19 are in process, and 202 (28.5%) were rejected for donor issues. Among rejected candidates, approximately 50% were eliminated for reasons unrelated or minimally related to health concerns: 27 at initial screen (ABO=23, Age >60 = 4); 46 for CT findings indicating unsuitable anatomy or insufficient volume; 25 for elevated BMI; and 6 for psychosocial issues. The remaining 99 rejected candidates demonstrated unexpected conditions (significant steatosis=21, abnormal biopsy results=9, various medical diagnoses=69) that required either treatment or inclusion in the patient's medical record (Table 1).

Table 1. Selected Significant Abnormalities in RHL Donor Candidates

Abnormal Coagulation	New Diagnoses	Abnormal Liver biopsy
Factor V Leiden heterozygote (17)	Renal Carcinoma (3)	Primary Biliary Cirrhosis
Prothrombin Gene Mutation	Hepatitis C (3)	Chronic Hepatitis (2)
Factor VIII Deficiency	Polycystic Disease (1)	Portal Inflammation ≥grade 3 (4)
	Hemochromatosis (2)	Steatohepatitis (1)
	Coronary Artery Disease (4)	Macrosteatosis >25% (5)
	Atrial Fibrillation (1)	
	Pulmonary Disease (3)	
	Type 1 Diabetes (2)	
	Irritable Bowel Syndrome (1)	
	Splenic Artery Aneurysm (1)	

Conclusions

Approximately 14% (99 of 707) of potential RHL donors who begin evaluation will be found to have abnormalities that both preclude donation and have potential to develop into serious health issues for the affected individual. These results suggest that a detailed work-up of RHL donors should be standard of care and that abbreviated evaluations should be avoided whenever possible.

Abstract# O-62

RISK FACTORS OF INTRAOPERATIVE COMPLICATIONS DURING DONOR HEPATECTOMY IN LIVING-DONOR LIVER TRANSPLANTATION. Arash Pirat¹, Adnan Torgay¹, Sule Balci¹, Pinar Zeyneloglu¹, Hamdi Karakayali², Gulnaz Arslan¹, Mehmet Haberal². ¹*Anesthesiology, Baskent University, Faculty of Medicine, Ankara, Turkey*; ²*General Surgery and Transplantation, Baskent University, Faculty of Medicine, Ankara, Turkey*

Several studies have focused on the surgical complications in donors of living-

donor liver transplantation (LDLT), however, there are scant data regarding the intraoperative complications that may occur in these patients. The aim of this study was to evaluate the predictors of intraoperative complications during donor hepatectomy for LDLT.

We reviewed the data of 114 consecutive LDLT patients who underwent a lobectomy between May 2002 and February 2007. The data included demographic features, intraoperative and postoperative transfusions, amount of administered intraoperative crystalloid and colloids, intraoperative hemodynamics, preoperative and postoperative laboratory values (renal and liver functions), intraoperative and postoperative urine output, and length of hospital stay. Intraoperative complications such as hypotension, hypertension, arrhythmia, hypoxemia, hypothermia, and need for transfusions were collected using anesthesia and patient charts.

Eighty-five (74.6%) of 114 donor lobectomies had at least 1 intraoperative complication. The most commonly noted intraoperative complication was hypothermia ($n=70$, 61.4%), followed by hypotension ($n=38$, 33.3%), need for transfusions ($n=16$, 14%), hypertension ($n=4$, 4.6%), extravasation of IV fluids into the arm ($n=1$, 1.1%), and brachial plexus injury ($n=1$, 1.1%). Patients who had an intraoperative complication(s) were older (37.2 ± 9.5 years vs 30.3 ± 6.6 years $P < .001$) and had a larger graft volume (679 ± 255 mL vs 482 ± 203 mL, $P < .001$) than those who did not have these complications. The frequencies of intraoperative complications for right and left hepatectomies were 91% and 60% ($P < .001$). Multivariate logistic analyses revealed that only age (OR: 1.1, $P = .004$) and type of hepatectomy (OR: 5.8, $P = .002$) were independent risk factors for intraoperative complications.

In conclusion, older age and right hepatectomy were associated with an increased risk of intraoperative complications during donor hepatectomy in our LDLT series. Although these complications were mostly mild and did not have a negative impact on the outcomes in these patients, it is imperative to undertake all preventive measures to avoid physiological derangements in otherwise healthy donors.

Abstract# O-63

DOES LIVING LIVER DONATION AFFORD PSYCHOLOGICAL BENEFITS? LIVING LIVER DONORS' PSYCHOLOGICAL PROFILES AND POST-DONATION OUTCOMES. Ruy Cruz, Andrea DiMartini, Mary Amanda Dew, Mary Grace Fitzgerald, Michael de Vera, Wallis Marsh. *Surgery, University of Pittsburgh, Starzl Transplant Institute, Pittsburgh, PA, USA*

We are investigating the psychological profile of adult living liver donors to determine whether specific characteristics predict post-donation outcomes. Using comprehensive measures, we survey adult liver donors: prior to donation, 3 and 12 month post-donation to characterize their psychological profile and assess post-donation perceptions.

We collected 77 pre-donation and 41 3-month and 35 12-month post-donation questionnaires. Candidates were 39 ± 11 yrs old, white (87%), female (55%), married (63%), ≥high school ed (96%), and employed (86%). Most were donating to a biologic relative (68%). Most had little difficulty deciding to donate; 62% knew right away, 71% decided to be tested in a week, 74% wanted to donate even if someone else could. However 20% felt they had to donate when they were told they were a match. Ambivalence was common; 40% had doubts, 40% wished the recipient would get a liver from someone else, 34% felt unsure and 17% would be relieved not to donate. Nevertheless the majority of these wanted to donate and would be disappointed if they could not. While 42% worried about damage their health and never feeling 100% again (25%), few (5%) felt there would be long term health effects. If the donation was not successful some would feel guilty (42%) and responsible (27%).

Following donation 42% felt physically “back to normal” by 3 months, 88% felt this way by 12 months. At 3 months 67% felt the donation was pretty/very stressful and 59% felt it was more painful than expected. However 39% felt it was more emotionally positive than expected. Donors felt it was very worthwhile (85%), and were very happy (88%) and very proud (85%) to have donated. Almost all felt they significantly helped their recipient. Since donation 66% felt life had special meaning and was more worthwhile (56%). Relationships improved between donors and recipients (48%), spouses (36%) and families (21%). 62% felt the donation was a high point of their life, 35% felt more highly of themselves. Additionally comparing pre- to post-donation donors had significantly more self esteem ($p=0.02$) and felt as if they were better people ($p=0.00$). These results suggest that despite significant levels of pre- and post-donation psychosocial distress the vast majority of donors were glad to have donated and experienced positive psychological outcomes.

Abstract# O-64

DUAL-GRAFT LDLT USING RIGHT POSTERIOR SECTION AND LEFT LIVER GRAFT – COMPARISON WITH DUAL LDLT USING TWO LEFT LIVER. Deok-Bog Moon, Sung-Gyu Lee, Chul-Soo Ahn, Shin Hwang, Ki-Hun Kim, Tae-Yong Ha, Gi-Won Song, Dong-Hwan Jung. *Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea*

(Purpose) To be a successful LDLT, donor safety should be guaranteed and adequate graft volume is also essential. Dual graft LDLT was devised to meet above two conditions. Most of dual graft LDLT is performed by using two left liver grafts, but right posterior section has to be used sometimes because of anatomic variation and volume of the liver. We aimed to compare the results of dual-graft LDLT using two left liver and using right posterior section and left liver. **(Methods)** From March 2000 to May 2008, 1737 LDLTs were performed, 241(13.9%) LDLTs were dual-graft LDLT. Dual-graft LDLTs using right posterior section and left liver, classified as RPS, were performed in 11 cases. Perioperative data and follow-up results for them were reviewed. We compared RPS with 2 LL group, that is dual-graft LDLT using two left liver. Among 11 right posterior section donors, 4 donors had type IV portal vein, and another 7 donors had type III portal vein. **(Results)** In RPS, recipients' age was 48 ± 9.7 years and 9 patients were male. There were HBV related cirrhosis or hepatocellular carcinoma in 9 patients, HAV related acute liver failure in 1 patient, and biliary cirrhosis in 1 patient. Preoperative CTP and MELD score were 10 ± 2.3 and 21.4 ± 7.4 , respectively. Postoperative ICU stay was 10.6 ± 8.5 days. In-hospital stay was 69.3 ± 67.3 days (median: 43 days), significantly longer than 2 LL (44.3 ± 26.9 days). Early mortality with 3 months was 11.8% (2 patients) in RPS and 7% in 2 LL. In RPS, GRWR was $1.13 \pm 0.21\%$, and operation time from incision to closure was 1067 ± 132.8 min, and transfusion was 13.7 ± 10.7 units, similar to 2 LL. Biliary complication was 27.3% (3 patients) in RPS, similar to 2 LL (32%), but occurred in right posterior section graft. Portal vein stenosis in RPS was 45.5% (5 patients) and occurred in right posterior section, significantly higher than 2 LL. However, portal vein stenting was needed only in 1 patients. 5-year survival rate was 80.5% in RPS and 85% in 2 LL, and not different between the groups. **(Conclusions)** Dual-graft LDLT using right posterior section is a useful treatment option when single donor LDLT can not be performed. We should be prudent in graft selection and give particular care on operation, and postoperative management, because postoperative courses can be a little more complicated than 2 LL.

Abstract# O-65

A LOW GRAFT VS BODY WEIGHT RATIO DOES NOT PREDICT OUTCOME FOLLOWING ADULT-TO-ADULT RIGHT LOBE LIVING DONOR LIVER TRANSPLANTATION. Markus Selzner, Arash Kashfi, Nazia Selzner, Paul D. Greig, Mark S. Catral, Les Lilly, George Therapondos, Lesley E. Adcock, Ian D. McGilvray, Gary A. Levy, Eberhard L. Renner, David R. Grant. *Multiorgan Transplant Program, Toronto General Hospital, Toronto, ON, Canada*

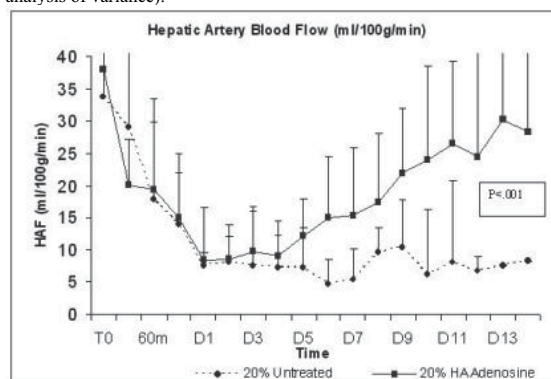
The required minimal graft to body weight ratio (GBWR) for live donor liver transplantation (LDLT) has been investigated by few Asian groups with controversial results. **Aim:** To determine the outcome of LDLT with small GBWR (<0.8) in a large Western single center series. **Methods:** Between 04/2000 and 09/2008 271 adult-to-adult right lobe LDLT and 614 deceased donor liver transplantation (DDLT) were performed at our institution. 248 LDLT with a GBWR ≥ 0.8 (A) were compared with 22 LDLT with a GBWR <0.8 (range 0.59-0.79) (B), and with 66 full graft DDLT controls (C), matched with the low GBWR group (3:1) for donor and recipient age, medical MELD, presence of Hepatitis C and HCC. Markers of graft function (INR, bilirubin), complications graded by the Clavien score, and graft and patient survival were assessed. **Results:** No difference was observed between large LDLT (A), small LDLT (B) and full size DDLT grafts (C) regarding the decrease of INR (A: -0.52 ± 1.08 vs B: -0.77 ± 1.2 vs C: -0.9 ± 1.9 ; $p=0.3$) and bilirubin (A: -7 ± 120 mmol/l vs B: -34 ± 188 mmol/l vs C: -57 ± 164 mmol/l; $p=0.34$) during the first week after LT. Postoperative complications were not significantly different between the three groups. This includes biliary complications (A:19% vs B:10%, C:0%; $p=0.2$), biopsy proven acute rejection (A:19% vs B:5% vs C:21%; $p=0.09$), renal failure (A:5% vs B:9% vs C:15%; $p=0.32$), postoperative bleeding (A:2% vs B:0% vs C:8%; $p=0.54$), and overall infection rate (A:47% vs B:22% vs C:33%; $p=0.06$). The severity of complications (Clavien score) was similar in the three groups (A: 1.2 ± 1.4 vs B: 0.95 ± 1.4 vs C: 1.24 ; $p=0.29$). The median hospital stay was comparable in large LDLT (A), small LDLT (B) and full

size DDLT (C) grafts (A: 15 days range 3-206 days vs B:14 days range 1-109 days vs C: 18 days, range:7-223day). Graft survival was similar in the three groups following 1-year (A: 91% vs B:89%, vs C:92%), 3-years (A: 86% vs B:81% vs C:82%), and 5-years (A: 79% vs B:81% vs C:80%; $p=0.92$). In univariate analysis, GBWR as a continuous (HR 1.8, CI: 0.69-4.7) or categorical variable (≥ 0.8 vs <0.8) (HR: 1, CI: 0.24-4.3) was not associated with graft survival. **Conclusion:** A low GBWR down to 0.6 is not a risk factor for poor outcome following LDLT.

Abstract# O-66

ADENOSINE INFUSION RESTORES THE HEPATIC ARTERY BUFFER RESPONSE (HABR) IN A PORCINE MODEL OF THE SMALL FOR SIZE (SFS) LIVER GRAFT. Dympna M. Kelly¹, John J. Fung¹, Xiaocheng Zhu¹, Hiroaki Shiba¹, Bin Wang¹, Samuel Irefin¹, Andrei Cocieru¹, Loris Trenti¹, Teresa Diago¹, Cristiano Quintini¹, Zhong Chen¹, Joan Alster¹, Charles Miller¹, Anthony Demetris². *¹Liver Transplantation and HPB Surgery, Cleveland Clinic, Cleveland, OH, USA; ²Anatomic Pathology, University of Pittsburgh Medical Center, Pittsburgh, PA, USA*

The study aims to demonstrate reversal of the abnormal HABR associated with the SFS liver graft, and reversal of the SFS liver injury. **Materials and Methods:** Experiments follow Guiding Principles in the Care and Use of Animals. 17 female pigs, 18-64 kgs, received liver grafts of 20% liver LV, G1 (n=8); G2 animals received 20% grafts with adenosine infusion, (n=9). Portal vein and hepatic artery blood flow (PVF, HAF) were recorded [Transit time ultrasound flowmeter (ml/min)] at baseline, 10min, 60min and 90min post reperfusion and daily to POD14. Blood flow is expressed as ml/100g/min. CVP, MAP were recorded. Liver biopsies were taken at above times and POD 7 and 14. Blood was drawn daily. Adenosine (0.07ug/kg/min) was infused continuously into the hepatic artery (HA) starting on POD 1. **Results:** 2/8 (25%) animals in G1 survived 14 days compared to 7/9 (77%) in G2 ($p=.04$ Fisher Exact Test). Baseline PVF and HAF (ml/100g/min) were 95 ± 35 (mean $\pm$ SD) and 34 ± 16 . The HABR was intact immediately following reperfusion: PVF peaked at 10min: 284 ± 70 in G1 with a reciprocal decrease in HAF, 20 ± 7 . PVF plateau'd at baseline on POD 7, 73 ± 13 , but HAF remained low at 5 ± 4 on POD7 and 8 ± 2 on POD 14. Histopathology in G1 demonstrated HA vasospasm. With adenosine infusion HAF in G2 increased significantly over the 14 day period compared to G1, $p<.001$ (Mixed model analysis of variance).



The percentage of total liver blood flow from the HA at POD 14 was 9% in G1 compared to 30% in G2, $p<.001$. There were no systemic side effects with adenosine infusion. Pathological parameters, including HA vasospasm, were significantly better in G2 compared to G1.

Conclusion: HA adenosine infusion restored the HABR in SFS porcine liver grafts, reversed the histopathological findings and significantly improved survival.

Abstract# O-67

PORTAL INFLOW AND PRESSURE CHANGES IN RIGHT LIVER LIVING DONOR LIVER TRANSPLANTATION INCLUDING MIDDLE HEPATIC VEIN. See C. Chan¹, Chung M. Lo¹, Kelvin K. Ng¹, Siu H. Chok¹, Boon H. Yong², Sheung T. Fan¹. ¹Department of Surgery, University of Hong Kong, Hong Kong, China; ²Department of Anesthesiology, Queen Mary Hospital, Hong Kong, China

The middle hepatic vein may be included in the right liver graft in living donor liver transplantation (LDLT) to optimize hepatic venous outflow. We employed manometry of the portal system and ultrasonic flowmetry of graft inflow to study the graft's ability in relieving portal hypertension and accommodating portal hyperperfusion. Possible correlation of the findings from such observations with surgical outcomes was investigated.

The median ages of the recipients and donors of this 46 consecutive LDLT were 50 years (range, 16 to 66 years) and 31 years (range, 18 to 54 years), respectively. Graft to standard liver volume was 47.4% (range, 32.4 to 69.0%). The hospital mortality was 4.4% as two recipients had died from sepsis. Portal pressure dropped by 8 mmHg (range, -7 to 19 mmHg) from 23 mmHg (range, 8 to 37 mmHg) to 14 mmHg (range, 10 to 26 mmHg) after LDLT. Portal inflow had a positive correlation with portal pressure before native liver hepatectomy ($R^2 = 0.305$) ($p = 0.000$) and not graft size. Portal flow of the right liver increased from 81 mL/min/100 g (range, 35 to 210 mL/min/100 g) before donor right hepatectomy to 318 mL/min/100 g (range, 102 to 754 mL/min/100 g) after graft implantation. Graft portal flow had a linear correlation with the recipient portal pressure before hepatectomy of the native liver ($R^2 = 0.261$) ($p = 0.000$) and graft to standard liver volume ratio ($R^2 = 0.247$) ($p = 0.000$). The correlation was clearer with reference to a quotient derived from the recipient portal pressure divided by the graft to standard liver volume ratio ($R^2 = 0.381$) ($p = 0.000$). The loss of such correlation with the portal pressure after graft implantation reflected relief of the portal hypertension by graft implantation. Despite the high portal inflow after implantation, only one of the graft biopsies after implantation showed sinusoidal congestion of moderate severity. Complications of Clavien Grade 2 or above occurred in 12 recipients and were not related to the portal flow and pressure or their changes.

Right liver LDLT including the middle hepatic vein effectively lowered the recipient portal pressure by allowing unimpeded venous outflow.

Abstract# O-68

LIVING DONOR LIVER TRANSPLANTATION: A EUROPEAN LIVER TRANSPLANT REGISTRY (ELTR) REPORT ON 2634 CASES. R. Adam¹, V. Karam¹, V. Delvart¹, M. Kilic², A. Paul³, L. Fisher⁴, J. Lerut⁵, Y. Tokat⁶, P. Neuhaus⁷, P. Kalicinski⁸, O. Boillot⁹, D. Castaing¹⁰, ELITA. ¹AP-HP Hopital Paul Brousse, Villejuif, France; ²Ege University Medical School, Izmir, Turkey; ³C. U. K. GHs Essen, Essen, France; ⁴ELITA, Groningen, Netherlands; ⁵Universitätsklinikum Hamburg Eppendorf, Hamburg, Germany; ⁶Florence Nightingale Hospital, Istanbul, Turkey; ⁷Charité - Campus - Virchow Klinikum, Berlin, Germany; ⁸Children's Memorial Health Institute, Warsaw, Poland; ⁹Hopital Edouard Herriot, Lyon, France; ¹⁰AP-HP Hopital Paul Brousse, Villejuif, France

Living Donor Liver Transplantation (LDLT) have been increasingly used in Europe. However, results concerning donor and recipient outcome are still a matter of debate.

From October 1991 to December 2007, LDLT accounted for 2634 of the 71422 (3.7%) transplants performed in 74 European centers. The outcome of LDLT was compared to that of Full Size Cadaveric Liver Transplantation (FSCLT).

Initially reserved to pediatrics, LDLT is now used mainly for adults (74% in 2007). The right liver was donated to 92% of adults and the left lobe was donated to 86% of children. Overall 5-yr graft and patient survival rates were 70% and 76% respectively, and were better in children (78% and 84%) than in adults (64% and 70% - $p < 0.01$). Early postoperative mortality (≤ 3 months) occurred in 6 of the 2634 donors (0.2%) due to pulmonary embolism (1), sepsis (2), MOF (2) and cardiac failure (1). Early donor morbidity (≤ 3 months) was 20%. As compared to FSCLT performed during the same period, LDLT was more often used for cancers (16% vs 13%, $p < 0.01$) and less often used for both fulminant hepatitis (4% vs 7%, $p < 0.01$) and retransplantation (2% vs 10%, $p < 0.01$). In children, 5-year graft and patient survivals were

better for LDLT than for FSCLT, (78% and 84% vs 70% and 82% - $p < 0.01$). In adults, survival rates were similar to those of FSCLT (64% and 70% vs 64% and 71%).

In conclusion, although representing only 4% of all liver transplants, LDLT has become a valuable alternative to FSCLT in adults as in children. Donor mortality is however 0.2% with an early morbidity of 20%. Outcome is overall better than FSCLT for pediatrics, and similar for adults.

Abstract# O-69

IMPACT OF DONOR AGE ON RIGHT LOBE LIVING DONOR LIVER TRANSPLANTATION IN A SINGLE CENTRE. William W. Sharr, Kenneth S. H. Chok, Kelvin K. C. Ng, S. C. Chan, C. M. Lo, S. T. Fan. Department of Surgery, The University of Hong Kong, Queen Mary Hospital, Hong Kong, Hong Kong

Back ground: With limited availability of deceased donor, living donor from a family member accounted for the majority of liver transplantation as a definitive or even life-saving treatment for end-stage liver disease in Hong Kong. The impact of donor age on the outcomes of both donor hepatectomy and living donor liver transplantation had not been clarified.

Methods: We performed retrospective analysis of recipients of right lobe living donor liver transplantation (RL LDLT) between May 1996 and December 2007 in our centre by same team of surgeons. Patients were divided into 2 groups, donor age ≤ 45 years (group A) and > 45 years (group B). Blood loss, operation time, and post-operative complications of donor right hepatectomy were compared. Graft survival, acute cellular rejection, and post-operative complications of recipients were also compared.

Results: There were 287 RL LDLT performed in this period, 230 (80%) patients in group A and 57 (20%) in group B. There was significantly more female donors in group B (60% vs. 80%, $p = 0.004$). Operation time in both groups were comparable (454 minutes vs. 458 minutes, $p = 0.448$). Donor right hepatectomy in group B had more blood loss (312 ml vs. 389 ml, $p = 0.035$), and longer hospital stay (7 days vs. 9 days, $p = 0.003$). The complication rates between two groups of donors were comparable (17% vs. 15.8%, $p = 0.833$). There was no significant difference in liver function between two groups within first week after operation. There was no hospital mortality of donors in both groups.

For recipients, both groups had comparable demographic characteristics, MELD scores and percentage of graft weight to estimated standard liver volume (ESLV). Post-operative complication rate were 55.2% vs. 57.9% ($p = 0.716$). Incidence of acute cellular rejection were 16.5% vs. 19.3% ($p = 0.618$). 1-, 3- and 5-year graft survivals among two groups were comparable (93%, 86%, 82% vs. 93%, 84%, 79%, $p = 0.47$).

Conclusion: Provided stringent selection protocol and standardized surgical technique, right hepatectomy was safe for older donor. Impact of donor age was not significant on outcomes of living donor liver transplantation.

Hepatitis C

Abstract# O-70

20 YEARS EVOLUTION OF HCV LIVER TRANSPLANTED PATIENTS, ACCORDING TO IMMUNOSUPPRESSION. Bilbao Ixtarone¹, Castells Luis², Dopazo Cristina¹, Allende Elena³, Lazaro Jose¹, Caralt Mireia¹, Blanco Laia¹, Sapisochin Gonzalo¹, Charco Ramon¹. ¹Surgery Department, Hospital Vall d'Hebron, Barcelona, Spain; ²Hepatology Department, Hospital Vall d'Hebron, Barcelona, Spain; ³Pathology Department, Hospital Vall d'Hebron, Barcelona, Spain

AIM. To analyse the evolution of HCV patients submitted to liver transplantation along 20 years, according to immunosuppression and to the presence/absence of steroids (ST).

MATERIAL AND METHOD. From 1988 to 2008, 355 HCV positive patients have been transplanted for: HCV cirrhosis 57% and HCC in cirrhosis 43%. Patients not surviving 6 months have been excluded, except if the cause of death was recurrence of HCV. Three periods have been considered according to immunosuppression. From 1988-1998, 134 patients received: CyA+ST (65%) or TAC+ST (35%). From 1999-2004, 128 patients received: TAC+ST 74%, TAC+MMF 22% and CyA+MMF 4%. From 2005-2008, 93 patients received: 94% TAC+MMF and 6% CyA+MMF. In the 20 years period, 255 received ST and 100 did not. Differences in recipient, donor, surgery and outcome of HCV among the three periods, as well as between the regimen with/without ST have been analysed.

RESULTS. Recipient age ($p=0.02$), UNOS severity ($p=0.03$), previous alcohol intake ($p=0.00$), HIV coinfection ($p=0.01$), pretransplant DM ($p=0.05$), donor age ($p=0.000$), and liver steatosis $> 20\%$ ($p=0.000$), have been increasing from period 1 to 2 and 2 to 3. However cold and warm preservation time ($p=0.000$) and intraoperative transfusion ($p=0.000$) have been decreasing along the three periods. When comparing the three periods and also patients with/without ST, the incidence of acute rejection is similar but severity has decreased. Liver dysfunction during the first 3 months, is more severe in period 3 compared to 2 and to 1 and in patients without ST, however viral load, time to first recurrence and rate of early cirrhosis at 3 years post-transplant is similar ($p=ns$). Incidence of post-LT DM has been maintained along the time. Patient survival at 1-5-10y in the 3 periods is: 91%-55%-33%; 91%-74%-72%; and 91%-78%. Patient survival in patients with/without ST is: 95%-76%-65% and 92%-80%-65%.

CONCLUSION. Overall results after VHC liver transplanted patients are similar along the time. The negative impact of worse donors and recipients in the last period are balanced by the better immunosuppression management avoiding steroids, which in turn avoids post-LT DM and ameliorate the more aggressive VHC recurrence nowadays.

Abstract# O-71

SIROLYMUS MONOTHERAPY IN HIV PATIENTS AFTER LIVER TRANSPLANTATION. Fabrizio Di Benedetto, Nicola De Ruvo, Roberto Montalti, Gian Piero Guerrini, Roberto Ballarin, Mario Spaggiari, Antonio Mimmo, Giuseppe D'Amico, Stefano Di Sandro, Rosa Maria Iemmolo, Giorgio E. Gerunda. *Liver and Multivisceral Transplant Center, University of Modena and Reggio Emilia, Modena, Italy, Italy*

Introduction. Sirolimus (SRL) is a macrolide lactone which has exhibited proven antifungal, antitumoral, and immunosuppressive proprieties. SRL is able to inhibit HIV-1 progression reducing CCR5-gene transcription, blocking IL-2 intracellular secondary messenger (mTOR) and up-regulating the β -chemokine macrophage inflammatory protein (MIP-1 α , MIP-1 β). We present the preliminary results of a prospective no randomized trial regarding HIV coinfecting patients receiving SRL monotherapy after Liver Transplantation (LT).

Methods. Since June 2003, 18 HIV patients have received cadaveric donor LT due to ESLD. Moreover, 10 of these patients were also affected by Hepatocellular Carcinoma. Mean meld-score was 27 (range 12-31). Patients were assessed using the following criteria for HIV characterization: CD4 T-cell-count over 100/mL, HIV-RNA levels lower than 50 copies/mL. Primary immunosuppression was based on Calcineurin Inhibitors (CNIs), whereas 7 patients were switched to SRL monotherapy due to CNIs adverse effects or Kaposi's Sarcoma.

Results. Mean overall post-LT follow-up was 17.8 months (range: 0.5-64). Mean pre-switch period from CI to RAPA was 67 days (range: 10-225 days). Mean post-switch follow-up was 11.9 months (range: 2-31 months). Significant better control of HIV and HCV replication was found among patients taking SRL monotherapy (P -value= .0001 and .03 respectively at T-test analysis).

Conclusions. According to experimental evidence of SRL antiviral proprieties, our series shows a several significant benefits in long-term immunosuppression maintenance and in the control of HIV-1 replication among HIV coinfecting patients who underwent LT.

Abstract# O-72

NATURAL HISTORY OF FIBROSING CHOLESTATIC HEPATITIS C (FCH) AFTER LIVER TRANSPLANTATION: A SINGLE CENTER EXPERIENCE. Amir Yosephy, Thomas J. Byrne, Elizabeth E. Carey, Kathy Hansen, David D. Douglas, David Mulligan, Jorge J. Rakela, Hugo E. Vargas, Bashar A. Aqel. *Division of Transplant Medicine and Surgery, Mayo Clinic, Phoenix, AZ, USA*

Aim: Recurrent hepatitis C (HCV) after liver transplantation (LT) is almost universal and few patients will have an aggressive form of recurrence characterized by pericellular/sinusoidal fibrosis with severe cholestasis known as Fibrosing Cholestatic Hepatitis (FCH). FCH is associated with high rates of mortality and graft loss and considered a contraindication for retransplantation.

Methods: Retrospective analysis of adult (LT) at our institution for HCV-related ESLD between 6/1999-07/2008 and followed through 01/2008. Pertinent demographic, clinical and histological data were collected with Mayo Clinic IRB approval.

Results: 475 LT were performed at our institution during the study period, 244 patients were transplanted for HCV-related liver disease. Fifteen patients (6%) were diagnosed with FCH based on laboratory data and histological exam. Fourteen patients (14/15) were transplanted at our institution, one transplanted elsewhere. Mean recipient age was 56 years, 13/15 were males and 14/15 patients were infected with HCV genotype 1. Mean donor age was 42 years. Seven patients (47%) had acute cellular rejection (ACR): Five (33%) patients required pulse solumedrol therapy, 2 patients were managed by targeting higher levels of calcineurin inhibitors. Treatment with Pegylated interferon and ribavirin was attempted in 10/15 patients: Seven patients progressed despite treatment and died, 2 patients have stabilized and one patient had viral clearance. Survival was greatly affected with 10 patients (67%) dead by the end of study period.

Conclusions: FCH is a very rare form of recurrent HCV post liver transplant. Most patients are infected with HCV genotype-1 and the disease is associated with high rates of morbidity and mortality. Rates of ACR were higher than the rates seen LT recipients for HCV who did not have FCH. Early recognition and treatment, avoidance of acute cellular rejection requiring pulse steroid therapy, may help modify the disease course and halt disease progression. Treatment is usually limited by adverse events and patients' morbidities. Given these limitations, optimal immunosuppression regimen, early recognition and aggressive treatment may be the only tools for clinicians until earlier predictive markers are recognized.

Abstract# O-73

GENOTYPE 2 AND 3 RECURRENT HEPATITIS C AFTER LIVER TRANSPLANTATION: EXCELLENT RESULTS WITH SUBOPTIMAL DOSES OF ANTIVIRAL THERAPY. Francesca R. Ponziani¹, Raffaella Viganò⁴, Luca Belli⁴, Giovambattista Pinzello⁴, Michele Colledan², Eleonora De Martin⁷, Patrizia Burra⁷, Sara Boninsegna⁷, Francesca Donato⁵, Daniele Di Paolo³, Mario Angelico³, Maria Rendina⁶, Maurizio Pompili¹, Antonio Gasbarrini¹, Stefano Fagioli². ¹Policlinico A. Gemelli, Rome, Italy; ²Ospedali Riuniti, Bergamo, Italy; ³Policlinico Tor Vergata, Rome, Italy; ⁴Ospedale Niguarda Ca' Granda, Milano, Italy; ⁵Ospedale Maggiore, Milano, Italy; ⁶Policlinico Universitario, Bari, Italy; ⁷Ospedale Universitario, Padova, Italy

Background and Aim. Recurrent hepatitis C after liver transplantation (OLTx) is a major problem. Aim of this study is to report our experience of antiviral therapy in a large group of HCV recipient from 7 Italian Centers.

Materials and methods. 230 HCV recipients transplanted between 1999 through October 2007 received antiviral therapy for HCV recurrence. Genotype distribution was: type 1=71%, type 4a/4c=4%, type 2=16%, type 3=6%, missing=0.8%. Combined antiviral treatment (recombinant-IFN or Peg-Interferon plus ribavirin) was scheduled for at least 1 year at standard doses. **Results.** 207 (90%) patients completed the scheduled treatment time. Dose reduction was required in 158 (76.3%) patients: 6.9% IFN, 53.1% ribavirin, 39.8% both IFN and ribavirin. The observed EOT-VR and SVR rates are shown below:

	EOT-VR	SVR
Genotype 1	80/165 (48.4%)	55/165 (33.3%)
Genotype 2	28/37 (75.6%)	27/37 (72.9%)
Genotype 3	13/16 (81.2%)	12/16 (75.0%)
Genotype 4	6/10 (60.0%)	4/10 (40.0%)
Overall	127/230 (55.2%)	97/230 (42%)

At the univariate analysis (Fisher Test) only genotype, IFN dose, ribavirin dose, therapy duration and recipient male sex were significantly associated with SVR ($p<0.0001$; $p=0.0004$, $p<0.0105$, $p<0.0001$ and $p=0.0048$). Among genotype 2-3 the EOT-VR and SVR were respectively 77% and 73%. The mean ribavirin dose was 549 mg/daily and 13% of the patients were treated for a period less or equal to 24 weeks. Donor age was significantly associated with long term virological response ($p=0.0123$). **Conclusion:** In the liver transplant setting the results of antiviral therapy for genotype 2 and 3 are excellent despite suboptimal doses of drugs and short duration of therapy. It is confirmed that genotype 1 and 4 are difficult to treat. Finally, according to our analysis, donor age, IFN dose, duration of treatment and recipient male sex are significant prognostic factors.

Abstract# O-74**EARLY PREDICTORS FOR THE DEVELOPMENT OF HEPATITIS-C-ASSOCIATED LIVER GRAFT FIBROSIS.**

Dennis Eurich, Marcus Bahra, Fabian Spies, Jan M. Langrehr, Ruth Neuhaus, Peter Neuhaus, Ulf P. Neumann. *Department of General, Visceral and Transplantation Surgery, Charité Campus Virchow, Augustenburger Platz 1, Berlin, Germany*

Background: The inevitable persistence of the hepatitis-c-virus leads to the re-infection of the transplant within a few days. The development of the transplant fibrosis is accelerated and varies among individuals. 20% to 50% of transplanted organs will develop cirrhosis within 5 to 10 years after transplantation. Some predictors for a rapid development of fibrosis e.g. HCV-genotype, donor age, viral load, have been identified. Laboratory findings in the first month after OLT have not been investigated yet.

Method: One-year histological findings of 320 graft recipients were assessed according to inflammation, stage of fibrosis, laboratory results during the first month after transplantation such as transaminases (GOT, GPT, GLDH), alkaline phosphatase, g-glutamyl-transferase, bilirubin, age, donor and recipient gender. These findings were correlated with low and fast fibrosis progression.

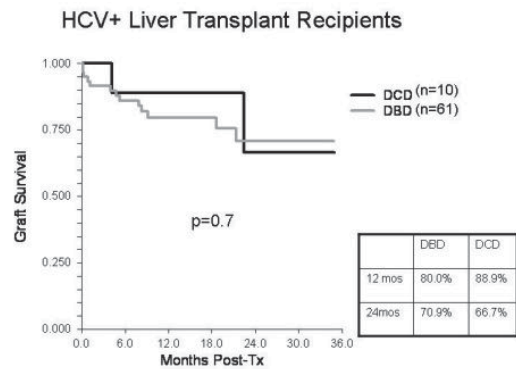
Results: A group of patients with fibrosis stage 3 and 4 were compared to a group of patients with stage 1 and 2 fibrosis without fibrosis progression at 3-year biopsy of the liver. We could not identify any correlation between gender incompatibility of the graft recipient and donor, recipients' age and laboratory findings during the first week after transplantation. However GOT measured in the forth week was significantly ($P<0.05$) increased in the group with early fibrosis and correlated with portal inflammation and stage of fibrosis at one year histological examination. Furthermore we could confirm the importance of donor age in the fast development of fibrosis.

Conclusion: The identification of early laboratory parameters can be important for predicting the severity of fibrosis due to HCV-re-infection after liver transplantation at a very early stage. Furthermore, obviously unapparent laboratory changes could indicate the starting point of HCV-associated inflammation and fibrosis thus influencing antiviral treatment regimen in future.

Abstract# O-75**DONATION AFTER CARDIAC DEATH DOES NOT AFFECT HEPATITIS C RECURRENCE.**

Rolf N. Barth, Sameh A. Fayek, Joseph Scalea, Linda A. Ridge, Benjamin Philosophpe. *University of Maryland School of Medicine, Baltimore, USA*

Donation after cardiac death (DCD) liver transplantation (LTx) expands the available organ pool but may be associated with specific complications. Little data exists on the recurrence of hepatitis C (HCV) with regards to DCD LTx. We performed a retrospective analysis of 139 LTx performed at our institution since 2006. Information was collected on donor age, warm ischemic time (WIT), cold ischemic time (CIT), graft and patient survival, post-transplant biopsy results, and therapies for recurrent HCV. 18 recipients (13%) received DCD livers and 121 recipients received brain-dead (DBD) livers. 71 recipients (51%) were HCV+, and DCD donors were utilized in 10 (14%) of HCV+ recipients. With respect to HCV+ recipients, DCD donors were significantly younger than brain-dead (DBD) donors (24.5 vs. 48 yrs old, $p=0.004$). Median WIT for DCD donors was 20 minutes. DCD and DBD recipients had similar CIT (5.2 hrs vs. 5.1 hrs, $p=0.9$); age (54.5 vs. 56 yrs old, $p=0.9$); and MELD score (22 vs. 23, $p=0.2$). Kaplan-Meier analysis demonstrated similar patient survival ($p=0.4$); at 2 years 75% HCV+ DCD recipients and 73.6% HCV+ DBD recipients were alive. Graft survival was likewise similar ($p=0.7$); 2 year graft survival of 66.7% for HCV+ DCD recipients and 70.9% for HCV+ DBD recipients. Recurrent HCV disease causing early fibrosis and graft dysfunction was demonstrated in 1 (10%) DCD and 13 (21%) DBD LTx recipients ($p=0.7$); and 1 DCD and 2 DBD recipients were re-transplanted ($p=0.7$). Review of all DCD recipients demonstrated similar patient survival ($p=0.7$), but better graft survival in the HCV+ compared to non HCV recipients ($p<0.001$). HCV+ recipients had a shorter WIT of 20 min compared to 27 min for non-HCV recipients ($p=0.001$). Donor and recipient age, MELD score, and CIT demonstrated no significant differences. These data support that DCD donors can be successfully utilized for HCV+ LTx with similar outcomes to DBD; and without additional risks of HCV recurrence, early fibrosis, or graft failure. The younger age of DCD donors may be an important factor influencing good outcomes in HCV+ recipients.

**Abstract# O-76****HCV RECURRENCE POST-TRANSPLANTATION: MOLECULAR PATHWAYS AFFECTED IN THE ALLOGRAFT.**

Valeria R. Mas, Daniel G. Maluf, Kellie J. Archer, Richard T. Stravitz, Marc P. Posner, Robert A. Fisher. *VCUHS, Richmond, VA, USA*

Background. We studied genome wide gene expression profiles in the different histological conditions (HCV recurrence (HCVrec), fibrosing cholestatic hepatitis (FCH) and acute cellular rejection (ACR)) affecting the new graft with HCV to discern the specific pathways that characterize the disease progression.

Patients and methods. 30 liver samples were studied using microarrays from LT recipients with the following conditions: ACR with (N=11) and without HCV (N=2), HCVrec post-LT (N=13), FCH post-LT (N=4). The RMA method was used to obtain probe set expression summaries. For each probe set an analysis of variance (ANOVA) model was fit to predict gene expression using patient condition as the predictive factor. An F-test was performed to determine significant differences between the patient conditions. These resulting p-values were used in estimating the false discovery rate (FDR). FDR<1% was considered significant. Linear contrasts were used to determine whether there were any significant differences among groups.

Results. Overall, there were 11,513 probe sets differentially expressed among the 4 groups at an FDR<1%. Among the pairwise comparisons based on the linear contrasts, no probe sets differentially expressed when comparing ACR with no HCV to ACR with HCV. 4,046 probe sets were differentially expression when comparing ACR with HCV to HCV recurrence. Over expressed in ACR-HCV included genes involved in antigen presentation (i.e., B2M, HLA-C, MR1, PSMB8), NF- κ B signaling (BMPRI1A, CD40, CSNK2A1, CSNK2B), and IL2 signaling (i.e., CSNK2A1, MAP2K1, MAP2K2, NRAS) while genes involved in IL4 signaling were over expressed in HCV recurrence (i.e., IL4R, NFATC4, SOCS1, STAT6). 1,003 probe sets were differentially expressed when comparing HCV recurrence to fibrosing cholestatic hepatitis. The top biological functions that characterized these differentially expressed genes included cell-mediated immune response (with inflammation being the most important: 40 differentially expressed genes, $p=3E-07-5.4E-04$) and humoral immune response (103 genes differentially expressed genes, $p=3.0E-10-1.0E-03$).

Conclusions. Characteristic molecular signatures of HCVrec, FCH, and ACR in the setting of HCV were identified. Molecular marker may be useful to improve the diagnostic distinction between recurrent HCV and ACR in patients with recurrent HCV.

Abstract# O-77**EXPLANT PERISEPTITIS OR INFLAMMATION >2 IS STRONGLY ASSOCIATED WITH CLINICALLY SIGNIFICANT HEPATITIS C (HCV) RECURRENCE AFTER LIVER TX (LTx).**

Mary Ann Simpson, Urmila Khettry, Fredric D. Gordon, James J. Pomposelli, Elizabeth A. Pomfret. *Transplantation, Lahey Clinic, Burlington, MA, USA*

INTRODUCTION: Recurrent HCV remains a major problem for patients transplanted for HCV cirrhosis. We compared explanted liver histology to post LTx biopsy and clinical course to identify parameters associated with HCV recurrence.

METHODS: 92 patients who received liver transplants for HCV and had a minimum of 2 years follow-up were identified. There were 28 live donor

(LD) recipients and 54 deceased donor (DD) recipients. All liver specimens from these patients (explants and all post-LTx biopsies) were examined retrospectively by 2 pathologists blinded to clinical parameters. Separate assessments were made by clinical team members. Explant specimens were rated for perihepatitis, fibrosis, hepatocellular carcinoma, and other histologic abnormalities. Biopsy material was examined for HCV recurrence and classified as 1) No recurrence; 2) Recurrence; or 3) Autoimmune-like hepatitis (AIH). Recurrence and AIH were later divided into "progressive disease" or "no progression" based on clinical criteria.

RESULTS: There were no differences between LD and DD recipients. 31 patients showed no histological evidence of HCV recurrence; 29 showed histological evidence of recurrence, but no clinical progression; 17 showed histological recurrence and clinical progression; and 9 showed AIH-like recurrence - 2 without and 7 with clinical progression. Presence of perihepatitis, inflammation >2, or both in the explant was strongly associated with clinically significant HCV recurrence (Table 1). Of 19 patients with explants showing both perihepatitis and inflammation >2, only 1 (5%) had no recurrence while the remaining 19 (95%) showed histological HCV recurrence and 14 of those (70%) developed clinical as well as histological recurrence ($p < 0.0001$).

Conclusions: Perihepatitis and inflammation greater than grade 2 in explanted livers are strongly associated with clinically significant CV recurrence. We believe that when present, these histological features identify a subgroup of HCV infected liver recipients that might benefit from posttransplant antiviral treatment.

Table 1. Explant Pathology

	Perihepatitis	Inflammation >2	Both
No Recurrence	7/31	5/31	1/31
Recurrence, No Progression	9/35	9/35	5/35
Recurrence, with progression	10/17*	9/17*	9/17#
AIH, No Progression	1/2	1/2	0/2
AIH, with Progression	5/7**	5/7**	5/7#

* $p = 0.004$; ** $p = 0.01$; # $p < 0.001$

Abstract# O-78

STAGE-SPECIFIC FIBROSIS PROGRESSION IN PATIENTS TRANSPLANTED FOR CHRONIC HEPATITIS C. Sumeet K. Asrani¹, Rachel Pedersen², Schuyler O. Sanderson¹, Michael R. Charlton¹, Terry Schneekloth¹, Charles B. Rosen¹, Terry M. Therneau², W. Ray Kim¹. ¹William J. von Liebig Transplant Center, Mayo Clinic College of Medicine, Rochester, MN, USA; ²Division of Biostatistics, Mayo Clinic College of Medicine, Rochester, MN, USA

Purpose: Accurate evaluation of histological fibrosis progression after liver transplantation for chronic hepatitis C (CHC) is crucial for optimal patient management. Previous estimates have relied on single biopsies and/or assumed constant linear progression between stages and with time.

Methods: We calculated stage-specific fibrosis progression using a time-continuous Markov model. All biopsies, including protocol biopsies, for patients transplanted for CHC from 1995 to 2006 were re-reviewed in a blinded fashion by a single pathologist using the Batts-Ludwig classification. Time-dependent changes in histological stage were analyzed to create a stage-specific transition matrix for fibrosis progression over 1 year. We also analyzed the effects of donor age, recipient age and sex.

Results: This analysis includes 166 unique recipients (67% male, mean age 52±/−8.1, 556 person-years). A total of 1,033 biopsies (mean 6.2±/−2.9 per patient, 867 transitions) were reviewed. The median time between biopsies was 5.8 months; 23% of intervals exceeded 1 year. The transition matrix (table) shows the expected outcome in 1 year for a patient currently in stages 0-4. For stage 0 patients, we would expect 47.1% to stay in stage 0, and 9.6, 30.7, 11.4, and 1.2% to have progressed to stages 1-4 in one year. Recipient age and sex had almost no impact on these rates. Donor age however was significant ($p < .01$), each decade increase in donor age multiplies yearly progression rates by 1.12. Comparing donors < 50 (mean 43.9) to those > 50 (mean 56.8), the 1 year probability of converting from stage 0 or 1 to stage 2+ is 41% versus 56%.

Conclusion: Stage-specific fibrosis progression in patients transplanted for CHC is faster compared to reported progression rates in non-transplanted patients. Fibrosis is non-linear, stage-dependent, and accelerates with increasing donor age. The Markov model represents a powerful tool with which to evaluate fibrosis progression and its modifiers in patients transplanted for CHC.

Starting Stage	Stage after 1 year (%)				
	0	1	2	3	4
0	47.1	9.6	30.7	11.4	1.2
1	10.8	13.2	42.4	29.0	4.6
2	10.7	13.2	42.4	29.1	4.6
3	2.2	4.9	15.8	58.7	18.5
4	0.2	0.7	2.2	16.4	80.5

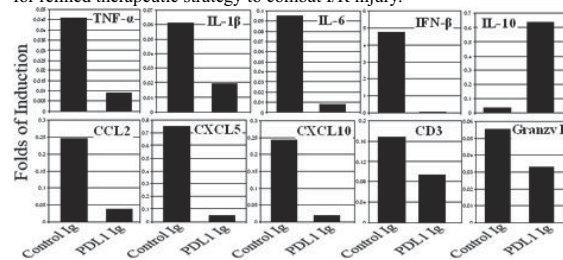
Plenary Session II

Abstract# O-79

ACTIVATION OF PD-1 NEGATIVE T CELL CO-STIMULATION SIGNALING AMELIORATES LIVER INJURY INDUCED BY ISCHEMIA AND REPERFUSION.

Haofeng Ji, Xiuda Shen, Feng Gao, Yuan Zhai, Ronald W. Busuttil. Surgery, Dumont-UCLA Transplant Center, Los Angeles, CA, USA

Background: We have shown that CD4+ T cells play a pivotal role in the pathogenesis of liver ischemia and reperfusion (I/R) injury. A network of positive and negative co-stimulatory pathways regulates T cell activation. Stimulation of programmed cell death 1 (PD-1) triggers negative signaling critical for immunoregulatory functions in the activation of local immune responses induced by hepatic I/R injury. We hypothesized that *in vivo* PD-1 engagement after administration of recombinant PD-L1 Ig, a dimeric PD-L1 Ig fusion protein, may affect hepatic I/R injury. **Methods:** B6 mice were subjected 90 min partial warm hepatic ischemia, followed by 6 h reperfusion. The PD-L1 Ig or control Ig (0.5 mg IV) was administered prior to the onset of ischemia. Livers were harvested for molecular/histological analyses; sera were screened for sALT levels. **Results:** Unlike in control Ig group, PD-L1 Ig treated mice were fully protected from hepatic I/R injury, as evidenced by lower sALT levels (227 ± 80 vs. 4958 ± 801 IU/L; $p = 0.0005$). Their liver architecture was preserved, showing minimal sinusoidal congestion without edema/vacuolization or necrosis (H/E staining). I/R induced hepatic pro-inflammatory cytokines (TNF- α , IL-1 β , IL-6, IFN- β), and chemokines (CCL2, CXCL5, CXCL10) were significantly reduced in PD-L1 Ig group (Fig). Local neutrophil accumulation and activity, reflected by myeloperoxidase (MPO) levels, were also attenuated after PD-L1 Ig treatment (0.23 ± 0.03 vs. 1.13 ± 0.3 U/g; $p < 0.05$). The hepatocellular apoptosis was selectively diminished in PD-L1 Ig group, as shown by TUNEL staining. Interestingly, CD3 and Granzyme B, T cell activation and functional markers, were 2-fold lower in PD-L1 Ig group (Fig). **Conclusion:** Our novel findings: 1/ support the crucial role of T cells in liver innate and adaptive immune responses induced by hepatic I/R; 2/ provide evidence that PD-1 activated lymphocytes, defective in their ability to mount efficient pro-inflammatory responses, protect livers against I/R-induced damage; 3/ offer the rationale for refined therapeutic strategy to combat I/R injury.



Abstract# O-80

COMBINED KIDNEY-LIVER TRANSPLANTATION OR KIDNEY TRANSPLANTATION ALONE FOR PRIMARY HYPEROXALURIA TYPE 1 (PH1): A FRENCH MULTICENTRIC STUDY. Philippe Metzler, Christophe Camus, Joseph Rivalan, Patrick Naudet, Didier Samuel, Antoine Durrbach,

François Bayle, Philippe Lang, Pierre Merville, Eric Therivet, Albert Bensman, Lionel Rostaing, Georges Deschenes, Karim Boudjema, Philippe Compagnon. Service de Chirurgie Hépatobilaire et Digestive, Hôpital Pontchaillou - Université Rennes 1, Rennes, France

Background. PH1 is a rare autosomal recessive disease that often leads to end-stage renal disease (ESRD). Although combined liver-kidney transplantation

(LKT) offers excellent outcomes, it remains unclear whether kidney transplantation alone (KTX) or LKT is the best therapeutic option. Patients and Methods. From May 1979 to June 2008, 54 patients with PH1 received 47 LKT and 75 KTX in 10 French centers. Results were retrospectively analyzed according to the type of transplantation initially performed: group LKT (n=33) and group KTX (n=21). Results. All patients (n=54) had developed ESRD at the time of transplantation. Age at the onset of ESRD and at transplantation, duration of dialysis and the presence of extra-renal symptoms prior to transplantation were similar between groups. Mean follow-up was 96 ± 70 months in LKT group and 111 ± 80 months in KTX group. Overall patient survival at 2, 5, 10 and 15 years was 87.5, 87.5, 78 and 78%, and 95, 89, 70 and 60% in the LKT group and the KTX group, respectively ($p > 0.05$). Time on dialysis did not impact patient survival. Death-censored renal graft survival at 2, 5, 10, and 15 years was significantly better for the LKT group compared to KTX (90, 87, 87 and 59%, vs. 55, 20, 13%, and 7.5% respectively; Log-Rank: $p < 0.0001$). Only 4/33 patients (12%) lost their first renal graft in the LKT group as compared to 19/21 patients (90%) in the KTX group ($p < 0.0001$). Risks of renal graft loss and need for kidney re-transplantation were increased in KTX group as compared with LKT group: OR=8.65 [3.3-22.2] and OR=11.2 [3-41], respectively. The mean total number of transplantation required per patient was significantly lower in LKT group vs. KTX group (1.18 vs. 1.86; $p < 0.0001$). Age at transplantation and the period of transplant (before or after 1995) had no effect on renal allograft survival. Major post-operative complication and mortality rates were 48% and 6% in LKT group. Conclusion. Combined LKT for PH1 is associated with better renal graft survival and lower risk for re-transplantation compared to KTX. LKT should be recommended for most patients.

Abstract# O-81

CHARACTERIZING STEROID-FREE REGIMENS POST LIVER TRANSPLANTATION: RANDOMIZED PHASE III TRIAL COMPARING TACROLIMUS MONOTHERAPY AFTER DACLIZUMAB INDUCTION AND TACROLIMUS+MMF DUAL THERAPY. U. Cillo¹, G. Otto², T. Becker³. ¹Azienda Ospedaliera di Padova, Padova, Italy; ²Universitätsklinikum Mainz, Mainz, Germany; ³Medizinische Hochschule, Hannover, Germany

Steroid use after liver transplantation increases risk of infection and metabolic disturbance; steroid-free regimens have been shown to reduce morbidity. The purpose of this large randomized phase III study was to assess the safety and efficacy of 2 different steroid-free regimens: tacrolimus (TAC) monotherapy after daclizumab (DAC) induction, and TAC+MMF dual therapy without induction.

Methods: This 3-month open study included 602 patients (≥ 18 years) from 37 European centers randomized to receive TAC or TAC+MMF (initial TAC dose: 0.10–0.15 mg/kg/day; target troughs: 10–15 ng/mL Day 0–42, < 10 ng/mL thereafter) and one peri-operative 500 mg steroid dose. Patients in the TAC group received DAC induction: 2 mg/kg on Day 0; 1 mg/kg within Day 7–10. In the TAC+MMF group, MMF was given 2 g/day up to Day 14, and 1 g/day thereafter. The primary endpoint was incidence of first biopsy-proven acute rejection requiring treatment (tr-BPAR; Kaplan–Meier).

Results: All analyses included patients who received ≥ 1 study medication dose (TAC: 305; TAC+MMF: 297). 3-month estimates for the rate of patients free from tr-BPAR were 81.5% and 82.2% in the TAC and TAC+MMF groups ($p = 0.825$), respectively. In both groups, the incidence of first tr-BPAR was highest during Weeks 1 and 2, overall numerically higher with TAC+MMF (22 and 15 patients) than TAC (15 and 13 patients). During Week 4 and Month 2, the number of patients with first tr-BPAR was higher with TAC (6 and 12 patients) than with TAC+MMF (2 and 1 patients). At 3 months, 92.7% of the TAC group were on TAC monotherapy. More adverse events that led to dose modification, interruption or discontinuation of any study drug were reported with TAC+MMF (67% vs 50.5%, $p < 0.001$). There were significantly more reports (regardless of relation to study drug) of bacterial infection (3.3% vs 8.4%, $p = 0.008$) and blood and lymphatic disorders (25.2% vs 37.0%, $p = 0.002$), particularly leucopenia (4.3% vs 10.4%, $p = 0.004$) with TAC+MMF. Cardiac disorders (14.1% vs 7.1%, $p = 0.005$) and headache (5.9% vs 2.0%, $p = 0.02$) were more common in the TAC group. Incidence of new-onset diabetes was low (3.7% in both groups).

Conclusions: Steroid-free immunosuppression with TAC, combined with DAC or MMF, resulted in low tr-BPAR rates, excellent survival rates and very low rates of new-onset diabetes at 3 months.

Abstract# O-82

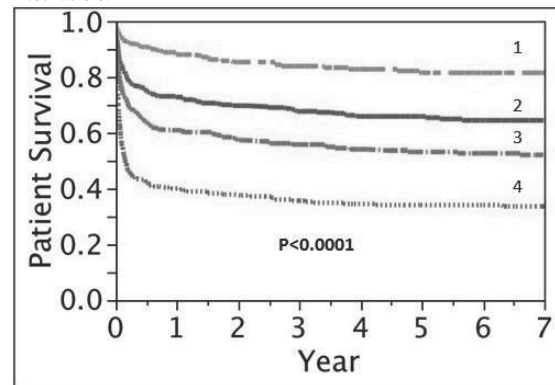
IDENTIFYING THE FUTILE PEDIATRIC LIVER RE-TRANSPLANT. Oliver B. Lao¹, James D. Perkins², Andre A. S. Dick², Patrick J. Healey², Jorge D. Reyes². ¹Department of Surgery, University of Washington, Seattle, WA, USA; ²Department of Transplantation Surgery, University of Washington, Seattle, WA, USA

Purpose: Survival following re-transplant of the liver in the pediatric population is distinctly inferior to that following primary transplant. Identifying factors that are associated with futile re-transplant would optimize the utility of this scarce donor resource. The purpose of this study was to determine factors associated with futile liver re-transplants.

Methods: We analyzed the United Network for Organ Sharing (UNOS) database (1987–2007) and identified patients ≤ 18 years-old that required liver re-transplants. Descriptive characteristics of the population were evaluated and survival was analyzed with Cox proportional hazards method according to recipient, donor and operative factors.

Results: Analysis of 1,248 children (46% male) that were re-transplanted identified a median recipient age and weight of 3 years-old (IQR 1–10) and 14.4 kg (IQR 8.8–30.6), respectively. Multivariable analysis identified several factors significantly associated with poor survival following pediatric liver re-transplantation: number of previous re-transplants, patient location pre-transplant, recipient weight, pre-transplant creatinine and bilirubin, donor age and cold ischemia time.

Survival analysis of children undergoing re-transplantation demonstrates a significant difference in outcomes when stratified by risk groups utilizing these factors:



Conclusions: Survival following pediatric liver re-transplantation varies significantly depending on associated risk. There may be a combination of factors that predict a futile re-transplant. Pre-operative identification of these factors and their use in recipient and donor selection may improve allograft utility and recipient survival following re-transplantation.

Abstract# O-83

EARLY WITHDRAWAL OF CALCINEURIN INHIBITORS AND EVEROLIMUS MONOTHERAPY IN DE NOVO LIVER TRANSPLANT RECIPIENTS. Roberto Montalti, Gianluca Rompianesi, Michele Masetti, Fabrizio Di Benedetto, Nicola Cautero, Nicola De Ruvo, Gian Piero Guerrini, Roberto Ballarin, Nazareno Smerieri, Giorgio E. Gerunda. *Liver and Multivisceral Transplantation, Azienda Ospedaliero-Universitaria di Modena - Policlinico, Modena, Italy*

INTRODUCTION AND AIM: Calcineurin inhibitor dose reduction or late withdrawal may be ineffective for chronic kidney disease (CKD) prevention once it has developed after liver transplantation (LT). We carried out a 2:1 ratio randomized trial to assess whether early withdrawal of CNi followed by initiation of everolimus (Evr) monotherapy in *de novo* liver transplant would lead to superior renal function compared to a cyclosporine (CsA) immunosuppression protocol.

PATIENTS AND METHODS: All patients were treated with CsA for the first 10 days, then they were randomized to receive Evr in combination with CsA up to day 30, then continued on Evr as monotherapy (Evr Group) or to maintain CsA (CsA Group). All patients received a basiliximab induction on day 0 and 5 after LT and were tapered off steroids by 5 weeks. Fifty-one consecutive patients were enrolled (Evr n=34; CsA n=17), all of them reached a post-LT follow-up longer than 12 months.

RESULTS: There was no statistically significant difference in 1-year patient survival that was 82.4% and 85.3% in CsA and Evr Group respectively. Mean estimated glomerular filtration rate (eGFR, mL/min/1.73m²), calculated with MDRD formula, was similar in the two groups at randomization, but was significantly better in the Evr Group at 6 months (86.5±36.4 vs. 51.2±13.9; p=0.002) and at 12 months (85.6±24.3 vs. 59.8±12; p=0.001). At the end of follow-up 9 patients out of 17 (52.9%) in CsA Group and 7 out of 34 (20.6%) in Evr Group experienced a stage ≥3 CKD (eGFR<60; p=0.043). The incidence of rejection episodes, major infections, HCV recurrence and triglycerides and cholesterol mean levels were similar in the two groups (p=NS). Incisional hernia in Evr Group occurred in 44.1% vs. 17.6% of patients in CsA Group, although the difference was not statistically significant (p=0.12). The incidence of neurological complications resulted significantly higher in CsA Group (17.6 vs. 0%, p=0.03).

CONCLUSIONS: Early withdrawal of CsA followed by Evr monotherapy in *de novo* LT is associated with a statistically significant improvement in 6- and 12-months renal function with a lower incidence of neurological complications and a similar incidence of rejection episodes and other major complications.

Abstract# O-84

INFLAMMATORY MICROENVIRONMENT ACCELERATES LIVER TUMOR GROWTH AND METASTASIS BY MOBILIZING CIRCULATING ENDOTHELIAL PROGENITOR CELLS AND INCREASING CANCER STEM LIKE CELL POPULATIONS. Kwan Man, Qiao Cheng, Yan Liu, Tung-Tuen Lam, Kein T. P. Ng, Chung-Mau Lo. *Department of Surgery, The University of Hong Kong, Hong Kong, China*

Objective: We aim to explore the mechanism of liver tumor growth and metastasis under inflammatory microenvironment by studying the direct role of hepatic I/R injury on mobilization of circulating endothelial progenitor cells (EPCs) and promotion of stemness features of liver cancer cell itself.

Methods: Small numbers of rat liver tumor cells (CRL1601, 500-1000 cells) were injected into right portal vein of male Buffalo rats with or without partial hepatic I/R injury (20/20 minutes duration on right and median lobes). The tumor growth and metastases were longitudinally monitored by Xenogen in vivo imaging system (IVIS) in live animals by detection of luminescence signals from tumor cells. Blood samples were taken at day1, 7, 14, 21 and 28 for detection of EPCs (CD133+CD34+) and cancer stem like cells-CSCs (CD133+CD90+, CD133+EpCAM+, CD90+EpCAM+). The proportions of CSCs were also compared in rat liver tumor tissues. To confirm the invasive features of the tumor developed in inflammatory microenvironment induced by hepatic I/R injury, the rat liver tumors were further orthotopically implanted into the liver of nude mice. The nude mice tumor growth/metastasis and circulating EPCs/CSCs were compared.

Results: Aggressive and early rat liver tumor development and metastasis were mainly found in I/R injury group. Significant higher levels of IP10/MIP2/VEGF induced by hepatic I/R injury subsequently mobilized EPCs (CD133+CD34+) to circulation compared to the control group (day1: 35 vs 12/10⁵cells, p=0.004; day7: 64 vs 38/10⁵cells, p=0.025; day21: 24 vs 9/10⁵cells, p=0.028; day28: 18 vs 12/10⁵cells, p=0.006). CD133+ cells were also found in lung metastatic nodules in I/R injury group. The numbers of circulation and tumor CSCs were also significantly increased in I/R injury group (Circulation: day 1: 23.5 vs 7/10⁵cells, p=0.006; day28: 18.5 vs 5/10⁵cells, p=0.006; Rat tumor: 290 vs 40/10⁵cells, p=0.047). The nude mice implanted with tumor from I/R injury group also had higher circulation levels of EPCs (17 vs 4/10⁵cells, p=0.004) and CSCs (43 vs 0/10⁵cells, p=0.01). Their aggressive tumor growth and metastasis were also confirmed.

Conclusion: Inflammatory microenvironment promoted liver tumor growth and metastasis by increasing cancer stem like cell populations and mobilizing circulating endothelial progenitor cells.

Basic Science

Abstract# O-85

THE ROLE OF ERYTHROPOIETIN IN HEPATIC INJURY INDUCED BY IN-VIVO ISCHEMIA-REPERFUSION AND IN TRANSGENIC ERYTHROPOIETIN OVEREXPRESSION MICE. Ziv Ben Ari¹, Orit Pappo², Evgeni Shevtsov³, Amiram Ravid⁴, Orna Avlas⁴, Edith Hochhauser⁴. ¹*Liver Institute, Rabin Medical Center, Beilinson Hospital, Petah Tiqva, Israel;* ²*Department of Histopathology, Rabin Medical Center, Beilinson Hospital, Petah Tiqva, Israel;* ³*Department of Anesthesiology, Rabin Medical Center, Beilinson Hospital, Petah Tiqva, Israel;* ⁴*Cardiac and Liver Research Laboratory, Felsenstein Medical Research Center, Petah Tiqva, Israel*

Recombinant human erythropoietin (rhEPO) has an important role in attenuating the hepatic injury induced by ischemia/reperfusion (I/R) in *in-vitro* isolated liver mouse model. The aim of the study was to evaluate the mechanism and effect of rhEPO in attenuating liver injury induced by I/R in: 1. *In-vivo* mouse liver model. 2. In over-expression EPO mice. **Material and methods:** The effect of segmental (70%) hepatic ischemia (60min) was evaluated in a transgenic mouse line, termed tg6 that constitutive overexpression of human EPO cDNA and in wild type C57BL mice that were randomly allocated to 3 main experimental groups (n = 10 each): 1. Control group undergoing sham operation (wild and transgenic). 2. *In-vivo* ischemic group (wild and transgenic). 3. Wild type mice underwent *in-vivo* ischemia but with the administration of rhEPO 5,000 units/kg i.p., 30min before ischemia induction. Serum liver enzyme levels and intrahepatic caspase-3 activity were measured, and apoptotic cells were identified by morphological criteria, TUNEL assay, and immunohistochemistry for caspase-3. Using immunoblot, the expression of the proapoptotic JNK and inhibitor of NFκB (IκBα) were also evaluated. **Results:** Compared to the wild type untreated I/R livers, the rhEPO pretreated wild type group showed: a significant reduction in liver enzyme levels (P<0.05), in intrahepatic caspase-3 activity (P<0.05), and in fewer apoptotic hepatocytes (P<0.05). rhEPO decreased JNK phosphorylation and the degradation of the inhibitor of NFκB (IκBα) during I/R. However, no such significant beneficial effect was noted between the transgenic tg6 I/R livers and the wild type I/R untreated livers.

Conclusions: Pretreatment with rhEPO can attenuate post-I/R hepatocyte apoptotic liver damage *in-vivo*. However, in chronically increased EPO levels mice, inducing excessive erythrocytosis leads to hepatic degeneration and thus the beneficial effect of EPO is abolished in I/R hepatic injury. These findings have important implications for the potential use of rhEPO in I/R injury during liver transplantation.

Abstract# O-86

AGE-RELATED SUSCEPTIBILITY TO HEPATIC ISCHEMIA/REPERFUSION INJURY: ROLE FOR HEAT SHOCK PROTEIN EXPRESSION? Markus Selzner, Nazia Seznar, Limin Chen, Ivan Borozan, Jing Sun, Max Xue-Zhong, Jianhua Zhang, Ian D. McGilvray. *Department of Surgery, Toronto General Hospital, Toronto, ON, Canada*

Older livers are more susceptible to hepatic ischemia/reperfusion injury (HIRI), and this contributes to higher morbidity following liver transplantation. The underlying mechanisms have not been defined. In this study we performed an unbiased microarray analysis in a murine model of HIRI. **Methods:** 60 minutes of 70% ischemia and reperfusion was induced in 6 and 60 weeks old mice. AST and TNFα levels were determined as markers. Gene activation was analyzed using a 20K cDNA microarray. HSP 25, 70, and 105 protein levels were evaluated by Western blot. The impact of ischemic preconditioning plus glucose infusion on hepatic HSP expression, serum TNFα levels, and hepatic reperfusion injury was investigated. **Results:** Older vs younger mice had significantly increased AST release following 1hr ischemia & 3hr of reperfusion (6200 ± 450 U/L vs 3920 ± 32 U/L; p=0.01). Gene array analysis revealed the following alterations in HSP expression: HSP25 was 4.5-fold (p=0.001), HSP70 2-fold (p=0.0009), and HSP105 1.6-fold (p=0.003) higher in younger vs older livers. Similarly, the protein expression of all three HSPs were higher in younger vs older mouse livers following HIRI. HSP25 was markedly increased in younger, but less so in older, murine macrophages stimulated by LPS. Glucose/ preconditioning treatment of old mice increased HSP 70 and 105 gene expression (1.8-fold & 3-fold respectively), decreased TNFα levels to values comparable to young animals (10.2 ± 1.8 pg/mg vs 11 ± 1.1 pg/mg), resulted in decreased AST

release (1820 ± 230 vs 6200 ± 450 U/L, $p=0.001$) and improved survival (60% vs 0%, $p=0.01$ log rank). **Conclusion:** Decreased HSP expression in older livers is associated with increased TNF α production and worsened HIRI. Glucose/preconditioning of old mice increases HSP expression, decreases TNF α release, and ameliorates HIRI. This suggests that HSP expression is involved in TNF α mediated liver injury.

Abstract# O-87

GENOMICS ANALYSIS OF FORMALIN-FIXED PARAFFIN-EMBEDDED LIVER BIOPSIES TO PREDICT SEVERITY OF HCV RECURRENCE. Valeria Mas¹, Daniel Maluf¹, Amiee Potter¹, Kellie Archer¹, Jihee Suh¹, Valeria Descalzi², Federico Villamil². ¹VCUHS, Richmond, USA; ²Favaloro Foundation, Buenos Aires, Argentina

Background. Genome wide gene expression (GWE) analysis was performed in formalin-fixed paraffin-embedded (FFPE) liver biopsies (LBx) to study the molecular changes in the graft at HCV recurrence (HCVrec) time and to predict severity of HCVrec post liver transplantation (LT).

Methods. We studied 82 FFPE LBxs (collected at the time of HCVrec ($\uparrow$ ALT and HCV PCR+) and at 36 months (mo) post-LT) from 41 HCV LT patients (Pts) (age: 53.9 ± 7.9 yo; median follow-up: 8.2 y). The mean time from LT to HCVrec was 5.5 ± 4.9 mo. Protocol LBx was used (median LBx/Pt: 6 (3-14)) and no patient received HCV treatment. Pts were classified according to the fibrosis stage (FS) (METAVIR score) at 36 mo post-LT: Group (G) 1: FS < F2, G2: FS = F2, and G3: FS > F2. GWE DASL Assay was performed in 12 Pts (24 LBxs) (4 Pts from each Group) (study group). To identify genes differentially expressed (DEG) a linear model was fit. An F-test was used for examining significant difference among groups. Beadtypes with a false discovery rate (FDR) <10% were considered significant. Interaction Networks and Functional Analysis were used. DEG were validated in LBxs from 29 Pts (validation group) using QPCR.

Results. 237 DEG were significant at HCVrec time. The top canonical pathways were apoptosis, PPAR signaling, IL-6 signaling, and cell cycle. Among these 237 genes, 2 genes were significant when comparing G1 vs. G2, 177 between G1 vs. G3, and 182 between G2 vs. G3. From the analysis of G1 vs. G3, the top functions were cell cycle, IL-12 signaling and production in macrophages, and death receptor signaling. For the paired samples gene expression data (LBx at HCVrec time vs. 36 mo post-LT), 48.7% of genes had a positive correlation. Validation group samples were profiled for 11 DEG (i.e., RRH, RGS3, FST, FGA, TGFB3, and CASP9 among others). In a multivariable model, clinical and phenotypic data were combined with the gene expression data. A best subsets procedure was used to identify the best fitting and most parsimonious model. Using the best model (AST, donor gender, and TGFB3) and classifying subjects, the classification accuracy was 83.3%, with 96.3% sensitivity.

Conclusions. These results demonstrated the feasibility of GWE profiling of FFPE LBx tissues and have shown that a combination of gene expression markers at HCVrec time and clinical data might predict post-LT severity of HCVrec.

Abstract# O-88

GLYCOGEN SYNTHASE KINASE (GSK)-3 IS A KEY REGULATOR OF LIVER IMMUNE RESPONSES AGAINST ISCHEMIA AND REPERFUSION INJURY. Feng Ren, Xiuda Shen, Feng Gao, Ronald W. Busuttil, Yuan Zhai. *Surgery, Dumont-UCLA Transplant Ctr., David Geffen School of Medicine at University of California, Los Angeles, Los Angeles, CA, USA*

Ischemia reperfusion injury (IRI) is an unresolved clinical problem in liver transplantation and contributes to both early graft failure and chronic transplant rejection. The pathogenesis of liver IRI is critically dependent on the activation of local pro-inflammatory immune response. In a murine partial liver warm IRI model, we have found that Toll-like-receptor 4 (TLR4) signaling pathway is essential for the liver immune activation against IR, and that IL-10 plays a critical cytoprotective function against IRI. To study the mechanism of IL-10 gene regulation during liver IR, we now attempted to explore intracellular signaling pathways downstream of TLR4 activation. The GSK-3 has been recently found to differentially regulate TLR-mediated pro- and anti-inflammatory cytokine production profiles. First, we used its selective inhibitor SB 216763, to show *in vitro* with both murine macrophage cell line (RAW) and bone-marrow derived macrophages (BMMs) from B6 mice, that TLR4 stimulated (by LPS) cytokine gene profile was selectively altered and skewed toward anti-inflammatory type when GSK-3 was inhibited (at 10 μ g/ml). This inhibition was distinctive from the general suppression

seen after inhibition of MAP kinases, such as JNK or ERK. Most significantly, IL-10 gene induction, as measured by qRT-PCR, was actually increased more than 8-fold in RAW and 4-fold in BMMs, whereas IL-12 β induction was reciprocally decreased 2-fold in RAW, and remained unchanged in BMMs. LPS only marginally affected TNF- α and CXCL10 gene induction in these cells. Second, to test the role of GSK-3 in liver responses to IR *in vivo*, we then administered SB 216763 one hr prior to the onset of 90 min. liver ischemia (25 μ g/g mouse, i.p.). Liver injury and pro-inflammatory gene induction were measured at 6 h of reperfusion. Compared with vehicle (DMSO) treated control animals, GSK-3 inhibitor not only ameliorated liver IRI (sALT = 2239 ± 561.2 , vs. 6667 ± 356.2 , $n=3$, $p<0.01$), but also markedly suppressed local pro-inflammatory cytokine/chemokine induction, as shown by decreased TNF- α , IL-1 β , CXCL10, CCL2 and CXCL2 levels. This is the first study, which documents the key regulatory role of GSK-3 in liver immune responses against IR. Indeed, targeting GSK-3 may provide a novel and refined therapeutic strategy to ameliorate liver IRI in transplant patients.

Abstract# O-89

ENDOGENOUS BILE SALTS ARE ASSOCIATED WITH BILE DUCT INJURY IN THE RAT LIVER TRANSPLANTATION MODEL. Jiahong Dong, Geng Chen, Shuguang Wang, Ping Bie, Xiaowu Li. *Institute of Hepatobiliary Surgery, Chongqing, China; Hospital & Institute of Hepatobiliary Surgery, Beijing, China*

Background. Non-anastomotic biliary strictures are a serious complication after orthotopic liver transplantation (OLT) and very difficult to cure. We examined the role of endogenous bile salt toxicity in the pathogenesis of bile duct injury after OLT.

Materials and methods. A total of 90 Sprague-Dawley rats were divided into three groups: Sham-operated group (Sham, $n=30$), OLT group with 1 hour donor liver preservation (OLT-1h, $n=30$) and OLT group with 12 hour donor liver preservation (OLT-12h, $n=30$). Bile was collected and analyzed biochemically. The histopathological study was performed to determine the intrahepatic bile duct morphological changes. Hepatic expression of bile transporters Ntcp, Bsep, Mdr2 and Oatps were detected.

Results. During the first 2 weeks after transplantation, bile salt secretion was not parallel with phospholipid secretion, resulting in high biliary bile salt/phospholipid ratio (BS/PL). The expression of bile transporters was in consistent with change of bile composition. Bile duct injury correlated significantly with bile salt secretion and BS/PL ratio. Moreover, OLT group with longer donor liver preservation time (OLT-12h) had significantly lower Mdr2 mRNA/protein level, higher BS/PL ratio, and better correlation between BS/PL ratio and bile duct injury compare to those of OLT-1h.

Conclusions. The unparallel secretion of bile salts and phospholipids results in cytotoxic bile formation with high BS/PL ratio after liver transplantation. Longer donor liver preservation time will increase graft bile cytotoxicity. The results of this study suggest endogenous bile salts play a role in the pathogenesis of bile duct injury following OLT.

Abstract# O-90

NK CELL CHIMERISM IS A UNIQUE FEATURE OF LIVER TRANSPLANTATION AND MAY MODULATE RECIPIENT'S RESPONSE AGAINST THE GRAFT. Viviana

Moroso¹, Herold J. Metselaar¹, Brenda M. Bosma¹, Shanta Mancham¹, Luc J. W. van der Laan², Nicole M. van Besouw³, Hugo W. Tilanus², Ernst J. Kuipers¹, Geert Kazemier², Arnold van der Meer⁴, Diana Eissen⁴, Irma Joosten⁴, Jaap Kwekkeboom¹.

¹Gastroenterology and Hepatology, Erasmus MC, Rotterdam, Netherlands; ²Surgery, Erasmus MC, Rotterdam, Netherlands;

³Internal Medicine, Erasmus MC, Rotterdam, Netherlands; ⁴Blood Transfusion and Transplantation Immunology, UMC St. Radboud, Nijmegen, Netherlands

The incidence of chronic rejection in liver transplantation (LTx) is much lower compared to other organ grafts. The liver contains high numbers of organ-specific immune cells, like NK cells. We aimed to determine whether donor NK cells migrate into LTx-recipients and may play a role in preventing rejection episodes by killing Antigen Presenting Cells (APC) and activated T cells from the recipient. We therefore determined the numbers of donor-derived NK cells in the circulation of LTx-recipients and renal transplant (RTx) recipients using antibodies that recognize donor HLA-alleles. We compared the immunophenotypic and cytotoxic properties of isolated liver NK cells obtained from perfusion liquid used to flush out the donor liver during the transplantation procedure with those of NK cells from blood of healthy individuals.

A variable percentage, ranging from 1.1% to 7.9%, of donor NK cells was detected in LTX-recipient circulation for an average time of 15 days, while no NK cell chimerism was observed in RTX-recipients. Liver graft perfusates contained $31 \pm 9\%$ NK cells, of which $46 \pm 6\%$ belonged to the CD56bright/CD16- subtype, while in blood only $10 \pm 3\%$ of NK cells are CD56bright. The enriched CD56bright population in liver expressed markers of activation ($95 \pm 3\%$ CD69+, versus $12 \pm 4\%$ CD69+ in blood CD56bright NK cells; $p < 0.001$), and had a higher cytotoxic capacity compared to its counterpart in blood, showing higher perforin/granzyme content and CD107a degranulation, and two-fold enhanced rate of killing of MHC class I devoid K562 cells, compared to blood NK cells.

In conclusion after LTX, but not after RTX, donor NK cells circulate in recipients and may exert a positive role in graft acceptance, by killing recipient APCs and activated T cells responsible of initiating an immune reaction that can lead to graft rejection. These results indicate that implementing the transfer of donor-derived NK cells can induce a status of chimerism that may facilitate graft acceptance.

Abstract# O-91

FETAL LIVER FRAGMENTS ARE SUPERIOR TO ISOLATED HEPATOCYTES IN CORRECTION OF WILSON DISEASE: A NEW APPROACH FOR THE TREATMENT OF CHRONIC LIVER FAILURE. *Helena Katchman*^{1,2}, Orna Tal¹, Smadar Eventov-Friedman¹, Anna Aronovich¹, Dalit Tchorsht¹, Elias Shezen¹, Yair Reisner¹. ¹Immunology, Weizmann Institute of Science, Rehovot, Israel; ²Gastroenterology, Tel-Aviv Sourasky Medical Center, Tel-Aviv, Israel

Disappointing results in the treatment of acute liver failure or metabolic diseases by transplantation of isolated hepatocytes emphasize the need for alternative approaches that can enable proliferation of transplanted hepatic cells in the quiescent host liver. Our recent results reveal that transplantation of pig embryonic liver fragments harvested at optimal gestational time window, leads to marked growth and differentiation in the setting of the quiescent host liver.

In the present work we define such optimal gestational time window for harvesting and transplantation of mouse embryonic liver fragments. We further demonstrate in a mouse model of Wilson disease that this approach can be superior to isolated hepatocytes in the treatment of chronic liver disease.

At the first step syngeneic transplantation of embryonic mouse liver fragments harvested at different age of gestation (from E11 to E19) was performed. The earliest teratoma-free gestational age was defined at 15 days after conception (E15). Thereafter transgenic mice mutated in the ATP7B gene (Toxic milk) that characterized by decreased levels of serum ceruloplasmin and hepatic accumulation of copper, eventually leading to liver cirrhosis, were transplanted with syngeneic E15 liver fragments or with E15 isolated hepatocytes. Disease alleviation was determined by histological findings, serum ceruloplasmin levels and liver copper accumulation. An increase in serum ceruloplasmin levels with gradual restoration of enzymatic activity to 30-35% at 2 months after transplantation was found following transplantation of either fragments or hepatocytes. However, significant reduction in liver copper accumulation was noted only in animals transplanted with embryonic liver fragments. In addition, near complete replacement of cirrhotic host liver by transplanted regenerating hepatic tissue was noted in this group, further emphasizing the advantage of embryonic liver fragments over isolated hepatocytes transplantation.

Taken together, these results suggest that transplantation of fetal liver fragments could offer a novel curative approach in the treatment of chronic liver failure or metabolic diseases.

Abstract# O-92

HUMAN LIVER HEMATOPOIETIC STEM CELLS HAVE A MULTI-POTENT AND SELF-RENEWAL CAPACITY AND MAY FUNCTION AS LOCAL PROGENITORS FOR LIVER-RESIDENT LEUKOCYTES. *Qiuwei Pan*, Fatima S. F. Aerts-Kaya, Geert Kazemier, Jaap Kwekkeboom, Herold J. Metselaar, Hugo W. Tilanus, Harry L. A. Janssen, Gerard Wagemaker, Luc J. W. van der Laan. *Depts of Gastroenterology & Hepatology, Hematology and Surgery, Erasmus MC, Rotterdam, Netherlands*

In vitro evidence suggests that adult human liver contains hematopoietic stem cells (HSC) but these cells are poorly characterized. In this study we investigated the migration of adult human liver HSC during graft perfusion,

and in the patients after liver transplantation. In addition, we assessed their differentiation potential in vitro and self-renewal capacity in immunodeficient mice.

Methods: Graft preservation fluid was collected at the time of liver transplantation. Blood was collected in the first month after transplantation from HLA-A2 mismatched donor/recipients. HSC were characterized in vitro by flow cytometry (FACS) and colony assays. Purified liver perfusate and umbilical cord blood CD34⁺ cells ($1-3 \times 10^5$) containing a luciferase reporter gene were transplanted into irradiated NOD/SCID mice.

Results: FACS analysis showed that from the average of 175 million ($n=16$) mononuclear cells per liver perfusate, $0.68 \pm 0.78\%$ were CD34⁺. Of these cells $0.09 \pm 0.06\%$ were CD34⁺CD11b⁺HLA-DR⁺, representing undifferentiated HSC. The colony assays revealed that 325 ± 115 erythroid colonies (CFU-e) and 36 ± 28 granulocyte progenitors units (CFU-c) were present per million mononuclear cells. After liver transplantation, donor HSC continue to migrate from the graft resulting in approx. 2-8% of peripheral blood CD34⁺ cells being of donor origin. At 35-50 days after engraftment of purified liver perfusate CD34⁺ cells in mice substantial number of BFU-e and CFU-c were retrieved from the bone marrow and liver, indicating that liver CD34⁺ cells possess truly multi-lineage and self-renewal capacity in vivo. Interestingly, a robust liver specific luciferase signal was observed in mice engrafted with liver perfusate CD34 cells, but not with cord blood CD34 cells.

Discussion: Adult human liver HSC give rise to substantial numbers of colony-forming units in vitro and after engraftment in the mice, confirming their multi-lineage and self-renewal capacity. Bioluminescent imaging suggests liver HSC preferentially expand and differentiate in the liver environment. Liver HSC are mobilized during graft perfusion and after transplantation, which may contribute to hematopoietic chimerism after liver transplantation.

Abstract# O-93

SUICIDAL EMPERIPOLESIS: A NOVEL MECHANISM CONTRIBUTING TO THE T CELL TOLERANCE EFFECT IN LIVER TRANSPLANTATION. *Volker Benseler*^{1,3}, Alessandra Warren², David G. Bowen¹, Lauren E. Holz¹, David LeCouteur², Michelle Vo¹, Anthony Allison⁴, Nico van Rooijen⁵, Hans-Juergen Schlitt³, Geoffrey W. McCaughan¹, Patrick Bertolino¹.

¹Liver Immunobiology, Centenary Institute and AW Morrow Gastroenterology and Liver Centre, Royal Prince Alfred Hospital and University of Sydney, Sydney, NSW, Australia; ²Centre for Education and Research on Ageing (CERA), ANZAC Research Institute and Concord RG Hospital and University of Sydney, Sydney, NSW, Australia; ³Department of Surgery, University of Regensburg, Medical Centre, Regensburg, Bavaria, Germany; ⁴Alavita Inc, Mountain View, CA, USA; ⁵Department of Molecular Cell Biology, Faculty of Medicine, Vrije Universiteit, VUMC, Amsterdam, Netherlands

Background: A major obstacle in organ transplantation is the rejection of the graft by the immune system. However, liver transplants are an exception as they are spontaneously accepted in animal models and even in humans MHC matching is not required. Although several hypotheses have been proposed to explain this phenomenon, the mechanisms still remain unknown.

Methods: Naive CD8⁺ Des-TCR transgenic T cells (H-2k) specific for the MHC class I molecule H-2Kb plus self-peptide were adoptively transferred into B6 (H-2b), which express the antigen ubiquitously, or syngeneic B10 (H-2k) mice. Donor T cells were tracked using radioactive Cr-51 or the fluorescent dye CFSE and their fate was determined using flow cytometry, confocal and electron microscopy.

Results: Despite the antigen-specific retention of up to 70% of radioactive labeled CD8⁺ Des cells within the liver of B6 mice at 1h and 22h, these mice never developed autoimmunity. Using CFSE, the retention of Des cells in the liver was confirmed at 1h but cell numbers decreased until only 10-15% were detectable at 22h. This disappearance was neither due to rejection by host NK cells as it was also observed in F1 mice nor affected by the depletion of macrophages. Instead, Des cells were found inside hepatocytes and cell remnants were observed within LAMP-1⁺ vesicles.

Conclusion: Following intrahepatic activation, T cells cross the endothelial barrier and actively invade hepatocytes (a process known as emperipolesis) where they are destroyed in lysosomal compartments. As 80-90% of the T cells are lost within 22h, we propose that this suicidal emperipolesis is a highly efficient process for the deletion of alloreactive T cells that contributes to the tolerogenic properties of the liver in organ transplantation.

Outcomes

Abstract# O-94**WHICH RISK FACTOR ARE WE ABLE TO CONTROL TO OPTIMIZE THE RESULTS OF SPLIT LIVER TRANSPLANTATION? A MULTIVARIATE ANALYSIS OF 299 SPLIT LIVER TRANSPLANTATIONS.**

Jessica Walter¹, Christian Lenk², Christine zu Eulenburg³, Jan F. Kersten³, Xavier Rogiers⁴, Dieter C. Broering¹. ¹Department of General and Thoracic Surgery, University Hospital Schleswig-Holstein, Campus Kiel, Kiel, Germany; ²Department of General Surgery, Hospital Reinbek, Hamburg, Germany; ³Unit of Health Sciences and Education, University of Hamburg, Hamburg, Germany; ⁴Transplantation Centre, Gent University Hospital and Medical School, Gent, Belgium

Study's purpose

As far as split liver transplantation (SLT) represents an important alternative method in the field of liver transplantation with most efficient utilization of deceased donor organs, it is of utmost interest to identify the risk factors in this procedure to guarantee maximum safety for the recipient.

Methods

From 02/93 to 12/04 there were 319 SLTs performed at the University Hospital of Hamburg-Eppendorf. A retrospective analysis of the recipients' records was performed regarding the parameter "graft loss" within one year after SLT as the main target. The data of 299 SLT recipients could be transferred to a multivariate analysis. The regarded characteristics included recipient's diagnosis, sex, recipient's age, cold ischemic time (CIT), graft type, split technique (in- or ex-situ), occurrence of complications (biliary, vascular complications, bleeding, rejection) and intensive care unit stay of the donor.

Results and conclusions

Mean follow-up was 42 months (range 0 – 126). Overall patient survival rates 6 months, 1 year, 3 years and 5 years after SLT were 88.5%, 85.9%, 83.4% and 82%, respectively. Overall graft survival rates 6 months, 1 year, 3 years and 5 years after SLT were 79.7%, 76.3%, 71% and 69%, respectively. Of the regarded variables, recipient age, CIT, bleeding, left lateral split graft and full-left split graft turned out to be significant risk factors for graft loss. Lengthening of the cold ischemic time showed the highest significance ($p=0.004$); every additional minute of CIT increases the risk by 0.25%. In conclusion, to minimize the risk of graft loss after SLT, amongst others the CIT should be shortened as far as possible, as it was found to be the strongest negative predictor in this multivariate analysis. Due to logistical issues, in-situ SLT is rarely performed in Eurotransplant, so the transport time after ex-situ procedure prolongs the CIT. Efforts should be made to reflect this factor during allocation and try to reduce CIT by leaving the split grafts in the splitting centre in appropriate cases.

Abstract# O-95**DONOR HEPATIC STEATOSIS: AN ADDITION TO THE DONOR RISK INDEX.** Austin L. Spitzer, Andre A. S. Dick, Ramasamy Bakthavatsalam, Jorge D. Reyes, James D. Perkins. *Transplant Surgery, University of Washington, Seattle, WA, USA*

Background: As attempts have been made to expand the donor pool, defining the limitations of marginal organs for liver transplantation has become more refined. The donor risk index indicates seven donor characteristics including age that predict increased graft failure. Although not included in that analysis, we suspected that increased hepatic steatosis and prolonged ischemia would further compromise graft survival.

Methods: Scientific Registry of Transplant Recipients data from 5051 liver transplants, with identification of percent steatosis, performed between October 2003 and February 2008 was used to identify donor characteristics and operative parameters predictive of decreased graft survival. Multivariable stepwise logistic regression of variables including age, race, height, donation after cardiac death (DCD), split/partial grafts, cause of death, percent steatosis, and cold and warm ischemia times, was performed with one year graft survival as the primary outcome.

Results: There were 1090 (21.6%) allograft failures and 865 (17.1%) deaths in 5051 transplants. The strongest associations with graft failure were donor age, macrovesicular fat, cold ischemia time, and DCD status. To facilitate donor selection a simple point system can be utilized; minimizing age (≤ 40 years), cold ischemia (≤ 6 hours) and steatosis ($\leq 16\%$) provides the best

one year survival ($p < 0.0001$). The relative risk (RR 1.6) of a DCD allograft should preclude any further marginalization of these risk factors.

Conclusion: Successful liver transplantation requires minimizing the combination of donor age, steatosis, and ischemic time. Given the disparities in organ allocation, sacrifice in these risk factors is likely necessary but significantly impacts survival.

Abstract# O-96**PRE TRANSPLANT TROPONIN LEVELS ARE A NOVEL PREDICTOR OF PATIENT AND GRAFT SURVIVAL FOLLOWING LIVER TRANSPLANTATION.**

Elizabeth Coss Zevallos, Kymberly Watt, Rachel Pedersen, Michael Charlton. *Mayo Clinic, Rochester, MN, USA*

Background: Our ability to estimate risk of posttransplant mortality for patients is limited. Elevated cardiac troponin levels have been shown to predict posttransplant mortality in kidney transplant recipients and are used for risk stratifying individual potential kidney transplant recipients. **Aim:** To determine if pre transplant serum cardiac troponin I (Tn) levels are predictive of outcomes following liver transplantation, including overall mortality and graft failure. **Methods:** Tn levels were measured using serum prospectively obtained pretransplant in 236 consecutive patients (≥ 18 yrs) who received a liver transplant during December 1998- December 2001. Pretransplant recipient variables studied included age, MELD score, gender, history of cardiovascular disease (CVD), smoking, diabetes and hypertension. Mortality and graft loss data were collected over a 6-9 year follow up. **Results:** Among the 236 patients, 26.1% had an elevated Tn (>0.07 ng/ml). Elevated Tn levels (HR 2.4, $p=0.001$), prior CVD (HR 1.7, $p=0.06$) or the combination of Tn and prior CVD (HR 2.8, $p=0.01$) were predictors of increased risk of graft loss or death. MELD score was not independently predictive of overall death or graft loss ($p=0.5$, $p=0.5$, respectively). Patients with a history of CVD were at higher risk of early death (within one year of transplant), and the combination of Tn >0.07 and a history of cardiac disease was significantly associated with early posttransplant mortality (see table). The combination of Tn >0.07 and MELD score >20 was also associated with early death. Multivariate analysis confirmed prior CVD and Tn >0.07 as significant predictors of graft loss and death post transplant (HR 1.95, $p=0.02$ and HR 2.42, $p=0.0008$, respectively). **Conclusion:** Elevated pretransplant Tn is strongly predictive of posttransplant mortality and graft loss. Pretransplant Tn levels, with or without a pretransplant history of cardiac disease, may be helpful in risk stratification of potential liver transplant recipients.

Table 1

OVERALL DEATH	HR	P VALUE
Troponin I >0.07 (cTnI)	2.1	0.006
Prior cardiac disease (CVD)	1.7	0.06
DEATH WITHIN 1 YEAR		
Prior tobacco use	3.1	0.07
Prior CVD	3.5	0.01
cTnI >0.07 and Prior CVD	5.8	0.002
cTnI >0.07 and MELD >20	3.1	0.03

Abstract# O-97**CHINA LIVER TRANSPLANT REGISTRY.** Sheung Tat Fan, Hai Bo Wang. *Department of Surgery, The University of Hong Kong, Queen Mary Hospital, Pokfulam, Hong Kong, China*

The University of Hong Kong was authorized by 21 liver transplant centers in China in 2005 and subsequently by the Ministry of Health, China in 2008 to conduct a registry of liver transplantation in China. Prospective collection of data was performed through computer network and the data were verified by on-site checking of hospital records by the personnel of The University of Hong Kong. From 1993 to 2008, 11,888 adult (≥ 18 years old) liver transplant operations from 61 hospitals were recorded in the Registry. The majority of the transplants were performed in the last 6 years. The organs were derived from non-heart-beating donors ($n=11,030$), brain-stem dead donors ($n=85$) and living donors ($n=773$). Male patients predominated (85.1%). Malignant tumors were documented in 49.5% of the explants. The hospital mortality rate was 8.8%. The median follow-up duration was 9.4 months (range 0–118.3 months). The 1-, 3- and 5-year survival rates were 73.7%, 60.1%, 55.6%, respectively. There was an improvement of overall survival rates over the years ($p<0.001$). Compared with patients with benign disease, patients with malignant disease had less favorable survival (5-year survival rate at 41.7% vs. 67.8%, $p<0.001$). For patients with tumor status within the Milan criteria ($n=1,905$, 46.4%), the estimated 5-year survival rate was 60.4% and was higher than that of those with tumor status beyond the Milan criteria ($n=2,200$, 53.6%, 5-year survival rate at 32.3%). Living donor liver transplantation emerged as a major treatment method in the last 2 years after the Ministry

of Health, China had implemented stringent organ donation policies. The 1-year survival rate of patients receiving living donor liver transplantation was 83.9%, which was higher than that of those receiving deceased donor liver transplantation in the same period (n=11,029). The Registry has documented a change in practice of liver transplantation in China. Living donor and brain-stem death organ donations are emerging. The practice of liver transplantation is expected to conform to that of the rest of world in the coming future.

Abstract# O-98

IMPACT OF CCRΔ32 MUTATION ON ISCHEMIC TYPE BILIARY LESIONS AFTER LIVER TRANSPLANTATION.

Ines Ruth¹, Maria Hoppe-Lotichius¹, Anja Lautem¹, Christian Mönch², Gerd Otto¹. ¹Department of Transplantation and Hepatobiliopancreatic Surgery, Johannes Gutenberg-University, Mainz, Germany; ²Department for General Surgery and Vascular Surgery, Johann Wolfgang von Goethe-University, Frankfurt, Germany

Ischemic-type biliary lesions (ITBL) occur after orthotopic liver transplantation (LT) with a reported incidence of up to 26% and lead to considerable morbidity, graft loss, and even mortality. A multi-factorial etiology is assumed. CC-chemokines and their receptors have been identified to play a key role in cell survival and proliferation. The CC-chemokine receptor 5delta32 (CCR5delta32) mutant has been shown to be a major risk factor for the development of ITBL after LT.

338 LT recipients (374 LT including 36 retransplantations) transplanted between September 1997 and December 2007 (116 female and 222 male) were included in the study. The CC-chemokine receptor 5 (CCR5) was analyzed by PCR to identify patients with CCR5delta32.

ITBL were identified by increased parameters of cholestasis followed by imaging of the bile ducts.

CCR5 wild-type and CCR5delta32 (3 homozygous, 45 heterozygous) were identified in 290 and 48 patients, respectively. ITBL occurred in 35 of the 322 transplantations performed in patients with wild-type and in 12 of 52 grafts in patients with CCR5delta32 mutation (p=0.022). 70% of all ITBL occurred within 6 months, 90% of all ITBL occurred within 12 months.

Patient survival was reduced in patients with CCR5delta32 to 61% after 5 years. In patients with CCR5 wild type the survival was 75% after 5 years (p=0.011). Graft survival was equally reduced.

Rate of rejection was not affected (p=0.282). CCR5Δ32 showed no influence on reinfection, rate of retransplantation, and fibrosis (within a year) after liver transplantation in patients with hepatitis C (p=0.721). In patients with CCR5delta32 mutation the mode of perfusion was without influence on the occurrence of ITBL (p=0.366) whereas in patients with wild type arterial back-table pressure perfusion was capable of preventing ITBL (p=0.009).

In a large collective CCR5delta32 was shown to still be a significant risk factor for the development of ITBL following LT. The mutation not only leads to a reduction of patient and graft survival but also to an increased retransplantation rate.

Abstract# O-99

ISCHEMIC PRECONDITIONING OF THE LIVER IN DECEASED DONORS – SUGGESTIVE EVIDENCE OF REMOTE PRECONDITIONING IN KIDNEY ALLOGRAFTS.

Kunj K. Desai¹, Asif Shareef¹, Ali Raza¹, Shamkant Mulgaonkar¹, David Laskow¹, Adena Osband¹, Michael Shapiro¹, John Radomski¹, Stephen Guy¹, Melvin Goldblatt¹, George Dikdan¹, Baburo Koneru¹. Remote Preconditioning Study Group, New Jersey Organ & Tissue Sharing Network, Springfield, NJ, USA

Introduction. Ischemic preconditioning (IPC) may decrease reperfusion injury in liver and kidneys following transplantation. In a recently conducted liver IPC trial in deceased donor (DD) transplantation we questioned whether liver IPC would induce remote preconditioning (RIPC) in the kidneys and improve graft function after transplantation.

Method. Between Oct 2003-July 2006, following 1:1 randomization of 101 deceased donors, IPC of the liver was induced by clamping of the hepatic hilum for 10 min immediately after opening the donor abdomen. We collected outcome data in 106 recipients of kidneys recovered which were transplanted at one of the six kidney transplant centers within the donor service area (DSA). Kidneys not recovered (N=24), recovered but not transplanted (N=17) and kidneys transplanted outside DSA (N=55) were excluded. RIPC group comprised 58 and the No-RIPC group 48 kidney recipients. Primary outcome was delayed graft function [(DGF) dialysis in first week post-transplant].

Secondary outcomes were serum BUN and creatinine on post-transplant days 1, 7, 14, 30, 1 year and at last follow up, graft and patient survival.

Results. Baseline characteristics of DD and kidney recipients were comparable in both groups. DGF incidence was similar in both groups (24% vs. 31%, p=0.5). Serum BUN on days 1, 14, 30, 1 year and at last follow-up was significantly lower in RIPC vs. No-RIPC group. Serum creatinine on day 1, 14 and at last follow up was lower in RIPC vs. No-RIPC group, and the differences approached significance (Table). One year graft survival was 88% RIPC vs. 77% No-RIPC (p=0.36). One year patient survival was 91% RIPC vs. 77% No-RIPC (p=0.15).

Parameter	BUN D 1	D 14	D 30	1 year	Last follow up	Creatinine D 1	D 14	D 30	1 year	Last follow up
RIPC (N=58)	36	28	24	21	24	5.9	1.6	1.5	1.3	1.5
No RIPC (N=48)	43	35	28	27	30	7.7	2	1.6	1.6	1.7
p-value	0.003	0.003	0.04	0.02	0.01	0.07	0.09	0.15	0.66	0.09

All data are presented as median values (range).

Conclusion. 1) This first trial of RIPC in deceased donor transplantation suggests liver IPC may induce RIPC of kidneys. 2) Also, our data justify additional clinical trials of RIPC including potential protective effects on liver allografts.

Abstract# O-100

AN EVALUATION OF MORTALITY IN ADULTS AND CHILDREN WHO HAVE SURVIVED IN EXCESS OF 5 AND 10 YEARS SINCE LIVER TRANSPLANTATION.

Rachel H. Westbrook¹, Andrew D. Yeoman¹, Kosh Agarwal¹, Varuna Aluvihare¹, Georgina Mieli-Vergani¹, Anil Dhawan¹, Mathew Bowles¹, Mohamed Rela¹, John G. O'Grady¹, Nigel D. Heaton¹, Michael A. Heneghan¹. Institute of Liver Studies, King's College Hospital, London, United Kingdom

Introduction: Liver transplantation (LT) is an established treatment for end-stage liver disease with excellent early survival. Long term outcomes are hampered by side effects of immunosuppression and cardiovascular morbidity. Mortality in patients (adults and children) who survived for longer than 5- and 10-years post LT at King's College Hospital between 1988 and 2002 was analysed to characterise the causes of late death.

Results: There were 2265 LT between 1988 and 2002; 249 were retransplants; 501 were carried out in children (22%) and 1764 in adults (78%). In children, the indications for LT were biliary (49%), metabolic (21%), post hepatic (16%) and other (14%). In adults the indications were biliary (23%), viral/post hepatic (34%), drug induced/metabolic/alcohol (20%) and other/cancer (23%). Overall, 1492 patients survived beyond 5 years (5-year survival 74.1%). In children, 5 and 10 year survival was 83.9% and 74.9% respectively. In adults the 5 and 10 year survival was 71.3% and 63.7% respectively. In all patients who survived beyond 5 years there were 92 subsequent deaths. In children, the causes of death were sepsis (40%), graft failure (20%), malignancy (10%) and other/unknown (30%). In adults surviving beyond 5 years the causes of death were sepsis/multiple organ failure (MOF) (20%), malignancy (22%), disease recurrence/graft failure (11%), cardiovascular (13%) and other/unknown (34%). Only 16 deaths subsequently occurred in patients who survived for greater than 10 years. In these 16, causes of death were sepsis/MOF (31%), neoplastic (19%), cardiovascular (19%), disease recurrence/graft failure (12%) and other (19%). There was no statistical difference between the age at transplantation and death from malignancy, graft failure, cardiovascular disease or sepsis. The choice of immunosuppression was not associated with an increased risk of cancer, death from renal failure or development of graft dysfunction.

Conclusion: Late death following transplantation is attributable to 4 main categories; cardiovascular disease, graft failure, sepsis/MOF and neoplasia. Aggressive treatment of modifiable cardiovascular risk factors and education about early signs of infection may help to further reduce mortality in this patient population.

Abstract# O-101

LONG TERM OUTCOMES OF LIVING DONOR LIVER TRANSPLANTATION: ANALYSIS OF CONSECUTIVE 1000 PATIENTS AT A SINGLE CENTER.

Satoshi Kaihara¹, Kenji Uryuhara¹, Takako Yamada¹, Yasuhiro Ogura², Koichi Tanaka³, Shinji Uemoto². ¹Surgery, Kobe City Medical Center General Hospital, Kobe, Japan; ²Hepato-Pancreato-Biliary Surgery and Transplantation, Kyoto University, Kyoto, Japan; ³Foundation for Biomedical Research and Innovation, Kobe, Japan

[PURPOSE] Living donor liver transplantation (LDLT) is currently the most effective alternative to deceased donor liver transplantation to overcome the problem of organ shortage. The purpose of this paper is to summarize the

experience of LDLT in our institute and determine long term outcomes of LDLT. [METHODS] Retrospective analysis was performed in consecutive 1000 LDLT patients, including 600 of pediatric (< 18 years) and 400 of adult (≥ 18 years) patients, performed between June 1990 and December 2004 in Kyoto University Hospital. [RESULTS] Patient and graft survival were 80.0% and 79.4% at 1 year, 75.8% and 74.1% at 5 years, 71.5% and 68.1% at 10 years, and 67.8% and 63.7% at 15 years, respectively. In terms the original diseases for LDLT, biliary atresia has the best graft survival of 85.5% at 1 year, 83.0% at 5 years, 77.6% at 10 years, and 72.4% at 15 years, respectively. On the other hand, PSC has the worst graft survival of 78.6% at 1 year, 41.3% at 5 years, and 16.5% at 10 years, respectively. To review the incidence and causes of late graft or patient death, 663 patients with graft survived beyond 5 years were further analyzed. Fifty one patients died or lost their graft by following reasons; graft failure in 31 patients (including recurrence of original disease in 9 patients, chronic cholangitis in 9 patients, chronic rejection in 7 patients, vascular complications in 3 patients, and unknown in 3 patients), neoplasm in 3 cases, cardiovascular disease in 3 patients, unrelated death in 3 patients, recurrence of HCC in 2 patients, de-novo HCV liver cirrhosis in 2 patients, de-novo AIH in 2 patients, infectious disease in 1 patient, and unknown reason in 4 patients. Of those patients with graft failure, 22 patients were re-transplanted and 16 patients are currently alive. [CONCLUSIONS] Long-term patient and graft survival after LDLT for a large number of consecutive cases in our hospital were found to be as good as those for cadaveric liver transplantation. Graft failure was the main reason for the late graft or patient death; however, infectious diseases and immunosuppression-related complications did not play an important role in long term patient survival.

Fulminant Hepatic Failure

Abstract# O-102

MECHANISMS OF HEPATOCELLULAR DEATH IN ACUTE LIVER FAILURE OF INDETERMINATE AETIOLOGY IN CHILDREN. Ahlam Mustafa¹, Ragai Mitry¹, Kandala Ngianga-Bakwin², Munther Hussain¹, Anil Dhawan¹. ¹*Institute of Liver Studies, London, United Kingdom;* ²*Warwick Medical School, Coventry, United Kingdom*

Introduction-Indeterminate aetiology is the most common diagnostic entity ascribed to children with acute liver failure (ALF). Better understanding of the mode of cell death, apoptosis/necrosis in these patients by measuring by-products of cytokine cascades could help to elucidate the predominant pathway of cell death.

Aim -To study mechanisms of hepatocyte death in children with ALF of indeterminate aetiology (IE).

Methods-The study group comprised of 56 children (32 boys), diagnosed with ALF and had available serum and plasma samples obtained in the first week of diagnosis. Samples were analysed by ELISA for the following biomarkers of apoptosis: Fas ligand (FasL), TNF-related apoptosis-inducing ligand (TRAIL), cytochrome c (cyt c) and M30 epitope of cytokeratin 18 (CK 18), and its M65 epitope a marker of necrosis, and were compared to 14 healthy controls.

Results-The median age was 8.2 years (range 0 -15.9). Biomarkers were studied in 28 children of indeterminate aetiology (IE) and compared with viral infection (n=10), metabolic disorders (n=18) and normal control (n=14). The geometric means (95% CI) of the measured biomarkers: FasL (the apoptosis marker of the extrinsic pathway) was significantly higher in those presented with IE (173.4, CI 126.5-237.7), and viral infection (216.8, CI 158.2-296.9) compared to controls (63.4, CI 54.8-73.3), P<0.001 and P=0.003 respectively, and not the metabolic group (113.8, CI 85.4-151.8). TRAIL (the apoptosis marker of the extrinsic pathway) had significantly lower mean value in IE (47.3, CI 37.5-59.6), Infection (54.9, CI 24.1-125.3) and metabolic (34.1, CI 26.5-43.9), P=0.0015 compared to controls (89.6, CI 61.4-130.6). In the IE group both the necrosis marker M65 (3817.6, CI 2591.6-5623.4) and the apoptosis marker M30 (2151.1, CI 1611.2-2871.8) were significantly higher compared to controls (639.9, CI 465.3-880.01 and 677.1, CI 516.7-887.4) P=0.01 and P=0.003 respectively. There was no difference in the levels of cyt c (apoptosis marker of intrinsic pathway) between the study groups.

Conclusions

The results show that cell death in acute liver failure of indeterminate aetiology is secondary to both necrosis and apoptosis, and that apoptosis is mediated predominately through the extrinsic pathway via FasL but not TRAIL.

Abstract# O-103

RARE CAUSES OF ACUTE LIVER FAILURE: DIFFICULTY FOR DIAGNOSIS AND FOR TIMING FOR LIVER TRANSPLANTATION. P. Ichai^{1,2,3}, F. Saliba^{1,2,3}, C. Guettier^{1,2,3}, A. M. Roque-Afonso^{1,2,3}, T. M. Antonini¹, D. Castaing^{1,2,3}, D. Samuel^{1,2,3}. ¹*Centre Hepato-Biliaire, AP-HP Hopital Paul Brousse, Villejuif, France;* ²*UMR-S 785, Univ Paris-Sud, Villejuif, France;* ³*U 785, INSERM, Villejuif, France*

The most frequent causes of acute liver failure (ALF) include viral hepatitis, paracetamol, other drugs or toxins overdose and indeterminate causes. In addition to these etiologies, miscellaneous causes account for a large proportion of cases of ALF. Overall, the incidence of these etiologies varies from 11 to 23% and diagnosis, time to liver transplantation and outcome are not well known.

Patients. From 1983 to 2007, 547 patients with ALF, were referred to our liver intensive care unit. Among them, 109 patients (19%) presented ALF related to miscellaneous cause (43M, 66F, mean age: 38 ±18 years). These rare causes included ischemic hepatitis (n=32), fulminant Wilson (n=17), autoimmune hepatitis (n=18), mushroom ingestion (n=6), Budd-Chiari syndrome (n=5), neoplastic infiltration (n=6), herpes simplex virus (n=3), varicella (n=1), parvovirus B19 (n=1), hepatitis E virus (n=2), HELLP syndrome (n= 3), acute fatty liver of pregnancy (n=3), veno-occlusive disease (n=1), heat stroke (n= 8), and Reye syndrome (n=3). On admission, 62 patients (57%) have a hepatic encephalopathy. Mean values for factor V, ALT and AST, total bilirubin, and creatinine were: 23.7 ±13.7% (2-84), 2345 ±2427 IU/L (13-10450), 3077 ±3494 IU/L (42-14630), 239 ±279 µmol/L (9-1428), and 184 ±133 µmol/L (43- 654).

Results. In 34 patients (31%), a biopsy was performed and helped to initiate a specific treatment. 55 patients (50%) underwent liver transplantation because of deteriorating liver function and neurological status. Survival at 1 month in transplanted patients was 80%. 38 patients (35%) spontaneously improved. A higher number of patients with spontaneous improvement was observed in hypoxic hepatitis due to heart failure (15/15 patients) and heatstroke (5/8). No spontaneous improvement was observed in patients with neoplastic infiltration and fulminant Wilson. Sixteen patients (15%) died without liver transplantation. All presented a contraindication for liver transplantation either because of the etiologies or because of occurrence of irreversible complications.

Conclusion. The cause of ALF should be determined to initiate specific therapy and exclude etiologies contraindicating liver transplantation. The exact timing for liver transplantation remains to be determined in some of the rare etiologies.

Abstract# O-104

LIVER TRANSPLANTATION FOR FULMINANT LIVER FAILURE. Isabel Conde¹, Victoria Aguilera^{1,2}, Marina Berenguer^{1,2}, Angel Rubin¹, Cecilia Ortiz^{3,2}, Martin Prieto^{1,2}, Jose Mir⁴. ¹*Hepatology Unit, Hospital La Fe, Valencia, Spain;* ²*CIBER-EHD, Hospital La Fe, Valencia, Spain;* ³*Experimental Immunity Unit, Hospital La Fe, Valencia, Spain;* ⁴*Liver Transplant and Surgery Unit, Hospital La Fe, Valencia, Spain*

Fulminant liver failure (FLF) is a rare entity with high morbi-mortality. Liver transplantation (LT) has improve the outcome in the last years. Aim: To analyse etiology, characteristics and outcome of LT in patients with FLF in our center and to identify possible factors associated with mortality. Patients and methods: We studied retrospectively all LT patients due to FLF from 1991 to 2007. Data analysed were: demographics, race, clinical and biochemical pre-LT, complications post-LT, graft and patient survival and variables associated with survival. We compared the viral etiology against the others (cryptogenic-autoimmune and toxic). Results: 41 adult LT were done due to FLF (3.2% of all LT done in that period). Prevalence of LT due to FLF has increase over time. (0.04% from 91-95, 1.7% from 96-99, 3.7% from 00-03 and 5.4% from 04-07). Median age: 39 (15-70), 49% men, 88% caucasic. Viral etiology (34%) was the most frequent (92% HVB, 8% HVA) vs cryptogenic (29.3%), toxic (29.3%) and autoimmune (7.3%). Pre-LT: the most frequent presentation was the acute form (41%), 73% of patients had encephalopathy II/IV at LT, 34% renal insufficiency (creatinine>1.5mg/dl) and 37% mechanical ventilation. Most donors were compatible. Survival at 5th and 10th year was 75% respectively. Overall mortality was 24% and all of them occurred in the first month due to infections. In the early post-LT period the most frequent complications were: Infections (32%), renal insufficiency (29%) and primary dysfunction (36%). In the late post-LT the most frequent complications were: biliary complications (30%), renal insufficiency (22%)

and diabetes mellitus (17%). Diabetes mellitus pre-LT was the only variable associated with survival ($p=0.002$). The viral etiology had poor evolution in the early post-LT against the others (graft dysfunction 57% vs 26% ($p=0.04$) and re-LT 21% vs 0% ($p=0.04$). Conclusions: LT improves survival of patients with FLF. To identify pre-LT factors is important to select patients candidates to LT. The viral etiology had an early poor outcome post-LT.

Abstract# O-105

CADAVERIC AND LIVING DONOR LIVER TRANSPLANTATION FOR ACUTE ON CHRONIC LIVER FAILURE PATIENTS CAUSED BY HEPATITIS B: A PRELIMINARY REPORT OF 100 CASES. Shi-chun Lu.

Hepatobiliary Surgery Department and Liver Transplantation Center, Beijing You-An Hospital, Capital Medical University, Beijing, China

Objective: To summarize the experience of cadaveric donor Liver transplantation (CDLT) and living donor Liver transplantation (LDLT) for acute on chronic (A-on-C) liver failure caused by Hepatitis B. **Methods:** The clinical and follow-up data of 100 cases (90 CDLT, 10 right lobe LDLT) from June 2004 to Dec 2008 were analyzed retrospectively. **Results:** All the 100 cases had Child C liver function, the mean MELD score is 31.66.3. Prior to LT, most of them suffered one or more complications including renal dysfunction (43/100, 43%), hepatic encephalopathy (36/100, 36%), lungs infection (27/100, 27%), primary peritonitis (19/100, 19%), hepatorenal syndrome (23/100, 23%), alimentary tract hemorrhage (17/100, 17%). 71 cases underwent at least 1 time plasmapheresis or continuous hemofiltration. 79 cases (79/100) were HBV active replicative pre-LT. 16 cases died within 30 days post-LT (14 in CDLT and 2 in LDLT group), and the perioperative mortality is 16%. Leading post-LT complication was lungs infection (42/100, 42%). There was no occurrence of primary liver nonfunction. The overall biliary complication accounts for 11% (11/100, 9 cases in CDLT and 2 cases in LDLT). Perioperative survival is 80% (67/84) for both group and 1-year survival is 70% (CDLT) and 80% (LDLT) respectively. No significant differences of perioperative complications and 1-year survival were presented between CDLT and LDLT. Lamivudine or Entecavir combined low dose HBIG were used against HBV reinfection or HB recurrence with perfect outcome during a mean 25-months follow-up. **Conclusion:** A-on-C liver failure transplant candidates are associated with frequently severe damaged liver function, multiple-organ impairment and inner environment disturbance. Much effort should be done to obtain an improved organ function and better inner environment pre-LT. While during surgery, attention should be paid to improve the hemagglutination function, urine output as well as shrinking the operation time, and furthermore preserves the vital organs function potential during ICU stay, the appropriate living graft volume, the reasonable use of immunosuppressant, the effective prophylaxis for acute lungs injury and secondary infections post-LT. With sufficient efforts in all the aspects listed above, A-on-C liver failure patients underwent LT could expect a satisfactory outcome and a better life quality for both CDLT and LDLT.

Abstract# O-106

RETRANSPLANTATION IN FULMINANT HEPATIC FAILURE-A SINGLE CENTRE EXPERIENCE OVER 15 YEARS. Vivekanandan Shanmugam, Chandrashekar Bhatti, Ravi Maruthanayagam, John Buckels, David Meyer, Darius Mirza, Bridget Gunson, Simon Bramhall. *HPB & Liver Transplantation, Queen Elizabeth Hospital, Birmingham, West Midlands, United Kingdom*

Liver Transplantation seems to be the only treatment option when conservative management fails for patients in fulminant hepatic failure (FHF). Selection of recipient and timing of the transplant is of paramount importance. Retransplantation occurs more frequently in emergency transplantation than elective transplantation. The aim of this study was to analyze our experience with Liver Retransplantation in patients transplanted for FHF.

Methods: The clinical and demographic data for this retrospective study from 1992-2007 was collected from our dedicated transplant database. During this period a total of 1237 adult patients were admitted for FHF at our centre. Three hundred twenty seven patients fulfilled the criteria for urgent liver transplant (category I). Two hundred sixty three patients were transplanted in this cohort. Eighteen patients (7.06%) were retransplanted second time and two patients for third time.

Results: Most common cause of retransplant was Hepatic artery thrombosis (6) followed by chronic rejection (5). Six patients required retransplant within 30 days of primary transplant. Median age at the time of retransplant was

32.3 years (16.4-59.8) and mean age of 34.4 years (SD+/-12.6). Median duration between primary and retransplant was 186.5 days (1-3845). Only two patients required third retransplantation for chronic rejection and haemorrhagic necrosis. Total 3 deaths were recorded. Two died after second transplant because of sepsis and multiorgan failure. One patient died after third transplant due to Hepatic artery thrombosis on day 3.5 years & 10 years patient survival was 81%. The 5 year & 10 year graft survival was 81% and 72% respectively.

Conclusion: FHF is established cause for transplantation and need urgent intervention. Retransplantation in this group has a very good prognosis and should be considered. Third time transplant doesn't have good prognosis. In the era of organ shortage, decision of multiple transplant should be considered judiciously.

Abstract# O-107

PREDICTIVE CRITERIA FOR PATIENTS OUTCOME WITH ACUTE LIVER FAILURE: ALBUMIN DIALYSIS MARS. Gilnardo Novelli, Massimo Rossi, Francesco Pugliese, Simone Novelli, Vincenzo Morabito, Pasquale Berloco. *La Sapienza University, Rome, Italy*

METHODS: In Intensive Care Unite (ICU) we treated 44 patients with Fulminant Hepatitis (FH) (23 female and 21 male) with a mean age 29.5 (range 3-56). Continuous MARS treatment was carried on all patients. During treatment the concentration of albumin and albumin bound-toxins changes both in the circuit and in the patient from hour to hour. We found ideal concentrations for every patient supported by a study among our clinical data and the mathematical model. Detoxification is directly correlated to albumin concentration in patient. The higher the concentration, the more toxins are removed. Ratio of albumin concentration in patient and albumin level in circuit must however remain constant. The duration of these optimal albumin levels is functional to the removal of all specific toxins and this treatment is proportional to the concentration of albumin in blood and circuit. Changes in albumin concentrations and length of treatment do not alter the safety. From time to time we increased the albumin in blood or in the circuit.

RESULTS: Of the 44 patients, thirty two of which survived, 18 went to the transplant while 14 have continued extracorporeal method for a maximum period of 17 days indicating a positive resolution of the clinical condition. When we obtain an improvement of GCS (from 7-8 to 10-11), lactates levels <3mmol/L, SIRS and a change in hemodynamic instability from hyperkinetic to normal kinetic condition between 30 and 50 hours with the treatment MARS, we decide to continue extracorporeal treatment. Twelve patients have died, including 3 before transplant for multi organ failure, while nine after transplantation.

CONCLUSION: In our Department the MARS is standard bridging therapy in association with Intensive Care Unite for FH patients either to optimize the clinical status for Liver Transplantation (LT) or resolution without necessity to LT. The results urge us to continue in this search by adjusting the number of patients to be treated. Given the favourable results (?) we have set the doubt if the protocols to define a Fulminant Hepatitis are totally satisfactory or some FH are not such!

Abstract# O-108

THERAPY OF ACUTE HUMORAL REJECTION AFTER HUMAN LIVER TRANSPLANTATION. Sascha Weiss¹, Constanze Schoenemann², Andreas Pascher¹, Frank Ulrich¹, Anja Reutzel-Selke¹, Ulf Neumann¹, Peter Neuhaus¹, Johann Pratschke¹. ¹Department for General, Visceral and Transplantation Surgery, Charité-Universitätsmedizin Berlin, Clinic Virchow, Berlin, Germany; ²Department for Transfusion Medicine, Charité-Universitätsmedizin Berlin, Clinic Virchow, Berlin, Germany

Introduction: Humoral rejection after liver transplantation is a rare event. Beside the occurrence of steroid resistant rejections, criteria for diagnosis include a positive crossmatch, the detection of donor specific HLA-antibodies and the detection of C4d deposits in biopsies. The humoral rejection is defined as an immunological reaction against donor antigens mediated by complement-binding antibodies.

Material and methods: From January 2005 to December 2008 we carried out a total of 494 liver transplantations in our department. In 5 patients after ABO-compatible liver transplantation humoral rejection was diagnosed and required treatment. The diagnosis was supported by a positive crossmatch before transplantation, the detection of panel-reactive antibodies (PRA) and the immunohistochemical detection of C4d in liver explants or biopsies.

Results: All patients showed a positive crossmatch before transplantation, in 4 of 5 patients we detected panel-reactive antibodies. All patients demonstrated C4d deposits in biopsies or in liver explants in case of retransplantation. The initial immunosuppression included tacrolimus and steroids. 2 of 5 patients received an induction therapy with basiliximab. After diagnosis of humoral rejection we treated all patients with daily plasmapheresis and administration of high dose immunoglobulins. One recipient was treated with an anti-CD20 antibody. Complications such as thrombopenia and leucopenia were registered in all cases but without treatment consequences. Despite early therapy retransplantation was necessary in 3 of 5 patients with 1 patient being retransplanted a second time. At the time of discharge all recipients showed an excellent hepatic function with normal laboratory values.

Conclusion: The acute humoral rejection is a rarely but severe complication after human orthotopic liver transplantation. Our experience shows, that an effective therapy of acute humoral rejection can be achieved by an early and accelerated treatment.

Abstract# O-109

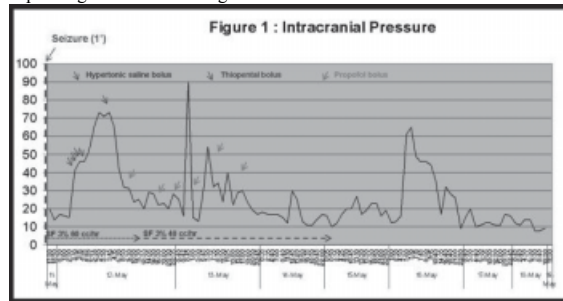
INTRACRANIAL PRESSURE IN ACUTE LIVER FAILURE: VALUABLE INFORMATION OR CONFOUNDING TOOL?

Sergio Alvarez, Mario Arcos, Jorge Contreras, Giulio Innocenti. *Multiorgan Transplant, Davila Clinic, Santiago, Chile*

Introduction: Acute liver failure (ALF) represents one of the main causes of Liver transplantation (OLT) in Chile. The etiology of brain edema is multifactorial and represents one of the most important causes of mortality. Use of intracranial pressure (ICP) monitoring is controversial, and its main objective points to improve the management as well as defining the timing of OLT in these patients. We present a clinical case of FHF with brain edema and severe intracranial hypertension for at least three hours of monitoring and complete neurologic recovery although his deadly prognosis.

Case: 22 y/o male without past medical history. History of 1 week of fatigue, jaundice and fever with G II encephalopathy. Labs: T Bilirubin 21 mg/dl, INR 11, SGOT and SGPT elevated and normal renal function at the admission. Etiologic panel shows an AgsVHB (+). In 12 hours the patient was admitted to ICU, connected to MV, subdural bolt for ICP monitoring was placed, connected to MARS, antiviral treatment started (adefovir), and listed as status I for OLT. Patient presented generalized seizures associated to ICP > 30mmHg and decreased cerebral perfusion pressure (CPP) > 2 hrs. See figure 1. In the next days presented and extremely abnormal EEG with absence of corneal and pupil reflexes. However never presented hemorrhagic lesions in the CAT scan and since the fourth post admission day begins to improve his neurologic activity and his liver function

Discussion: FHF represents a real challenge for liver transplant teams. This case although his poor initial prognosis presents complete neurologic recovery, and does not support the adoption of any policy to abort OLT depending of ICP monitoring.



Abstract# O-110

SURGICAL OUTCOME OF LIVING DONOR LIVER TRANSPLANTATION TO NEONATAL/INFANTILE FULMINANT HEPATIC FAILURE.

Takuya Kimura¹, Mureo Kasahara¹, Akinari Fukuda¹, Takanobu Shigeta¹, Kazunari Sasaki¹, Satoshi Nakagawa², Shuichi Ito³, Atsuko Nakagawa⁴, Akira Matsui⁵. ¹Transplant Surgery, National Center for Child Health and Development, Setagaya, Tokyo, Japan; ²Intensive Care, National Center for Child Health and Development, Setagaya, Tokyo, Japan; ³Urology, National Center for Child Health and Development, Setagaya, Tokyo, Japan; ⁴Pathology, National Center for Child Health and Development, Setagaya, Tokyo, Japan; ⁵President, National Center for Child Health and Development, Setagaya, Tokyo, Japan

Background: Recent aggressive renal and hepatic support therapy as well as medical management has been improved the outcome of pediatric fulminant hepatic failure (FHF). However, it is known that prognosis of neonatal/infantile FHF is poor and mortality is more than 90%. We report our recent experience of neonatal/infantile FHF who underwent living donor liver transplantation at national center in Japan.

Methods: In the past 3 years, we experienced 9 cases of neonatal/infantile FHF. Among them, 6 cases were male, ages ranged from 28 days to 14 months (median 6 months), body weight ranged from 2.8 to 9 kg (median 8 kg). All cases initially treated with mechanical ventilation, continuous veno-venous hemodiafiltration and plasma exchange. Since all cases deteriorating liver function and histology of liver biopsy showed scarce hepatocyte, living donor liver transplantation (LDLT) was indicated in all cases.

Results: All donors were one of the parents and 2 cases were blood type incompatible. Two cases required hyperreduced left lateral segment to adjust graft recipient body weight. Six cases underwent roux-en Y biliary reconstruction. Operation time was ranged from 428 to 938 minutes, and blood loss was ranged from 45 to 434 ml/kg. Warm ischemic time was ranged from 28 to 60 minutes. Immunosuppression was maintained with tacrolimus and steroids, and no case required additional immunosuppressant. Two cases developed mild rejection 16 and 32 days after transplant. No case developed vascular complications, but 1 case showed intraabdominal bleeding 4 days after transplant and required laparotomy. Two cases (each one with Rou-en Y and duct-to-duct) developed biliary stricture, and 1 case required percutaneous transhepatic biliary drainage. Patient and graft survival rate was 100% during median follow up of 15 months.

Conclusions: Aggressive renal and hepatic support treatment as well as LDLT is an effective alternative for the treatment of neonatal/infantile FHF.

Abstract# O-111

SPLIT LIVER TRANSPLANTATION IN CHILDREN: A 10 YEARS SINGLE CENTER EXPERIENCE.

V. Corneo, M. C. Dezza, A. Lucianetti, D. Pinelli, F. Tagliabue, M. Guizzetti, M. Zambelli, A. Aluffi, M. Bravi, P. Stroppa, D. Codazzi, G. Torre, M. Colledan. *Liver and Lung Transplantation Center, Ospedali Riuniti, Bergamo, Italy*

Introduction: Split liver transplantation has been adopted as an alternative to expand the organ donor pool. We analyzed the experience at our Center with split liver grafts using left lateral segment (LLS segments II and III), extended right (ER segments I,IV-VIII) and full left (FL segments I-IV) over a period of 10 years. **Material and Methods:** Between October 1997 and October 2007 we performed a total of 372 liver transplants in 330. Among the 312 children who received a primary isolated liver transplant, 249 were transplanted with a split liver graft. The 63 recipients of a whole size graft were used as a control. Both ideal donors and donors beyond the ideal criteria for splitting have been used as well. **Results:** 249 children received a split graft (232 LLS, 12 ERG and 5 FL) and 63 a whole size graft. The donors of a split liver graft were significantly older than those of a whole graft (mean $\pm$ sd 27.2 $\pm$ 15.9 vs 14.8 $\pm$ 19.5 p=0,0001). Biliary complications occurred in 30% of the recipients of a split liver graft and 3% of the recipients of a whole size graft (p < 0,0001). Among the recipients of a split graft 1 and 5 years patient / graft survival was 91%/84% and 87%/80% respectively. More in details 1 and 5 years patient and graft survival was 90%/84% and 87%/80% for the recipients of a LLS graft, 92%/83% both at 1 and 5 years for ER grafts and 100%/100% and 67%/67% for the FL grafts. The recipients of a whole size graft had a 1 and 5 years patient / graft survival of 84%/78% and 83%/74%.

Conclusion: Incidence of biliary complications is significantly higher using a split graft. A pre-emptive approach in detecting and managing the biliary complications led to excellent results in terms of patient and graft survival among the recipients of a partial liver graft. At a high volume Center, use of split liver grafts reached even better results of a whole liver graft in terms of patient and graft survival. Thus, the use of split grafts should be strongly encouraged to expand the donor pool.

Abstract# O-112

LONG-TERM OUTCOME AFTER URGENT REVASCULARIZATION FOR HEPATIC ARTERY THROMBOSIS AFTER PEDIATRIC LIVER TRANSPLANTATION. Nienke Warnaar¹, Wojciech G. Polak¹, Paul M. Peeters¹, Koert P. de Jong¹, Marieke T. de Boer¹, Maarten J. Slooff¹, Henk Jan Verkade², Robert J. Porte¹. ¹Department of Hepatobiliary Surgery and Liver Transplantation, University Medical Center Groningen, Groningen, Netherlands; ²Department of Pediatrics, University Medical Center Groningen, Groningen, Netherlands

Objectives: To determine long-term results of urgent surgical revascularization for hepatic artery thrombosis (HAT) after pediatric liver transplantation.

Background data: HAT after pediatric liver transplantation is a serious complication. If left untreated, it may result in bile duct necrosis, often requiring retransplantation. Although immediate surgical thrombectomy/thrombolysis has been reported as a potentially successful treatment to restore arterial blood flow and to avoid urgent retransplantation, the long-term results of this strategy remain to be determined.

Methods: In a consecutive series of 232 pediatric liver transplantations we analyzed long-term outcome after urgent revascularization for early HAT. HAT developed in 32 (13.7%) patients. Median follow-up in children with HAT was 5.9 years. In 16 children (50%) immediate surgical thrombectomy was performed in an attempt to salvage the graft. Fourteen (44%) patients were listed for urgent retransplantation. Two other patients (6%) died before any further intervention.

Results: Immediate thrombectomy resulted in long-term restoration of the hepatic artery flow in 6/16 patients (37.5%). Only 1 patient developed biliary strictures despite successful thrombectomy. In 10 patients revascularization of the hepatic artery was not successful and retransplantation inevitable. If thrombectomy was successful one- and five-year graft survival rates were 83% and 67%, respectively. Patient survival rates were similar. When thrombectomy was unsuccessful, one and five-year patient survival decreased to 50 and 40%, respectively. Five-year patient survival after immediate retransplantation was 71%.

Conclusions: In conclusion, immediate surgical thrombectomy for HAT after pediatric liver transplantation results in long-term graft salvage in about one-third of the patients. If adequate restoration of arterial blood flow can be obtained long-term graft and patient survival is good. However, when thrombectomy is not successful and retransplantation inevitable, long-term patient survival is lower than in patients who underwent immediate retransplantation without prior attempt to restore arterial blood flow.

Abstract# O-113

PROGNOSTIC FACTORS OF LIVING DONOR LIVER TRANSPLANTATION FOR CHILDREN AT A SINGLE CENTER. Seak Hee Oh¹, Joo Young Jang¹, Kyung Mo Kim¹, Dae Yeon Kim², Kwang Min Park², Young Joo Lee², Sung Gyu Lee². ¹Pediatrics, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea; ²Surgery, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea

Purpose: Living donor liver transplantation (LDLT) has proven to be an established curative treatment for children with irreversible liver diseases, because of the scarcity of size-matched deceased donor, timely availability, and quality of liver grafts. The aim of our study is to reveal the prognostic factors that influence poor outcomes of pediatric LDLT at a single center.

Method: The medical records and computerized databases of children under 18 years of age undergoing LDLT between 1994 to 2006 were reviewed retrospectively. Perioperative variables were analyzed, including PELD/MELD scores, UNOS status 1a and 1b. Outcomes were measured by overall graft and patient survival. Univariate and multivariate statistical analysis was undertaken using Cox's proportional hazards model.

Results: 120 children with median age of 23 months (53 boys, 67 girls) experienced 122 pediatric LDLT. Biliary atresia (61.6%), acute liver failure

(15.8%), Wilson's disease (9.2%), cryptogenic liver cirrhosis (5%), urea cycle disorders (2.5%), progressive familial intrahepatic cholestasis (1.7%), and 4.2% for other causes. Graft types were almost left (95.8%) and median graft-to-recipient weight ratio was $2.21 \pm 1.14\%$ (range 0.66, 5.76). The overall survival rates of graft at 1, 5, and 10 years were 87.7%, 81.5%, and 81.5%, and the survival rates of patient were 91.6%, 84.3%, and 84.3%. The median follow-up duration was 82.5 ± 48.5 months. In multivariate analysis, PELD scores ($P < 0.01$, hazard ratio=1.08, CI: 1.02, 1.14), hepatic artery thrombosis ($P < 0.01$, hazard ratio=8.61, CI: 2.58, 28.69), and chronic rejection ($P < 0.01$, hazard ratio=5.74, CI: 1.91, 17.19) were independently correlated with graft survival. PELD scores ($P = 0.04$, hazard ratio=1.07, CI: 1.00, 1.15), UNOS status 1a and 1b ($P < 0.01$, hazard ratio=10.20, CI: 3.40, 30.63), and chronic rejection ($P < 0.01$, hazard ratio=10.23, CI: 2.73, 38.32) were independently correlated with patient survival.

Conclusion: Our study revealed excellent long-term outcomes of pediatric LDLT in a single center. PELD scores could be the preoperative prognostic factors in both and patient survival, and chronic rejection still influenced both patient and graft survival in our study.

Abstract# O-114

AGE AND ETIOLOGY RELATED OUTCOME OF ACUTE LIVER FAILURE IN PAEDIATRIC AGE GROUP. Naresh P. Shanmugam, Sathyaseelan Jayaseelan, Anil Dhawan. Kings College Hospital, London, United Kingdom

Aim: To determine the effect of age, etiology and liver transplantation on outcome of acute liver failure (ALF) in pediatric age group.

Method: Retrospective review of the case records of patients presented with ALF (defined as, INR > 2 not correctable by I.V vitamin K, along with biochemical evidence of liver dysfunction). The patients were classified into neonates (≤ 28 days), infants (≤ 1 yr), children (≤ 12 yrs) and adolescents (≤ 17 yrs) and the etiology, management and outcome were analysed.

Results: 215 patients (105 males) which includes 42 neonates, 23 infants, 95 children, and 55 adolescents, were diagnosed with ALF at a median (range) age of 11(1-28) days, 138(32-327) days, 4.5(1.1-11.4) yrs and 14.7(12.4-17) yrs respectively. The overall etiology of ALF were indeterminate 68(32%), drug induced 51(24%), viral 23(11%), neonatal haemochromatosis 17(8%), metabolic 15(7%), autoimmune 13(6%), wilson's 10(4%), and miscellaneous 18(8%). Medical management included supportive and disease specific, but patients with INR > 4 with liver specific disease were listed for liver transplantation. Of 102 patients listed, 82 underwent liver transplantation with a median (range) of 2(1-62) days from the time of listing and 20 were not transplanted, as either they died while waiting for organ or removed from list as their liver recovered. At one year, 92 children were alive without transplant, 41 died without transplantation, 18 died post transplant and 9 required re-transplantation. Duration of invasive ventilation ($p < 0.02$), need for inotrope ($p < 0.00$), haemofiltration ($p < 0.02$) and exchange transfusion ($p < 0.003$) were significantly associated with mortality while the presence of an ICP bolt has no effect. The overall survivals were 48%, 65%, 80% and 90% in neonates, infants, children and adolescents respectively. Survival analysis with regard to etiology showed no significant difference in outcome in liver transplanted patients ($P < 0.54$), while survival remained etiology dependent in other groups (listed but not transplanted ($P < 0.01$) and non-listed patients ($P < 0.007$)). This implies liver transplantation alters the natural course of illness and improves survival.

Conclusion: Etiological diagnosis could be made in 68 % of patients. Transplant free survival was etiology dependent while etiology has no effect on post transplant survival. Acute liver failure in neonates carries high mortality and mortality decreases with age.

Abstract# O-115

LIVER TRANSPLANTATION IN CHILDREN WITH GLYCOGEN STORAGE DISEASE: REVISITING THE LONG-TERM OUTCOME. Chao-Long Chen, Allan M. Concejero, Chin-Hsiang Yang, Chih-Chi Wang, Shih-Ho Wang, Yueh-Wei Liu, Chee-Chien Yong, Tsan-Shiun Lin, Bruno Javan, Yu-Fan Cheng. Liver Transplant Program, Chang Gung Memorial Hospital-Kaohsiung Medical Center, Kaohsiung, Taiwan

Objective: We present our institutional experience in liver transplantation for children with glycogen storage disease (GSD).

Methods: From March 1996 to December 2008, 14 pediatric liver transplantations for GSD were done (13 living donor and one split liver transplantation). The data were retrospectively collected and analyzed.

Results: There were 9 female and 5 male patients. All demonstrated failure of medical treatment. All patients presented with metabolic abnormalities including hypoglycemia, and lactic acidosis. In addition, 4 patients presented with growth retardation. Ten patients had GSD type I and 4 had GSD type III. All the GSD type I patients were subtype Ia. Of the 4 children with GSD type III, 2 were subtype IIIa based on debranching enzyme deficiency in the liver and muscle tissues. In the earlier 2 GSD type III patients, only liver biopsy was done. The mean age, weight, and height at time of transplantation were 4.1 years, 114 cm and 23 kg, respectively. The mean liver volume was 1366 cm³. The transplantations were performed utilizing 8 extended left lateral segmentectomy, 2 left lateral segmentectomy, 2 left lobectomy, 1 extended left lobectomy, and 1 right lobectomy with segments 5 and 8 veins reconstructed grafts (13 left-side grafts, and 1 right-side graft). The mean graft-to-recipient weight ratio was 1.25 (range, 0.89-1.61). Two patients had hepatic vein stenoses which were treated by balloon dilatation; one patient had bile leak which settled spontaneously. The overall surgical morbidity rate was 25%. Two patients had hepatic adenomas in the explanted liver. One received retransplantation due to early graft failure. There was a single mortality at 2 months posttransplantation due to acute pancreatitis and sepsis. The mean follow up was 50 months. The metabolic abnormalities were corrected and renal function remained normal. In patients with growth retardation, catch-up in growth was achieved post-transplant.

Conclusion: Liver transplantation restores normal metabolic balance in patients with GSD when medical treatment fails. Long-term follow-up after transplant for GSD shows excellent graft and patient survivals.

Abstract# O-116

PEDIATRIC LIVER TRANSPLANTATION AT THE EXTREMES OF BODY MASS INDEX. Andre A. Dick¹, James D. Perkins¹, Oliver Lao¹, Austin L. Spitzer¹, Patrick J. Healey², Jorge D. Reyes¹. ¹Dept of Surgery, University of Washington, Seattle, WA, USA; ²Dept of Surgery, Seattle Children's Hospital, Seattle, WA, USA

Controversies exist regarding the mortality of patients undergoing liver transplantation at the extremes of body mass index (BMI). For pediatric liver transplantation, weight is usually the only factor considered in survival analysis. A review of the United Network for Organ Sharing database from 1987 through 2007 revealed 8,581 pediatric (<18 yr old) primary liver transplants. Patients were stratified into 5 BMI categories established by the World Health Organization according to their Z score based on age, gender and BMI: -3, -2, 0, +2, and +3. Survival rates were compared among these 5 categories using Kaplan-Meier survival curves with log-rank test. Patients with thinness (Z score -2) and severe thinness (Z score -3) had significantly ($P<0.0001$) lower survival (84.4%) at 1 year compared to the survival (88.7%) of normal and overweight groups (Z score 0 and +2). Obese patients (Z score +3) had no significant difference in survival early after transplantation, but their mortality gradually increased in the later years after transplantation. By 12 years after liver transplantation, the obese group had significantly ($P=0.04$) lower survival (72%) than the survival (77%) of the normal and overweight groups. There were 1105 (13.9%) patients in the thinness and severe thinness groups, 654 (8.2%) patients in the obese group, and 6,183 (77.9%) patients in the normal and overweight groups. Compared to the normal and overweight groups, the major diagnosis of cholestasis was significantly ($P<0.0001$) more prevalent in the thinness and severe thinness groups (63.6% compared to 53%), while acute hepatic necrosis was more prevalent in the obese group (18.8% compared to 12.3%). Age <1 year old was significantly ($P<0.0001$) more prevalent in thinness and severe thinness patients (55.2%) compared to the normal/overweight and obese groups (34%). More reduced livers went to the thinness and severe thinness groups, while more whole livers went to the obese group. There was no difference in the retransplant rate between groups. In conclusion, liver transplantation holds increased risk for patients at the extremes of BMI. Thin pediatric patients have an early mortality after liver transplantation, and obese pediatric patients experience a late mortality after liver transplantation. Transplant management can be modified to optimize the care of these patients.

Abstract# O-117

LIVER DYSFUNCTION FOLLOWING PEDIATRIC MULTIVISCERAL TRANSPLANTATION. Robert S. Venick, Khiet Ngo, Sue V. McDiarmid, Joanie Colangelo, Yvonne Esmailian, Sherilyn Gordon, John Duffy, Marvin E. Ament, Ronald W. Busuttil, Douglas G. Farmer. *David Geffen School of Medicine at UCLA, Los Angeles, CA, USA*

BACKGROUND: This study describes in detail liver dysfunction following pediatric multivisceral transplantation (MVTx).

METHODS: An IRB-approved, retrospective, single-center cohort study of all pediatric MVTx recipients with > 6 mo graft survival was conducted. Liver function tests were collected serially post-Tx. Graft dysfunction was defined as ALT>100 (U/L), or T or D bilirubin ≥ 2.0 or ≥ 1.0 (mg/dL) respectively. 18 demographic & clinical variables related to nutrition, surgery, immunosuppression, hospitalization & infection were analyzed (Chi-square) as potential predictors of graft dysfunction.

RESULTS: Between 1991-2008 33 patients met inclusion criteria. Leading indications for MVTx=gastrochisis & NEC. Median age at MVTx=2.1 yrs, follow-up time= 3.5 yrs, cold & warm ischemia time (WIT)= 6.5 & 0.6 hrs, tube feeds started= 7 days & TPN weaned off=33 days post-MVTx. LFTs are shown in Table 1.

Median Liver Function Tests (LFTs)

	ALT / AST (U/L)	T/ D Bilirubin (mg/dL)	Alkaline Phosphatase (U/L)	Albumin (g/dL)	% of Pts with Graft Dysfunction
Pre-Tx	115 / 278	15.5/ 8.9	197	2.8	
Day +3	148/ 146	3.7/ 2.3	72	2.8	
Day +7	47/ 48	3.0/ 1.4	96	2.7	76
Day +30	33/ 42	1.4/ 0.5	255	2.9	31
Initial Hospitalization*	26/ 30	0.5/ 0.2	199	3.1	12
Day +180	21/ 32	0.4/ 0.1	179	3.5	9
Day +365	28/ 23	0.2/ 0.1	165	3.3	7
Year2	40/ 20	0.2/ 0.1	171	3.6	0
Year3	25/ 37	0.5/ 0.1	174	3.9	5
Year4	17/ 28	0.4/ 0.1	150	3.9	7
Year5	19/ 28	0.4/ 0.1	157	3.7	0

*Median time of initial hospitalization=76 days

Predictors of graft dysfunction at +30 days were: sepsis ($p=0.04$) & WIT > 60 minutes ($p=0.08$); predictors at +180 days were: age at MVTx <2 y/o ($p=0.05$) & >100 hospitalization days ($p=0.04$).

32 percutaneous liver biopsies were performed during the first year post-MVTx. At the time of biopsy 60% of patients had evidence of liver & intestinal graft dysfunction vs. 40% had liver only dysfunction. 22% ($n=7$) of biopsies revealed acute cellular rejection (ACR). In contrast 28 episodes of ACR of the intestine occurred over this same time.

CONCLUSIONS: Liver function following pediatric MVTx is excellent. ACR of the liver is relatively rare, if it occurs it tends to be in the first 60 days post-MVTx & is associated with sepsis and prolonged WIT.

Abstract# O-118

GLOMERULAR FUNCTION FOLLOW UP AFTER SIROLIMUS IMMUNOSUPPRESSION CONVERSION IN PEDIATRIC OLT PATIENTS WITH RENAL IMPAIRMENT.

Carlos E. Gonzalez Cambaceres, Alexia Diaz Moreno, Maria C. Fernandez, Luis D. Rojas, Oscar C. Imventarza. *Liver Transplantation Service, Hospital de Pediatria Prof Dr Juan P. Garrahan, Buenos Aires, Argentina*

Background: Orthotopic Liver Transplant(OLT) has been considered the definitive treatment for acute or chronic end stage liver diseases. Several factors contribute to renal impairment after OLT. **Aim:** Report Glomerular Filtration Rate (GFR) and proteinuria changes after sirolimus immunosuppression conversion during 36 months of follow up. **Patients and Methods:** Pediatric OLT patients (p) with CNI nephrotoxicity and renal vesical previous abnormalities were converted to Sirolimus(SRL) since June 2002 up to December 2007, and one year or more of SRL monitoring were included. Renal biopsy was not performed. **Results:** A total of 29 patientes were evaluated 23 p, 15p male, were converted due to CNI renal toxicity. Mean age at conversion(Conv) 152 $\pm$ 45 months. OLT etiology fulminant liver failure 12p, biliary atresia 5p, cirrhosis 6p. Living related donor 7p. Mean time after OLT at Conv 78 $\pm$ 38 months. Immunosuppression at Conv CsA 15p and FK506 8p. Mean time of follow up after Conv 26 $\pm$ 10 months. The other 6 p had previous renal abnormalities: 2p monoreno, 1p vesicoureteral reflux, 1p Alagille Sme., 1p α 1AT deficiency and 1p polycystic kidney. 4p female. Mean age at conv 141 $\pm$ 19 months. OLT etiology: 2p biliary atresia, 2p cirrhosis, 2p cholestasis. Cadaveric donor 6p. Mean time after OLT at conv 94.5 $\pm$ 40

months. Immunosuppression pre Conv CsA 5p and FK 506 1p. Mean time of follow up after Conv 45 ± 10 months.

Glomerular Function					
	Proteinuria pre Conv. mg/K/day	Proteinuria at 12 months of Conv. mg/K/day	Proteinuria at 24 months of Conv. mg/K/day	Proteinuria at 36 months of Conv. mg/K/day	GFR by Schwartz Formulae at Conv
23 p	(10p) 13.8 ± 8.6	(10p) 11.1 ± 11	(10p) 15.5 ± 21.7	(5p) 9.1 ± 4.1	67 ± 18 ml/min/1.73m ²
6 p	(6p) 8 ± 3	(6p) 8 ± 5	(6p) 8 ± 4	(6p) 11 ± 7	85 ± 31 ml/min/1.73m ²
					114 ± 30 ml/min/1.73m ²
					97 ± 47 ml/min/1.73m ²

Conclusions: After the conversion to Sirolimus immunosuppression the glomerular filtration rate in those patients with nephrotoxicity due to CNi improved significant statistically and the group of patients with previous renal impairment remained stable. Proteinuria still a mayor concern in pediatric OLT patients despite dietary restrictions and the use of the ACE inhibitors.

Recurrent Disease/Pathology

Abstract# O-119

WEANING OF HBV PROPHYLAXIS AFTER LIVER TRANSPLANTATION: PRELIMINARY RESULTS IN PATIENTS WITH UNDETECTABLE cccDNA IN LIVER TISSUE. Giuseppe Tisone¹, Ilaria Lenci², Luca Toti¹, Tommaso M. Manzia¹, Daniele Sforza¹, Matteo Manuelli¹, Manuele Berlanda¹, Mario Angelico². ¹Liver Transplant, University of Rome Tor Vergata, Rome, Italy; ²Hepatology, University of Rome Tor Vergata, Rome, Italy

Background. The risk of HBV reactivation after liver transplantation is due to persistence of the viral genome as covalently closed circular (ccc) DNA. We investigated the feasibility and safety of complete withdrawal of HBV prophylaxis in a cohort of transplanted patients considered at low risk of HBV recurrence. **Methods.** We studied 30 patients (age 54 ± 9 yrs) transplanted for HBV-related cirrhosis already found to have undetectable intrahepatic total and ccc-DNA after a minimum of 3 years after transplant. All were HBsAg positive and HBeAg negative and with undetectable HBV-DNA at transplant. The mean follow-up after transplant was 112 months (range=39-179). All patients underwent HBIG withdrawal and were initially continued on lamivudine, with quarterly monitoring of serum HBsAg and HBV-DNA. After 24 weeks from HBIG withdrawal, a further liver biopsy for intrahepatic total and cccDNA was obtained and serum HBV DNA was also investigated by a sensitive nested-PCR. Patients found to be negative for all these assays withdrew also lamivudine and were then monitored for additional 16-40 weeks, with monthly assays of serum HBsAg and HBV-DNA, also using nested-PCR. **Results.** One patient became HBsAg-positive during the first 24 weeks following HBIG withdrawal. HBIG were promptly reinstituted and the patient returned to be HBsAg negative, without displaying any biochemical, or virologic event. All other 29 patients had undetectable total and cccDNA in the liver biopsy obtained 24 weeks after HBIG withdrawal. All therefore underwent also lamivudine withdrawal. After a median follow-up of 24 weeks (range=16-40) all 29 patients continued to be negative for serological markers of HBV reinfection and serum HBV-DNA and no ALT flares occurred. **Conclusion.** In this cohort of patients with undetectable HBV viremia at transplant and no evidence of intrahepatic cccDNA >3 years after transplant, cautious weaning of HBIG and lamivudine is feasible and safe, provided that patients are thoroughly investigated. A more extended follow-up is now needed to confirm the safety and cost-benefit advantage of this strategy.

Abstract# O-120

LONG TERM SURVIVAL AND FIBROSIS PROGRESSION ANALYSIS IN RETRANSPLANTED PATIENTS FOR HCV RECURRENCE – RESULTS FROM A MATCHED GROUP. R. Sobesky^{1,2,3}, V. Delvart¹, P. Carrier¹, T. M. Antonini¹, B. Roche^{1,2,3}, F. Saliba^{1,2,3}, P. Ichai^{1,2,3}, D. Azoulay¹, R. Adam^{1,2,3}, A. M. Roque-Afonso^{1,2,3}, M. Sebagh^{1,2,3}, C. Guettier^{1,2,3}, D. Castaing^{1,2,3}, D. Samuel^{1,2,3}, J. C. Duclos-Vallée^{1,2,3}. ¹Centre Hepato-Biliaire, AP-HP Hopital Paul Brousse, Villejuif, France; ²U 785, INSERM, Villejuif, France; ³UMR-S 785, Univ Paris-Sud, Villejuif, France

All patients with positive HCV-RNA prior to liver transplantation (LT) have post-LT recurrence, with a significantly negative outcome on long term graft and patient survival. The natural history of HCV liver graft infection could be severe and the question of the retransplantation (reLT) is discussed.

Aims. To study 1) survival of HCV infected patients retransplanted for severe recurrence of HCV infection and 2) fibrosis kinetic on the second liver graft.

Methods. reLT was proposed for 28 patients with a mean age 45 (±8) years in a monocentric population of 504 HCV infected patients transplanted for end stage liver cirrhosis or hepatocellular carcinoma. The indication of reLT was proposed for surgical complication (n=11), for severe complications of HCV related liver graft infection (n=11) and because of chronic rejection (n=5) or alloimmune hepatitis (n=1). Survival of reLT patients was compared to an HCV LT group (n=114) matched on donor age. METAVIR score was used to study fibrosis progression on the first and the second graft.

Results. Among the 11 patients retransplanted for severe HCV reinfection on the liver graft, the mean interval between the 2 LT was 92 (±62) months. The mean MELD score before reLT was 22.5 (±6.2). Three patients with renal insufficiency inhibitors had combined kidney and liver transplantation. Five of the 11 patients deceased after reLT, three within 10 months because of infectious complications and 2 after because of severe HCV recurrence on the liver graft. Actuarial survival after reLT was 60% at 1 year and 48% at 5 years. Since the first LT, global survival in the reLT group was 65% and 72% in the matched group, without significative difference (p=0.64). In retransplanted patients who survived more than one year after reLT, the mean fibrosis progression before and after reLT was 1.27 (±1.0) and 1.2 (±1.4) METAVIR unit per year, respectively (p=ns).

Conclusions. Survival after retransplantation of patients for severe HCV recurrence on the liver graft was 60% at 1 year and 48% at 5 years, respectively. Moreover, retransplantation does not affect fibrosis progression on the second graft.

Abstract# O-121

RECURRENCE OF HEPATOCELLULAR CARCINOMA AND HEPATITIS B REINFECTION IN HBsAg POSITIVE PATIENTS AFTER LIVER TRANSPLANTATION. Sammy Saab^{1,2}, Melina Yeganeh¹, Kelvin Nguyen, Myron J. Tong^{1,2}, Ronald W. Busutt¹. ¹Department of Internal Medicine, University of California at Los Angeles, Los Angeles, CA, USA; ²Department of Surgery, University of California at Los Angeles, Los Angeles, CA, USA

Background: Hepatitis B virus (HBV) reinfection and recurrence of hepatocellular carcinoma (HCC) after orthotopic liver transplantation (OLT) are associated with increased graft failure and reduced patient survival. We investigated clinical and pathological factors associated with HBV reinfection and evaluated the long-term outcome of patients after OLT.

Methods: 175 patients underwent OLT for HBV-related liver disease from 1997-2008 and were included in this retrospective study. To assess risk factors for HBV reinfection, HBV-related HCC recurrence and post-OLT survival, demographic, virologic, biochemical and tumor factors were evaluated using univariate and multivariate analyses.

Results: 12 patients (6.9%) developed HBV reinfection after transplantation. The mean interval time for developing HBV reinfection was 28.7 ± 26.4 months. Eighty-eight (50.3%) of the 175 patients transplanted for HBV-related liver disease had HCC. 13 of these patients (14.8%) developed HCC recurrence after transplantation. Mean HCC recurrence time was 15.8 ± 6.2 months. 10 of the 12 patients (83.3%) with HBV reinfection, had HCC prior to transplantation and 5 (50%) patients developed recurrence of HCC. On multivariate analysis, pre-OLT HCC and recurrent HCC were significantly associated with hepatitis B reinfection after transplantation (P = 0.031 and <0.001, respectively). Total tumor burden greater than 5 cm by preoperative imaging and by pathologic examination (P = 0.014 and 0.019, respectively), tumors exceeding UCSF criteria on explant (P = 0.033), lymphovascular invasion (P < 0.001) and post-OLT chemotherapy (P = <0.001) were associated with HCC recurrence. Three and five-year overall survival rates were significantly decreased in patients with HBV reinfection (70.0% and 46.7%, respectively) compared to patients without viral reinfection (86.8% and 84.3%, respectively) (P = 0.007).

Conclusions: The presence of HCC, both pre-transplant and recurrent HCC post-OLT, is associated with HBV reinfection. Viral reinfection in these patients is associated with decreased cumulative patient survival. Patients transplanted with concurrent HBV and HCC are at increased risk of HBV reinfection, and require close viral monitoring.

Abstract# O-122

STEATOHEPATITIS RECURS FREQUENTLY AFTER LIVER TRANSPLANTATION FOR NONALCOHOLIC FATTY LIVER DISEASE. Nazia Selzner, Oyedele Adeyi, Verendra Sandur, Krishna Gurrarn, Arash Kashfi, George Therpondos, Leslie Lilly, Gary Levy, Eberhard Renner. *Multiorgan Transplant Program, University of Toronto, To, Canada*

Background: Cirrhosis due to nonalcoholic steatohepatitis (NASH) is an increasing indication for liver transplantation (LT). The frequency of NASH recurrence is ill defined.

Aim: To describe frequency and factors associated with NASH recurrence post LT.

Methods: Retrospective review of patients undergoing LT at our institution from Jan 95 to Dec 06 for a) NASH/cryptogenic cause (NASH-Ci) and, as control, b) autoimmune liver diseases (PBC, AIH; Autoimmune-Ci). Only patients (pts) with a post-LT follow up ≥ 1 year were included. Cryptogenic cirrhosis pts were required to have pre LT ≥ 1 of the following risk factors for nonalcoholic fatty liver disease (NAFLD):diabetes mellitus (DM), BMI ≥ 30 or dyslipidemia. Immunosuppression was similar in both groups. Ultrasounds and biopsies were performed, as clinically indicated.

Results: 107 consecutive pts with NASH-Ci (37F, 70M; age 53 $\pm$ 12yrs) and 103 with Autoimmune-Ci (90F, 13M; age 49 $\pm$ 9yrs) were analyzed. At time of transplant comparing NASH-Ci vs. Autoimmune-Ci, median recipient BMI was 30 (18-46) vs. 27 (19-43) (p=NS); 37 (34%) vs. 12 (11%) pts were diabetic (p=0.04), 19 (18%) vs. 10 (9%) had hypertension (p=NS) and 9 (8%) vs. 15 (14%) had dyslipidemia (p=NS); mean donor BMI was similar (28 vs. 26, p=NS). During median 50 months of follow up, a similar proportion of pts in both groups (4-11%) developed new onset DM, hypertension or dyslipidemia (all p=NS). Median BMI at last follow up was 29 in NASH-Ci vs. 26 in Autoimmune-Ci (p=NS); however, 32 (30%) vs. 10 (9%) pts had a BMI ≥ 30 (p<0.05). 1and 5year survival was 92 and 83% in NASH-Ci compared to 91 and 84% in Autoimmune-Ci (p=NS); cardiovascular causes accounted for 36 vs. 6% of all deaths (p=0.01). The Table shows data on biochemical, radiological and histological evidence of post-LT NAFLD:

	NASH-Ci	Autoimmune-Ci	p
mean AST (IU/l)	68	31	NS
mean ALT (IU/l)	49	28	NS
Fatty liver on ultrasound (% pts)	23	16	NS
Histological evidence			
steatosis	40	10	0.04
steatohepatitis	40	0	0.03
fibrosis	30	45	NS

Conclusion: Obesity, but not other risk factors, evidence of recurrent NAFLD and cardiovascular death is more commonly observed in patients transplanted for NASH-Ci compared to Autoimmune-Ci. Prospective studies using protocol biopsies are warranted to define the natural history of recurrent NAFLD.

Abstract# O-123

SINGLE CENTER EXPERIENCE WITH LIVER TRANSPLANTATION FOR SARCOIDOSIS: LONG TERM FOLLOWUP AND RECURRENCE. Muhammad Bilal, Amanda Dean, Mankanwal Sachdev, Mohammad Ismail, James D. Eason, Jason M. Vanatta. *Transplantation, University of Tennessee, Methodist Transplant Institute, Memphis, TN, USA*

Purpose: Sarcoidosis is a multi-organ granulomatous disease of unclear etiology, involving the liver in approximately 10% of cases. End stage liver disease from sarcoidosis is a rare indication for liver transplantation. Consequently, studies evaluating these patients and their outcomes are scarce. The purpose was to evaluate a single center experience with liver transplantation for sarcoidosis. **Methods:** A retrospective review was performed of 761 patients with liver transplantation at our center, and 11 patients were identified with 12 liver transplants for sarcoidosis as the indication. Diagnosis was established by the presence of characteristic clinical findings, and was confirmed by the presence of non-caseating granulomas in the native liver explants. Patient and allograft survivals were calculated by Kaplan-Meier analysis. **Results:** The median age for the 11 patients was 45 years (range 29-61 years). The male to female ratio was 1:2. Nine patients were African American, and 2 patients were Caucasian. Cholestatic liver disease was the primary manifestation with a median serum total bilirubin of 8.9 mg/dL (range 0.6-18.0 mg/dL) and median serum alkaline phosphatase of 453 U/dL (range 174-1063 U/dL). Eight patients had complications of portal hypertension (encephalopathy, ascites, and/or esophageal varices). One patient had concomitant chronic hepatitis C infection. Extrahepatic manifestations were present in 7 pts (6 with lung disease, 2 with hypercalcemia, 1 with skin

disease, 1 with eye disease, and 1 with arteritis). All patients received whole deceased donor allografts. The 1 and 5-year patient survivals are both 82% with a median followup of 1172 days (range 40-5564 days). Posttransplant allograft survivals are 82% and 68% at 1 and 5 years, respectively. The patient with sarcoidosis and HCV was retransplanted at 3.7 years for recurrent disease, and he expired 162 days later from a biliary complication. Two other deaths occurred at 40 days (sepsis) and 9 years (cardiac arrest). Two patients (at 4 months and 6.5 years) had recurrence by liver biopsy. **Conclusions:** Liver failure from sarcoidosis is rare and manifested by cholestasis and portal hypertensive complications. Liver transplantation is an effective treatment for sarcoidosis with excellent long-term allograft and patient survivals. Recurrent sarcoidosis in the allografts is rare.

Abstract# O-124

FIBROSIS PROGRESSION AFTER ANTIVIRAL TREATMENT (AT) FOR HCV RECURRENCE FOLLOWING LIVER TRANSPLANTATION. Eleonora De Martin¹, Annalisa Masier¹, Marco Senzolo¹, Sara Boninsegna¹, Francesca R. Ponziani², Raffaella Viganò³, Luca Belli⁴, Giovambattista Pinzello⁴, Michele Colledan³, Francesca C. Donato⁵, Daniele Di Paolo⁶, Mario Angelico⁶, Maria Rendina⁷, Maurizio Pompili², Antonio Gasbarrini², Francesco P. Russo¹, Umberto Cillo¹, Stefano Fagioli², Patrizia Burra¹. ¹Department of Surgical and Gastroenterological Sciences, Padova, Italy; ²Policlinico A. Gemelli, Roma, Italy; ³Ospedali Riuniti, Bergamo, Italy; ⁴Ospedale Niguarda Cà Granda, Milano, Italy; ⁵Ospedale Maggiore, Milano, Italy; ⁶Policlinico Tor Vergata, Roma, Italy; ⁷Policlinico Universitario, Bari, Italy

Background and Aim The benefit of AT in patients with histological HCV recurrence following LT is still controversial, due to its limited safety and efficacy. The aim of this study was to assess the effect of AT on histological fibrosis progression due to HCV recurrence after LT. **Methods** A multicenter retrospective study was performed in HCV+ recipients who underwent AT (IFN or Peg-IFN/Ribavirin; 1999-2007) after LT. Protocol liver biopsies (LB) were performed before, at the end, and 12 months after AT discontinuation (Ishak's score and fibrosis progression by Friedman test). **Results** 191 patients (136 M, 55 F, mean $\pm$ SD age 54 $\pm$ 7.6 years) were included. HCV genotype: 1b, 1a, 3a reported in 144 patients. AT was started at 44 $\pm$ 63 months from LT, the pre-AT mean staging (S) was 2.46. HCV-RNA was negative in 84 (44%) patients after 6 months of AT, in 112 (59%) patients at the end of AT (ETR), in 73 (38%) patients after 12 months of AT withdrawn (SVR). A correlation was found between ETR and SVR (p=0.000). In ETR+ vs ETR- patients, at the end of AT, S was 2.44 vs 3.03 (p=0.044); at 12 months after the end of AT, S was 2.24 vs 3.15 (p=0.021) respectively. In SVR+ vs SVR- patients, at the end of AT, S was 2.32 vs 2.86 (p=0.049); at 12 months after the end of AT, S was 2.06 vs 2.94 (p=0.022). The S progression comparing the pre-AT vs the end of treatment AT vs 12-month after AT LB was 2, 2.13, 1.87 in ETR+ (p=0.47) and 1.61, 1.94, 2.44 in ETR- and drop out patients (p=0.01), moreover S was 1.94, 2.28, 1.78 in SVR+ (p=0.18) and 1.72, 1.93, 2.35 in SVR- and drop out patients (p=0.027). **Conclusion** In patients with ETR following antiviral therapy, at least no progression of fibrosis due to HCV recurrence following LT was seen. Moreover, in SVR-, a significant fibrosis progression was observed between the end of treatment and the 1-year after AT liver biopsy.

Abstract# O-125

ASSOCIATION OF CLASS I HISTONE DEACETYLASE EXPRESSION WITH TUMOR RECURRENCE AFTER LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA. Li-Ming Wu, Zhe Yang, Lin Zhou, Feng Zhang, Hai-Yang Xie, Xiao Xu, Xiao-Wen Feng, Shu-Sen Zheng. *Division of Hepatobiliary and Pancreatic Surgery, Department of Surgery, First Affiliated Hospital, Zhejiang University School of Medicine, Hangzhou, Zhejiang, China*

Purpose: Hepatocellular carcinoma (HCC) is the most common primary form of malignant liver tumor. Although liver transplantation (LT) offers a potential curative option for patients with HCC, frequent recurrence or metastasis after transplantation remains the major obstacle for long-term survival. There is an urgent need to further identify tumor molecular markers predictive of recurrence that can define a subset of HCC patients who stand to benefit from LT. Recently, several studies have reported high expression and activity of class I histone deacetylases (HDACs) correlated to malignant cell behavior and poor prognosis in some types of human tumors. However,

the expression patterns and prognostic role of class I HDAC isoforms in hepatocellular carcinoma are unclear.

Experimental Design: We evaluated class I HDAC isoform expression patterns, as well as their predictive value for tumor recurrence in a cohort of 43 HCCs treated with LT by immunohistochemistry. In addition, effects of HDAC inhibition by valproic acid (VPA) and suberoylanilide hydroxamic acid (SAHA), and specific HDAC isoform knockdown by short interfering RNA (siRNA), were investigated in HCC cell lines.

Results: We found class I HDACs highly expressed in a subset of HCCs with positivity for HDAC1 in 51.2%, HDAC2 in 48.8%, and HDAC3 in 32.6% of cases. Expression was significantly associated with strongly proliferating tumors. Interestingly, high expression levels of HDAC2 and HDAC3 correlated to shorter recurrence-free survival. In addition, HDAC3 was an independent prognostic marker in this cohort. In vitro, siRNA-based inhibition of HDAC2 and HDAC3 but not HDAC1 suppressed proliferation and invasiveness of HCC cell lines. However, the effects elicited by silencing of individual class I HDACs was significantly less than that induced by HDAC inhibitors.

Conclusions: The association between class I HDACs expression and tumor recurrence after LT in HCCs, as well as the interaction of class I HDACs with cell proliferation and invasion in vitro, suggested the potential use of class I HDACs, especially HDAC3, as prognostic markers for tumor recurrence after LT for HCC.

Abstract# O-126

RECURRENCE OF HEPATITIS B VIRUS AFTER LIVER TRANSPLANTATION CAN BE MANAGED EFFECTIVELY WITH ANTIVIRAL AGENTS. Kwan Chul Lee, Choon Hyuck D. Kwon, Jae Won Joh, Jae Berm Park, Gyu-Sung Choi, Jae Min Chun, Gum O. Jung, Ju Ik Moon, Jong Man Kim, Sung Joo Kim, Suk-Koo Lee. *Surgery, Samsung Medical Center, Sungkyunkwan University, Seoul, Korea*

(Background) Despite different effective prophylactic measures against hepatitis B virus (HBV) recurrence after liver transplantation, recurrence occurs at a rate of 5 to 10%. There have been only few reports concerning the management of HBV after recurrence especially in the antiviral era. Here we report the midterm results of different antiviral agent used as treatment after HBV recurrence. (Methods) Between May 1996 and November 2008, 548 patients with pre-transplantation HBV infection received liver transplantation. Among them 46 patients showed recurrence of HBV (8.4%). Lamivudine was used as first line antiviral agent in 38 patients and entecavir in 6. Two patients did not receive any antiviral treatment. Second line treatment as rescue therapy due to YMDD mutation or no treatment effect was done using adefovir in 6 or entecavir in 5 patients. (Results) Five year survival rate after HBV recurrence was 73%. Of the 11 deaths, HBV related graft failure was the cause in 5 patients, and hepatocellular carcinoma recurrence in 3 patients. Seroconversion to negative HBsAg was achieved in 28.9%(11/38) with lamivudine and in 33.3%(2/6) with entecavir and the mean time to seroconversion was 6.9 and 4.9 months respectively. All patients that achieved seroconversion are alive. Rescue therapy was successful in all patients. (Conclusion) In the era of antiviral therapy, recurrence of HBV is not detrimental and patient survival is relatively acceptable. Negative seroconversion can be achieved in about one third of the patients with good results. A longer follow up duration with a larger patient population is necessary to evaluate the efficacy of each antiviral agent.

Abstract# O-127

HIGH PREVALENCE OF HYPOXAEMIA IN CIRRHOTIC PATIENTS BEING WORKED UP FOR LIVER TRANSPLANTATION. IS THIS HEPATOPULMONARY SYNDROME? Edmund Tse, Kenny Sze, Edmund Lau, Geoff McCaughan, Simone I. Strasser. *AW Morrow Gastroenterology and Liver Centre, Royal Prince Alfred Hospital, Sydney, New South Wales, Australia*

Severe hepatopulmonary syndrome (HPS) with PaO₂ < 60 is uncommon and is associated with poor patient survival. However less severe HPS with moderate hypoxaemia may be common and may also impact on outcomes. Clinical features include hypoxaemia, high alveolar-arterial (A-a) oxygen gradient, orthodeoxia and reduced DLCO. Other causes of hypoxaemia should be excluded and demonstration of intrapulmonary shunting is confirmatory.

Aim: To determine the prevalence of hypoxaemia likely to be due to hepatopulmonary syndrome in cirrhotic patients undergoing liver transplant assessment.

Methods: The routine cardiopulmonary investigations of all patients (n=366) undergoing liver transplant assessment at our centre between January 2004 and June 2008 were reviewed retrospectively. Patients were excluded from the study if moderate-severe ascites (n=134), pleural effusion or lung consolidation (n=8), abnormal echocardiography (n=14), noncirrhotic (n=14), alpha 1 antitrypsin deficiency (n=3) or insufficient data (n=104). Data reviewed included demographics, aetiology of liver disease, established HPS diagnosis (demonstration of intrapulmonary shunting), MELD score, pulse oximetry (standing/lying/ sitting), arterial blood gas, A-a gradient, spirometry, echocardiography, CXR and abdominal imaging.

Results: 82 patients were included in the study. Results by severity of hypoxaemia are shown in the table.

PaO ₂ (mmHg)	No. of pts(%)	Established HPS, n (%)	MELD (mean±sd)	A-a gradient (median±sd)	DLCO % predicted
>100	11 (13 %)	0 (0%)	14.9 ±6.4	4.3 ±10.2	75.1 (+/-16.6)
80-99	45 (52%)	0 (0%)	9.6 ±5.1	10.8 ± 6.8	81.0 (+/-14.6)
60-79	28 (33%)	4 (5%)	12.2 ±7.4	29.9 ±10.2	74.8 (+/-17.1)
<60	2 (3%)	1 (1%)	8.3 ±0.3	53.9 ±10.2	32.0 (+/-1.4)

Conclusion: Moderate hypoxaemia (PaO₂ 60-79 mmHg) was present in 34% of cirrhotic patients without significant ascites or cardiopulmonary disease. Few of these patients underwent further assessment for HPS at the time, however the diagnosis is suggested by a high A-a gradient. It may be important to confirm a diagnosis of HPS in patients awaiting liver transplantation, to ensure appropriately monitoring and management.

Radiology

Abstract# O-128

SPLEEN STIFFNESS BY MAGNETIC RESONANCE ELASTOGRAPHY (MRE) CORRELATES WITH PORTAL HYPERTENSION IN A LARGE ANIMAL MODEL OF CIRRHOSIS. Geir I. Nedredal¹, Meng Yin², Jayant A. Talwalkar², Travis J. McKenzie¹, Jennifer L. Luebke-Wheeler¹, Richard L. Ehman², Scott L. Nyberg¹. ¹Division of Transplant Surgery, Mayo Clinic, Rochester, MN, USA; ²Advanced Liver Diseases Study Group, Miles and Shirley Fiterman Center for Digestive Diseases, Mayo Clinic, Rochester, MN, USA

MRE is a new technique which offers a non-invasive alternative to liver biopsy for the serial examination of liver fibrosis. The estimation of fibrosis by MRE involves a mechanical technique to generate low frequency (40-120Hz) shear waves through the abdomen from which liver stiffness can be estimated. In a similar fashion, spleen stiffness can also be measured by MRE. We hypothesized that spleen stiffness by MRE would correlate with portal pressure and could serve as an indirect measure of portal hypertension.

Methods: Cholestatic liver disease and cirrhosis was established in 20 kg adult mongrel dogs by common bile duct ligation (CBDL). At surgery, two subcutaneous vascular access ports (VAPs) were placed with their catheter tips in the portal vein and right hepatic vein. MRE examinations were performed with a 1.5T whole-body GE imager (Signa, GE Medical System, Milwaukee, WI, USA). Images of shear stiffness (elastograms) of the liver and the spleen were obtained by processing the wave data using direct inversion algorithm developed from the Helmholtz wave equations. MRE, percutaneous liver biopsies, blood samples (ammonia, INR, creatinine, bilirubin), and measurements of portal pressure and hepatic venous pressure gradient (HVPG) were obtained at baseline and at four week intervals for 12 weeks. Animals were monitored daily for the development of ascites and weight loss.

Results: Animals developed progressive hyperammonemia (100-150ug/dl), hypoalbuminemia (1.5g/dl), and mildly elevated INR after the CBDL. Liver fibrosis was identified by both H&E and Masson's Trichrome staining of liver tissue with bridging (F3) fibrosis confirmed at 8 weeks. Portal pressures rose with a maximum mean HVPG of 23mmHg at week 8 (HVPG = 4mmHg, baseline). The spleen stiffness also rose and correlated better with the HVPG (R² = 0.942) than did liver stiffness (R² = 0.782).

Conclusion: In this large animal model, a good correlation was observed between spleen stiffness, measured by MRE, and direct (pressure transducer) measurement of portal pressure and HVPG. These findings suggest a potentially non-invasive approach to diagnose and serial examination of patients with portal hypertension using MRE.

Abstract# O-129

OPTIMAL DOPPLER ULTRASONOGRAPHIC AND CT CRITERIA FOR RIGHT HEPATIC VEIN STENOSIS AT ANASTOMOSIS IN PATIENTS AFTER RIGHT-LOBE LIVING DONOR LIVER TRANSPLANTATION: RECEIVER OPERATING CURVE ANALYSIS. Kyoung Won Kim¹, Hye Jeon Hwang¹, Woo Kyoung Jeong², Gi-Young Ko¹, Kyu-Bo Sung¹, Tae-Yong Ha³, Deok-Bog Moon³, Ki-Hun Kim³, Chul-Soo Ahn³, Shin Hwang³, Sung-Gyu Lee³, Ja Young Cho¹. ¹Radiology, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea; ²Radiology, Hanyang University Guri Hospital, Guri, Korea; ³Liver Transplantation Surgery, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea

Purpose: To establish optimal Doppler ultrasound (DUS) and CT criteria for right hepatic vein (RHV) stenosis after living donor liver transplantation (LDLT) and to compare accuracies of these methods using receiver operating curve (ROC) analysis.

Materials and Methods: This study was approved by our institutional review board. The study group consisted of 53 patients (M:F=34:19; 50.5±9.9 years) who underwent DUS and CT within 1 week of hepatic venography, following LDLT with right-lobe grafts, between October 2006 and December 2007. On venography, 56 RHVs were classified into stenosis and nonstenosis groups. On DUS, venous pulsatility index (VPI) was defined as difference between maximum and minimum frequency-shifts divided by maximum. On CT, diameters of anastomosis (ϕ_A) and RHV (ϕ_{RHV}) were measured, and percentage stenosis of RHV anastomosis was calculated as $(\phi_{RHV}-\phi_A)/\phi_{RHV} \times 100$. Mean VPI and CT parameters in the two groups were compared, and ROC analysis was performed to compare accuracy and to determine optimal threshold of each parameter.

Results: 25 RHVs were classified into stenosis group and 31 into nonstenosis group. Mean VPI and mean ϕ_A were significantly lower and mean percentage stenosis was significantly higher in stenosis than in non-stenosis group ($P<0.0001$ each). On ROC analysis, ϕ_A and percentage stenosis were significantly more accurate than VPI ($P=.048, .017$). Optimal cut-offs of VPI, ϕ_A , and percentage stenosis were 0.16, 3.7 mm, and 41.7%.

Conclusion: CT is more accurate than DUS for RHV stenosis in patients after LDLT. Patients suspected of RHV stenosis on DUS should undergo CT to reduce unnecessary venography.

Abstract# O-130

ENDOVASCULAR THERAPY FOR HEPATIC ARTERY STENOSIS AND OCCLUSION FOLLOWING LIVER TRANSPLANTATION. Timothy M. Schmitt¹, Sean Kumer¹, Kenneth L. Brayman¹, Ulku C. Turba², John F. Angle², Timothy L. Pruett¹, Saher Sabri². ¹Surgery, University of Virginia, Charlottesville, VA, USA; ²Radiology, University of Virginia, Charlottesville, VA, USA

Purpose: To evaluate the outcomes of endovascular management in liver transplant patients with hepatic artery stenosis or occlusion.

Materials/Methods: Following IRB approval, we identified 31 patients with hepatic artery stenosis or occlusion managed by endovascular interventional techniques between 1996 and 2008. Patient demographics including indications for the procedure, complications, success, failure, and follow up results were evaluated.

Results: 20/31 (65%) patients had 70-99 % stenosis of the hepatic artery. Technical success was achieved in 18/20 (90%) patients. Percutaneous transluminal angioplasty (PTA) alone was performed in 15/20 (75%) patients and 5/20 (25%) patients underwent stent placement. The indications for stent placement included suboptimal PTA results (n=3), and associated pseudoaneurysm (n=2). There were major complications in 4/20 (20%); two of which resulted in technical failures. One PTA was complicated by dissection and an anastomotic hemorrhage treated with emergent surgical repair. Another PTA resulted in dissection of the celiac and hepatic arteries which persisted despite stent placement and required surgical revision.

Hepatic artery occlusion was demonstrated at the anastomotic site in 11/31 (35%) patients. One patient was successfully treated with PTA alone, and 2 others required stent placement for suboptimal PTA results. 8/11 (73%) patients were unsuccessfully treated due to failure to cross the lesion. There were no major complications in this group.

Additional interventions were performed in 8/31 (26%) patients at a median of 71 days with PTA alone (n=4) and/or stent placement (n=3). Follow up

ranged from 1-115 months with a median follow up of 12 months. Primary assisted patency for the technically successful procedures was 82 and 78 % at 6 and 12 months respectively.

Conclusion: PTA of the hepatic artery with selective stent placement is a relatively safe and efficacious procedure with promising results. Occlusion of the hepatic artery; however, is associated with low technical success rates.

Abstract# O-131

HEPATIC VENOUS-OUTFLOW OBSTRUCTION AT MIDDLE HEPATIC VEIN TRIBUTARIES OR INFERIOR RIGHT HEPATIC VEINS AFTER LIVING DONOR LIVER TRANSPLANTATION WITH MODIFIED RIGHT-LOBE GRAFT: COMPARISON OF CT AND DOPPLER ULTRASOUND. Kyoung Won Kim¹, Hye Jeon Hwang¹, Woo Kyoung Jeong², Gi-Young Ko¹, Kyu-Bo Sung¹, Tae-Yong Ha³, Deok-Bog Moon³, Ki-Hun Kim³, Chul-Soo Ahn³, Shin Hwang³, Sung-Gyu Lee³. ¹Radiology, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea; ²Radiology, Hanyang University Guri Hospital, Guri, Korea; ³Liver Transplantation Surgery, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea

PURPOSE: To compare diagnostic values of CT and Doppler ultrasound (DUS) in patients with hepatic venous-outflow obstruction (HVO) at middle hepatic vein tributaries (MHVTs) or inferior right hepatic veins (IRHVs) after living donor liver transplantation (LDLT) with modified right-lobe graft (MRG).

METHOD AND MATERIALS: The study group consisted of 36 patients (M:F=20:16; 50.1±10.6 years) who underwent hepatic venography as well as CT and DUS, after LDLT with MRG between June 2006 and March 2007. Based on venography, a total of 51 MHVTs and 25 IRHVs were classified into obstruction and nonobstruction groups. CT and DUS images were retrospectively reviewed. HVO was diagnosed on CT when hepatic parenchyma was persistently seen as hypoattenuation on dynamic scans with no or poor opacification of the draining vein. On DUS, HVO was diagnosed when there was no or weak flow (<10cm/s) or monophasic waveform. The diagnostic values of CT and DUS were compared with McNemar test.

RESULTS: Of 51 MHVTs, 33 were classified into obstruction group and the other 18 into nonobstruction group. Sensitivity, specificity, positive predictive value, negative predictive value, and accuracy of CT for HVO were 39%, 100%, 100%, 47%, and 61%. Those values of DUS were 97%, 67%, 84%, 92%, and 86%. While DUS was more sensitive and accurate for HVO than CT ($p<.01, =.03$), CT was more specific than DUS ($p=.02$). Of 25 IRHVs, 9 were classified into obstruction group and the other 16 into nonobstruction group. The diagnostic values of CT were 31%, 100%, 100%, 45%, and 56%, and those values of DUS were 94%, 67%, 83%, 86%, and 84%. While DUS was more sensitive for HVO than CT ($p<.01$), there was no significant difference in terms of specificity and accuracy between the two methods ($p=.25, =.09$).

CONCLUSION: In diagnosis of HVO at MHVTs or IRHVs after LDLT with MRG, DUS with superb sensitivity and accuracy is more feasible as screening tool, but complementary use of CT may reduce unnecessary venography because CT is more specific especially for MHVTs.

Abstract# O-133

TREATMENT OF ARTERIAL STEAL SYNDROME IN LIVER TRANSPLANT RECIPIENTS. Fatih Boyvat¹, Hamdi Karakayali², Sinasi Sevmis², Cuneyt Aytekin¹, Mehmet Haberal². ¹Radiology, Baskent University, Faculty of Medicine, Ankara, Turkey; ²General Surgery and Transplantation, Baskent University, Faculty of Medicine, Ankara, Turkey

Purpose: To describe the effect of splenic or gastroduodenal artery embolization in liver-transplant patients with arterial steal syndrome.

Methods: Between 2001 and 2008, 217 liver transplantation (172 living donor, 45 cadaveric) were performed at our centre. 20 liver transplant patients, fourteen men and six women, ranging in age from 3 years to 52 years (mean 23 years) with graft ischemia, were diagnosed, based on clinical, laboratory, ultrasonographic, and angiographic findings. To determine diagnostic criteria, steal syndrome was defined as diminished hepatic arterial flow caused by a shift of hepatic arterial flow to splenic or gastroduodenal artery. Patients with established hepatic artery stenosis or thrombosis were excluded from this study. Treatment consisted of coil embolization of the mid-splenic (n=12), gastroduodenal artery (n=3), both mid-splenic and gastroduodenal

artery (n=1) and embolization of mid-splenic artery with Amplatz plug device (n=4). Biochemical parameters were checked at 1st, 7th and 30 days postprocedure.

Results: 19 patients improved clinically within 24 hours of the procedure with significant change in the biochemical and clinical parameters. No biochemical or clinical improvement was seen in one patient. Before treatment mean ALT, AST, and total bilirubin levels were 148.05 U/L, 85.43 U/L and 6.77 U/L, respectively. Posttreatment 1st day mean ALT, AST, and total bilirubin levels were 105.12 U/L, 56.92 U/L, and 5.23 U/L, respectively. Follow-up biochemical parameters and graft functions were remained normal in 19 patients.

Conclusion: Conventional angiography has a critical role for the diagnosis and also treatment of arterial steal after liver transplant.

Abstract# O-134

MRI FEATURES OF HCC DO NOT PREDICT MICROVASCULAR INVASION IN LIVER TRANSPLANT FOR HEPATOCELLULAR CARCINOMA. Emma Robinson, Hersh Chandarana, Leonid Drozhinin, Cristina Hajdu, Ruliang Xu, Lewis Teperman, Bachir Taouli. *Departments of Radiology, Pathology, and Surgery, NYU Langone Medical Center, New York, NY, USA*

Microvascular invasion (MVI) predicts poor outcome after liver transplantation for hepatocellular carcinoma (HCC). Pre-operative prediction of MVI is difficult, as biopsies are not always feasible and correlate poorly with final tumor grade and MVI. This study sought to identify MRI features that correlate pre-operatively with MVI.

Methods: This retrospective study identified 24 patients with MRI and liver transplant within 90 days. Pathologically identified HCCs were seen on MRI in 21/24 patients (88%). Four patients were excluded because all HCCs were over 90% necrotic from chemoembolization. The study group comprised 17 patients (M/F 14/3, mean age 58 y). Alfa-fetoprotein (AFP), number of HCC, and tumor differentiation were noted. Routine liver MRI included in- and out-of-phase T1 GRE, axial T2 fat suppressed, and 3D VIBE post gadolinium images in the arterial, portal venous, and equilibrium phases. For the largest HCC in each patient, the size, T1 and T2 signal intensity relative to liver, margin (well defined or ill-defined), presence of a capsule, peritumoral enhancement, and the distance to the closest vessel were noted by 2 readers in consensus. ROIs were drawn on the largest lesion pre-contrast and copied to all three phases of enhancement to obtain signal intensity (SI) ratios of HCCs: SIpost-SIpre/SIpre.

Results: Patient age and number of HCCs at explant correlated with MVI (p less than 0.05). Patients with MVI were more likely to be young (57 vs. 63 y). As the number of HCC increased, the likelihood of MVI increased (mean 3.7 tumors in MVI group vs. 2.3 tumors in non-MVI group). No MRI imaging parameters of the HCCs correlated with the presence of MVI.

Parameter	P value
Age	0.049
Sex	0.219
AFP	0.116
Number of HCC	0.043
Size of HCC	0.482
Differentiation of HCC	1.0
T1 signal intensity	0.244
T2 signal intensity	0.250
HCC margin	0.603
Presence of a capsule	1.0
Peritumoral enhancement	0.519
Distance to nearest vessel	0.506
SI ration Arterial	0.965
SI ratio Venous	0.386
SI ratio Equilibrium	0.514

Conclusion: Other than number of lesions, no other predictive signs of MVI were seen on MRI. Given the prognostic significance of MVI, further work to predict MVI non-invasively remains warranted.

Abstract# O-135

ROUTINE ULTRASONOGRAPHY HAS LIMITED VALUE IN PATIENTS LONG AFTER LIVER TRANSPLANTATION.

Marieke van Rhijn¹, John J. Hermans³, Geert Kazemier², Bettina E. Hansen¹, Roy Dwarkasing³, Rob J. de Knecht¹, Rob A. de Man¹, Herold J. Metselaar¹. ¹Hepatogastroenterology, Erasmus MC, University Medical Center, Rotterdam, Netherlands; ²Surgery, Erasmus MC, University Medical Center, Rotterdam, Netherlands; ³Radiology, Erasmus MC, University Medical Center, Rotterdam, Netherlands

After liver transplantation, patients are routinely followed for evaluation of the graft function, the immunosuppressive regimen, recurrence of the liver disease and general condition. In our center ultrasonography (US) of the liver is performed every year. There are no data available concerning the value of this routinely performed US long after liver transplantation. The aim of this study was to evaluate the usefulness of US in recipients long after liver transplantation.

In a retrospective study all records of the routinely performed US of patients transplanted from January 1995 until December 1999 were analyzed. During this period 136 transplantations were performed in 123 patients. At 1 year 96 patients (78%) were alive and were included in this study. Mean follow up was 6.1 year (range: 1-12.1 year).

In total, 640 routine US were performed. In 189 reports (29.5%) in 57 patients one or more abnormal findings were documented by the radiologist. Highest percentages abnormalities were seen in the 6th and 7th years after LTx (51/189). Most reported findings were steatosis (n=36), focal lesions (n=28), increase in spleen size (n= 18) and bile duct dilatation (n=17). In 178/189 (94%) cases the transplant physician found no reason to perform additional evaluation. In contrast, in only 11/ 189 (5.8 %, 95% CI: 2.5%-9.2%) cases, additional examination of the graft was performed. In 7/11 cases no clinical relevant abnormalities were found (e.g. two benign tumors, one intrahepatic bile duct stenosis, one stenosis of the portal vein anastomosis and one focal steatosis). In 4/189 (2.1%, 95% CI: 0.05%-4.2%) cases relevant findings (one case of sarcoidosis, one recurrence of HCC, metastasis of melanoma and one bile duct stenosis) were done.

In conclusion, ultrasonography is a useful modality early after LT and/or in case of suspected complications. In contrast, in only 0.6 % of routinely performed US a clinical relevant abnormality was found. The number of US needed to detect one clinical relevant complication was 160. Therefore, we think that in liver transplant recipients after one year of transplantation the routinely performed US has limited value in addition to routine biochemistry tests.

Abstract# O-136

SIMULTANEOUS PERCUTANEOUS MULTIPLE PLASTIC STENTS FOR RESISTANT BILIARY ANASTOMOTIC STRICTURES AFTER LIVER TRANSPLANTATION: PRELIMINARY REPORT. Fatih Boyvat¹, Hamdi Karakayali², Umur Ozyer¹, Sinasi Sevmis², Ali Harman¹, Mehmet Haberal².

¹Radiology, Baskent University, Faculty of Medicine, Ankara, Turkey; ²General Surgery and Transplantation, Baskent University, Faculty of Medicine, Ankara, Turkey

Purpose: To evaluate the management of biliary anastomotic strictures with simultaneous multiple plastic stents for complicated liver transplants.

Methods: Between 2001 and 2008, 217 liver transplantation (172 living donor, 45 cadaveric) were performed at our centre. Nine patients with recurrent biliary anastomotic stenosis in whom prior balloon dilation and single plastic stent placement had failed were included in this study. The patients were four males and five females, ages ranged from 11 to 46 years (mean age: 25). Two plastic stents were placed percutaneously through one tract (percutaneous tracts were between 8F to 12F). The size of the two plastic stents were 16F (n=3), 20F (n=5) and 22F (n=1).

Results: The median indwelling stent period was 3 months. Biochemical parameters of these patients were checked in 1 week, 1 month and 3 months intervals. Also Doppler US was routinely performed with same time intervals. In two patients, plastic stents were removed endoscopically because of cholangitis. Restenosis or obstruction was not seen until now. In the remaining patients with stents, no cholangitis or obstruction were observed.

Conclusion: Sequential percutaneous insertion of two plastic biliary stents affords effective treatment of the anastomotic strictures that occurred after liver transplantation. This technique enables large profile internal stent placement through a single small percutaneous hole. This technique has a high success rate but longer follow-up results were necessary.

Abstract# O-137

ANew DEFINITION OF INITIAL POOR GRAFT FUNCTION – IMMEDIATE FUNCTIONAL GRAFT CLASSIFICATION BY THE LiMAX TEST IN A PROSPECTIVE CLINICAL TRIAL. Martin Stockmann, Johan F. Lock, Constantin Weber, Johann Pratschke, Peter Neuhaus. *Department of General, Visceral, and Transplantation Surgery, University Hospital Charité, Berlin, Germany*

Background:

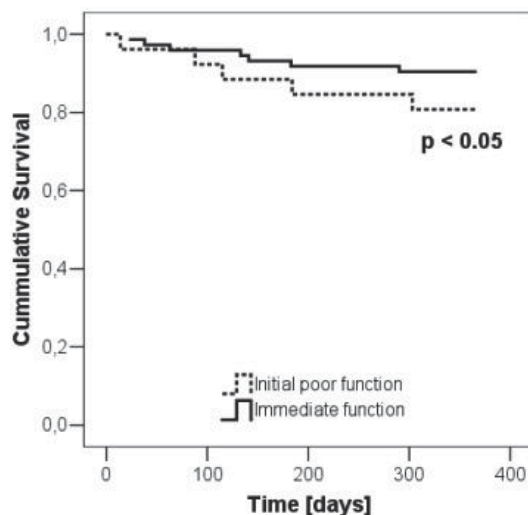
Initial poor function (IPF) is a common complication after LTX. It has been assumed to prolong the recovery and could have a negative impact on graft survival. However, no consensus on the definition and diagnosis of IPF has been reached. In this study, a new functional guideline for the classification of initial graft function is presented.

Methods:

99 patients with primary orthotopic LTX were enrolled into an observational study. Graft function capacity was measured by the LiMAX test. Therefore, ^{13}C -methacetin was applied intravenously and emerging $^{13}\text{CO}_2$ was determined online in breath. Tests were performed at 6 hours, day 1, 3, 5, 10, 14, 28, and one year after LTX. The subjects were classified according to the LiMAX test at 6 hours and day 1 as nonfunction (PNF, LiMAX $<60 \mu\text{g/kg/h}$), initial poor function (IPF, LiMAX $60\text{--}120 \mu\text{g/kg/h}$), and immediate function (IF, LiMAX $>120 \mu\text{g/kg/h}$). Recipients with rare indications and severe initial immunological or technical complications were excluded.

Results:

Seventy-one percent of the grafts were classified as IF, 25% as IPF, and 4% as PNF, at day 1. IPF in comparison with IF, lead to prolonged stay on the intensive care unit (11 vs. 6 days, $p=0.003$) and higher total costs (45,142 vs. 27,400 Euro, $p=0.008$). Between both groups, serum bilirubin levels remained different until discharge, whereas albumin levels resolved in both groups until postoperative day 28. Graft and patient survival during 1 year follow up was significantly reduced in IPF compared to IF ($p<0.05$, Kaplan-Meier analysis, figure).

Patients' survival after LTX**Conclusion:**

Initial graft function after LTX has a significant impact on postoperative recovery and survival. Patients could be classified by the LiMAX test already at postoperative day 1 resulting in a better management for IPF.

Abstract# O-138

LONG-TERM OUTCOMES AND HEMODYNAMIC CHANGES AFTER HEMI-PORTOCAVAL SHUNT IN RECIPIENTS WITH SMALL-FOR-SIZE GRAFT. Takako Yamada¹, Koichi Tanaka^{1,2}, Kenji Uryuhara², Satoshi Kaihara².

¹*Liver Transplantation, Institute of Biomedical Research and Innovation Hospital, Kobe, Japan;* ²*Surgery, Kobe City Medical Center General Hospital, Kobe, Japan*

Background: Negative impact of recipient portal vein pressure (PVP) on graft and patient survival has been reported. Hemi-portocaval shunt (HPCS) based on PVP is one of the effective procedures to prevent small-for-size syndrome (SFSS) following adult living donor liver transplantation (LDLT) using small-for-size graft (SFSG). However short-term hemodynamic change and adaptation as well as long-term outcome after creating HPSC have not been evaluated well.

Aims: To evaluate long-term outcomes including special complication related to HPSC and short-term hemodynamic changes in recipients with SFSG.

Patients and methods: We create a HPSC when the actual graft volume is less than 1% of GRWR and portal vein pressure at the time of laparotomy is greater than 20 mmHg according to our HPSC algorithm. From July 2003 to July 2008, seventeen patients (mean age 48.8 years old) underwent SFSG-LDLT with HPSC. The mean MELD score and GRWR were 16.7 (6-39), 0.68% (0.54-0.80) respectively. We used a left lobe graft in 10 patients, right lobe graft in 6 patients and right posterior segment graft in one patient. Systemic, pulmonary hemodynamics using Swan-Ganz catheter during operation and postoperatively and PVP during operation were studied.

Results: Mean follow-up time was 26.4 months. Fifteen patients are alive with normal liver function (88%). One patient died with sepsis due to SFSS on 32 POD. The other patient died of veno-occlusive disease (VOD) on 16 POD. We closed HPSC for one patient with VOD because of reverse portal vein flow.

Immediately after creating HPSC during anhepatic phase (ave Cardiac index (CI) 5.23, 3.6-10.4) and after PV reperfusion (ave 5.93, 4.3-9.7), there was a pronounced increase in CI compared to CI at the time of skin incision (ave 3.97, 3-7.1). Within 3 days, whereas the initial rise in CI attenuated to 3.75 (3.1-8.4). PVP at the time of laparotomy and after PV reperfusion were 26.8 mmHg (20-40) and 17.9 mmHg (12-20) and all PVP was regulated under 20 mmHg.

Conclusion: Hyperdynamic state continues immediately after creating HPSC with a progressive adaptation during a few days postoperatively despite the SFSG-LDLT. This study suggests that HPSC is safe and effective procedure to overcome SFSS and that the left lobe graft could be used more widely for donor safety in adult LDLT.

Abstract# O-139

THE EFFECT OF ARTERIAL REPERFUSION ON INTRA-OPERATIVE HEMODYNAMIC PROFILE AND RECIPIENT OUTCOME IN ADULT LIVER TRANSPLANT RECIPIENTS USING MARGINAL GRAFTS. Adam Bartlett, Federica Merella, Manuela Fanciulli, Robert Ginsburg, Nigel Heaton. *Institute of Liver Studies, Kings College Hospital, London, United Kingdom*

Most liver transplant (LT) centers perform portal venous reperfusion (VR) followed by arterial reperfusion (AR). Experimental studies have demonstrated hemodynamic advantages with artery first reperfusion. The aim of this study was to determine whether there was a difference in intra- or post-operative outcomes following AR or VR in marginal livers. All adult patients with chronic liver disease undergoing LT from January 2006 to July 2007 with brain dead donor livers were retrospectively identified. Donor risk index (DRI) was used to identify marginal grafts, and recipients of grafts with donor risk index (DRI) of <1.5 were excluded. 188 adult LT were performed. 99 were excluded due to acute/subacute liver failure (27), simultaneous liver-kidney transplant (2), domino liver transplant (1), DRI <1.5 (26) or insufficient data (43). The resulting 89 patients underwent VR (50) or AR (39). Donor and recipient demographics, co-morbidities and cold-ischaemic time, and DRI were comparable between the groups. The warm ischaemic time was longer following AR (47 vs. 38.8 min; $p=0.03$). At reperfusion the change in mean arterial (MAP) and central venous pressure, heart rate and inotropic requirement was similar in both groups, however the time to the nadir in the MAP was longer ($p<0.05$) following AR (5.2 min) than VR (3.0 min). Day 1 AST (1417 and 864 IU/L) and creatinine (129 and 116 mmol/L) was higher following AR compared to VR. Hepatic artery thrombosis (HAT) was more common following AR (3/39 vs. 0/50) while biliary anastomotic strictures were more common following VR (3/39 vs. 7/50). There was no

difference in graft- and patient- survival. AR appears to offer a smoother reperfusion, but this may be at the expense prolonging warm ischemia and increasing the incidence of HAT.

Abstract# O-140

DUAL GRAFT LIVING DONOR LIVER TRANSPLANTATION WITH RIGHT AND LEFT LIVER GRAFT COMBINATION.

Gi-Won Song, Sung-Gyu Lee, Shin Hwang, Ki-Hun Kim, Chul-Soo Ahn, Kwan-Woo Kim, Nam-Gyu Choi, Young-Dong You, Gil-Chun Park. *Division of Hepatobiliary Surgery and Liver Transplantation, Department of Surgery, Asan Medical Center, Seoul, Korea*

(Background) Major concerns of adult living donor liver transplantation (LDLT) are donor safety and graft size mismatch. Dual graft LDLT (DLDLT) served a double purpose. This innovative surgical procedure can minimize donor risk and provide sufficient graft volume for recipient. Initially, DDLT was invented as two left grafts LDLT. However, summation of two grafts from each donor cannot meet demand of graft volume in some cases such as very big-sized recipient or very small sized left lobe. Therefore, right graft should be harvested from the donor eligible for right lobe donation. In this study, we reviewed the outcome of DDLT with combined right and left liver (RL/LL) grafts in the context of donor safety and recipient outcome. **(Patients and Methods)** From 2000 March to 2007 June, 213 cases DDLT were performed from in our institution. Of them, 37 cases (17.4%) were performed by using combined RL/LL grafts. We analyzed short-term and long-term outcome of RL/LL DDLT. We compared outcomes including donor morbidity, graft and patient survival and recipient morbidity rate with those of single right lobe LDLTs and DDLTs with another graft combination. **(Results)** In 37 cases, modified right lobe graft was used in 33 patients and right lobe (RL) graft in 4 patients. Mean GRWR of RL/LL DDLT was 1.10% which was slightly higher than those of single RL LDLTs (0.94%) and DDLT with another graft combination (1.02%), but there was no statistical significance. There was no donor mortality. And morbidity rate of RL donor was 3.5% and one of LL donor was 1.2%. Overall 1- and 3-year survival rate was 97.3% and 95.8% which were comparable to that of single RL LDLT. Of 37 cases RL/LL DDLT, 3-year graft survival rate (92.3%) of RL graft was slightly lower than that of LL graft (97.8%). Morbidity rate of each graft was similar. And overall morbidity rate of RL/LL DDLT was not different from single RL LDLT and DDLT with another graft type. **(Conclusion)** RL/LL DDLT is feasible option for overcoming small-for-size graft in adult LDLT. In the context of donor safety, it did not increase donor morbidity rate in right liver donor.

Abstract# O-141

INDIVIDUAL SURGEON VARIABILITY MODULATES THE IMPACT OF CONSECUTIVE OPERATIONS ON SURVIVAL AFTER LIVER TRANSPLANTATION.

Jeffrey B. Halldorson, Ramasamy Bakthavatsalam, Jorge Reyes, James Perkins. *Surgery, University of Washington, Seattle, WA, USA*

Objective: Prior work has demonstrated liver transplant outcomes to be worse for the second liver transplant performed by the same surgeon if performed within 2 days of the first operation. Because individual susceptibility to fatigue varies between individuals, we compared 1 year patient survival statistics for the four surgeons performing the most transplants during the study period.

Methods: 390 liver transplants for chronic liver disease from brain dead donors between the years 2003 through 2006 were reviewed.

Results: 36% of liver transplants were performed by the same surgeon with <2 day interval from the prior case. Overall 1 year patient/graft survival was significantly better if the primary surgeon had >2 days time between transplants (92.5%/91.2%, >2 days, vs. 82.8%/81.5%, < 2 days, $p < 0.003/0.004$). Four surgeons performed 94% of the liver transplants. Of the four surgeons, three surgeons demonstrated decreased patient survival with <2 days interval between transplants and 2/4 reached significance at $p < 0.05$: Surgeon A (92.6% vs. 76.9%, $n=80$, $p < 0.04$), Surgeon B 91.4% vs. 84.8%, $n=104$, $p < 0.31$) and Surgeon C (93.2% vs. 82.8%, $n=152$, $p < 0.04$). The fourth surgeon ($n=32$) did not demonstrate poorer survival with a short interval between cases with survival of 92% with >2 Days interval and 100% for <2 Days between cases. ($p < 0.45$).

Conclusion: Surgeons should be aware of the potential for poorer outcomes when performing consecutive liver transplants within a short interval. Individual factors including cumulative clinical workload, age, personal health and experience may influence the ability of surgeons to perform under stress. Surgeons should be aware of personal physical limitations to ensure optimal patient outcomes.

Figure 1.

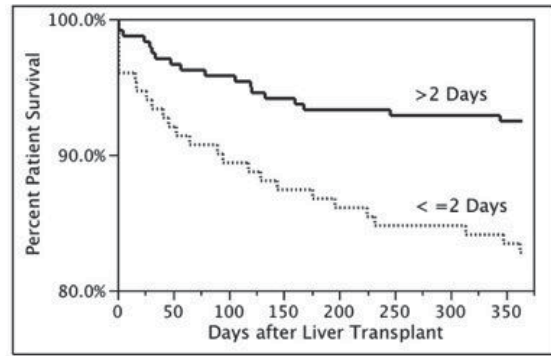
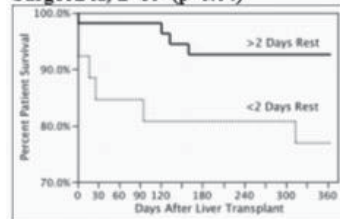
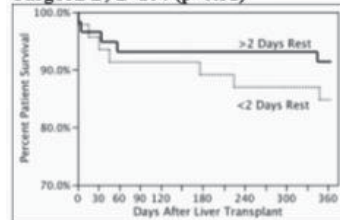


Figure 1.

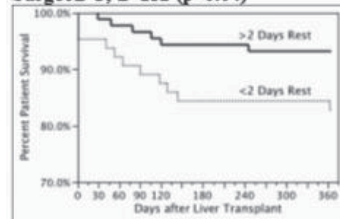
Surgeon A, $n=80$ ($p < 0.04$)



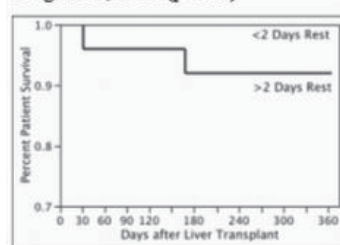
Surgeon B, $n=104$ ($p < 0.31$)



Surgeon C, $n=152$ ($p < 0.04$)



Surgeon D, $n=32$ ($p < 0.45$)



Abstract# O-142

THE SPANISH EXPERIENCE IN TWO-STAGE TOTAL HEPATECTOMY AND LIVER TRANSPLANTATION. RESULTS OF A NATIONAL SURVEY.

Mikel Gastaca¹, Patricia Ruiz¹, Evaristo Varo², Manuel Gomez³, Joan Fabregat⁴, Ricardo Robles⁵, David Calatayud⁶, Ignacio Gonzalez-Pinto⁷, Miguel A. Gómez-Bravo⁸, Eloy Tejero⁹, Javier Nuño¹⁰, Fernando San Juan¹¹, Fernando Pardo¹², Jorge Ortiz de Urbina¹. ¹Hepatobiliary Surgery and Liver Transplantation Unit, Hospital Universitario de Cruces, Bilbao, Vizcaya, Spain; ²Hospital Universitario de Santiago, Santiago de Compostela, Spain; ³CHU Juan Canalejo, La Coruña, Spain; ⁴Hospital Universitario Bellvitge, Barcelona, Spain; ⁵Hospital Universitario Virgen de la Arrixaca, Murcia, Spain; ⁶Hospital Clinic, Barcelona, Spain; ⁷Hospital Central de Asturias, Oviedo, Spain; ⁸Hospital Virgen del Rocío, Sevilla, Spain; ⁹HCU Lozano Blesa, Zaragoza, Spain; ¹⁰Hospital Ramon y Cajal, Madrid, Spain; ¹¹Hospital La Fe, Valencia, Spain; ¹²Clinica Universitaria de Navarra, Pamplona, Spain

Aim: To know and study the national spanish experience in such an infrequent procedure defined as a two-stage total hepatectomy and liver transplantation with a prolonged anhepatic phase (2SLT).

Methods: Data were obtained from a national survey sent to 22 spanish adult transplant programs. Twelve groups had experience in 2SLT.

Results: Data from 41 patients with 2SLT from 1990 to 2008 were collected. Patient mean age was 44.5 (range 11-69). The reason for the rescue hepatectomy was a graft necrosis in 16 cases (39%), 12 due to primary graft non-function and 4 due to vascular thrombosis, an acute liver failure in 6 cases (14.6%), a severe hepatic trauma in other 6 cases, a spontaneous rupture of the graft during transplantation in 3 cases (7.3%) and other causes in 10 patients (24.3%). Most of the patients were treated with a end-to-side portocaval shunt although 3 patients were maintained with a porto-suprahepatic shunt. Four patients (9.7%) died before transplantation between 10 and 30 hours after total hepatectomy. Among the transplanted patients, anhepatic phase lasted 15 hours in average (range 2-54). Eighteen of the 37 transplanted patients (48.6%) died postoperatively, 15 of them during the first month after transplantation. Nineteen patients were discharged and are alive after a mean follow-up of 33.1 months (r 1-120); two of them were retransplanted 2 days and 3 months respectively after transplantation due to arterial thrombosis.

Conclusion: Two-stage total hepatectomy and liver transplantation is an infrequent procedure that can be completed in most of the cases though unfortunately is followed by a high early mortality.

Abstract# O-143

SPLIT LIVER TRANSPLANTATION (SLT) WITH RIGHT TRISEGMENT: NATURAL HISTORY OF SEGMENT IV.

Ailton Sepulveda, Hadrien Tranchart, Mircea Chirica, Hervé Gouya, Pierre Philippe Massault, Fabien Stenard, Olivier Soubrane, Olivier Scatton. *Liver Surgery and Transplantation, Cochin Hospital, Paris, France*

Introduction: In split liver transplantation (SLT) for an adult and a child, segment IV is included with the right graft in order to provide an adequate liver parenchymal reserve to the adult recipient. Nevertheless, arterial and portal supplies might be impaired during parenchymal division increasing risk of segment IV necrosis and biliary leakage.

Objective: The aim of this study was to evaluate patients outcomes and specific complications related to segment IV after SLT with a right trisegment.

Patients and methods: Between January 2000 and November 2008, 28 patients underwent SLT using a right trisegment including the vena cava, the right portal vein, the right hepatic artery and the common bile duct. Median age at the time of SLT was 52.5 years (range 13-64 years). The split procedure was performed ex-situ in 26 patients (92.8%) and in-situ in 2 patients (7.2%). Evaluation of the volume and vascularization of segment IV were performed by CT scan on postoperative day 10.

Results: Five patients (17%) died in the postoperative period. One death (3.5%) was related to segment IV complication. Patient survival rate was 80%, 75% and 75% at 1, 3 and 5 years respectively. Median graft weight was 860g (range 464-1240 g) with a graft to recipient body weight ratio of 1.2% (range 0.9- 1.9%). Biliary leakage occurred in 6 patients (21.4%) and was revealed after radiological (n=5) or surgical (n=1) drainage of segment IV collection. Treatment of segment IV related morbidity required delayed resection of segment IV in 3 patients (10.7%). On CT, median graft volume

was 1645 ml (range 1349-2261 ml). Median segment IV volume was 209 ml (55-350 ml) representing 11.3 % (range 3.7-18.8%) of graft volume. Percentage of necrosis in segment IV was 58% (range 19-95%). There was no correlation between the volume or percentage of necrosis of segment IV and the incidence of biliary leakage and/or reoperation.

Conclusion: SLT with a right trisegment graft led to a high rate of segment IV postoperative necrosis and biliary leakage, without impairment of the overall survival. Resection of segment IV on the graft prior to transplant and improvement of vascular division techniques should therefore be considered to diminish morbidity.

Abstract# O-144

INTIMAL DISSECTION OF HEPATIC ARTERY FOLLOWING TRANS-ARTERIAL EMBOLIZATION FOR HEPATOCELLULAR CARCINOMA: AN INTRA-OPERATIVE PROBLEM IN ADULT-TO-ADULT LIVING DONOR LIVER TRANSPLANTATION.

Johnson C. Yang, Tsan-Shiun Lin, Yuan-Cheng Chiang, Chao-Long Chen. *Liver Transplantation Program and Departments of Surgery, Chang Gung Memorial Hospital-Kaohsiung Medical Center, Kaohsiung County, Taiwan*

Background and Objective: Intimal dissection (ID) of the recipient hepatic artery (HA) can result in severe complications in liver transplantation (LT). In living donor LT, this problem is made worse by a relatively short graft HA. Trans-arterial embolization (TAE) through the HA can cause intimal injury of HA which may be recognized only at the time of the operation. The classification and management of ID will be described.

Patients and Methods: Fifty-four patients with hepatocellular carcinoma underwent living donor LT. The ID was classified as mild, moderate, and severe, based on the extent of intimal injury. Mild ID was defined as < 1/4 of the circumference of the HA; Moderate ID as the ID has reached 1/2 of the circumference; Severe ID as > 1/2 to the entire circumference of the HA. The reconstructive methods used were based on the severity of ID encountered. Results: Fifty-two patients received right lobe liver grafts and 2 had dual graft transplantation. Forty patients underwent TAE before LT where 23 patients (57.5%) were found to have ID during LT where 9 mild ID, 6 moderate, and 8 had severe ID. For the 14 patients who did not undergo TAE, 4 patients had ID (28.6%; 3 mild and 1 severe). The rest of the 10 patients (71.4%) had normal HA. For mild to moderate ID, the HA was trimmed until a healthy segment was encountered. In moderate ID, other arterial branches from the proper HA can also be used. In severe ID, the HA was reconstructed using alternative vessels. Two HA thromboses occurred postoperatively. A decreased HA flow was noted 13 days postoperatively in one patient and it was salvaged successfully with the use of Urokinase. The second patient had had thrombosis 3 days after LT and was salvaged by re-do HA anastomosis. The other 19 patients (45%) did not develop HA complications. TAE increases the risk of developing intimal dissection 2x (Relative Risk (Risk Ratio): 2.01; Attributable Risk (Risk Difference): 0.289; cf. Odds Ratio: 3.38).

Conclusion: This series showed that ID of the HA is associated with pre-transplant TAE among the patients under living donor LT. Intra-operative recognition of this complication with trim-back technique or using alternative vessels are the keys to successful reconstruction.

Abstract# O-145

DECISION-ANALYSIS FOR SELECTION OF GRAFT TYPE IN RIGHT LOBE LIVING RELATED LIVER TRANSPLANTATION.

V. Vivek, B. Lenin, D. Puneet, S. Ajitabh, G. Neerav, G. Subash. *Apollo Liver Surgery Unit, Indraprastha Apollo Hospital, New Delhi, India*

Background: The Right Lobe Graft is needed to meet the metabolic demand of the Adult patient. The drainage of median sector segments(seg. IV, V & VIII) is mainly into the Middle Hepatic Vein (MHV). Congestion of the anterior segment reduces functional volume of the graft. It is crucial to decide to take MHV or not and whether to reconstruct segment 5 and 8 vein or not.

Methods: We used the MHV Clamp Test to quantify the congestion volume of the anterior sector, which helped us in selecting the graft type. A vascular clamp was applied to the MHV and Left Hepatic Vein trunk and then the right hepatic artery was temporarily clamped. Decision to take MHV or not and whether to reconstruct segment 5 and 8 vein was taken depending on the percentage of anterior segment congestion.

Results: From Sept 2006 to Dec 2008, out of 127 living donor liver transplants done at our centre, 116 were Right Lobe Grafts. Of this, Extended,

Modified and Standard right lobe grafts were approximately 53%, 36% & 11% respectively. We performed the clamp test in all the patients per-operatively.

Study results of Right Liver graft types by remnant volume, GRWR and the clamp test

Remnant volume	MHV decision	Consider	Right liver graft type	No. of patients	Percentage & Total patients
> 35 %	MHV preferred	< 0.8 GRWR, Recipient very sick	Extended(full/partial MHV)	35	33% (38)
	MHV not taken	Steatosis, Age>40	Modified (seg 5 +/-8)	3	
30-35%	Congestion (Clamp test)	<15 %	GRWR>1	8	41% (47)
		GRWR<0.8 , >5mm size with good flow	Modified	5	
		>15 %, Always reconstruction done	GRWR<0.8	7	
		Young donors, no steatosis, minimal seg 4 congestion< (Clamp Test)	Extended	27	
<30 %	Exclude MHV, Reconstruct always	Congestion >15%, >5mm size with good flow, GRWR<0.8	Modified	26	26% (30)
		GRWR>1	Standard	4	
		Congestion <15%			
			Total	116	100%

MHV,Middle hepatic vein,GRWR,graft versus recipient weight ratio

Conclusion: The clamp test helps to decide and reinforce decision to include MHV or not and to reconstruct the anterior segment or not .It saves prolonged cold ischemia time when reconstruction is avoided. It looks for the presence of collaterals and avoids the need for computer generated expensive models of reconstruction . If congestion <15 %, then reconstruction can be avoided in patients with GRWR>1. Anterior segment vessels should always be reconstructed with congestion >15%.

Plenary Session III

Abstract# O-146

AUXILIARY LIVER TRANSPLANTATION FOR ACUTE LIVER FAILURE: A REAPPRAISAL. Daniele Sommacale¹, Claire Francoz², Venicius Rochas-Santos¹, Federica Dondero¹, Safi Dokmak¹, Catherine Paugam-Burtz², Francois Durand², Jacques Belghiti¹. ¹*Surgery, Hopital Beaujon, Clichy, France;* ²*Hepatology, Hopital Beaujon, Clichy, France;* ³*Anaesthesiology, Hopital Beaujon, Clichy, France*

Background/aims: Auxiliary liver transplantation (AxLT) is an attractive option in patients with ALF since it potentially allows delayed regeneration and discontinuation of immunosuppression (IS). However, AxLT remains controversial due to technical complexity and increased morbidity. In addition, not all patients undergo complete regeneration of the native liver. The aim the present study was to reassess the place of AxLT based on a single-center experience in 27 patients.

Patients/methods: Between January 1992 and December 2008, 154 patients had LT for ALF in our center. Of these, 27 (17%) had AxLT. Mean age was 32 years (range 16-62). Indications for AxLT were paracetamol overdose in 3, HBV infection in 8, drug-induced in 9, mushroom poisoning in 2 and others in 5. Basically, the criteria for AxLT were: (a) the absence of multi-organ failure, (b) a potential for regeneration and (c) the availability of an optimal allograft. Sixteen patients received a right graft after right hepatectomy, 3 patients, a whole graft, and 8 patients, a left graft. All allografts were transplanted orthotopically. Two periods were considered: before (first period) and after (second period) year 2000.

Results: The average duration of surgery was 10.9 hours (range 7.0 to 14.3) and the mean number of red blood cell units transfused was 5.3 (range 0 to10). Mean follow up was 110 months (range 3 to 188). During the first period, early post-transplant mortality rate (within 3 months) was 44%. Four out of the 10 (40%) patients who survived had complete regeneration and are free of IS. During the second period, early post-transplant mortality rate was significantly lower (22%, p=0.005). Four out of the 6 (66%) patients who survived had complete regeneration and are free of IS. In those who had regeneration, auxiliary grafts turned to atrophy with progressive tapering of IS and none were surgically removed.

Conclusion: This study suggests that the initial results of AxLT have been hampered by the effects of the learning curve. In recent years, the results of AxLT became comparable to those of conventional LT and the majority of patients could eventually be free from IS. Although it is only applicable to a minority of patients, AxLT should always be considered in those with a potential for regeneration.

Abstract# O-147

PROGNOSIS OF CRITICALLY ILL CIRRHOTIC PATIENTS UNDERGOING MECHANICAL VENTILATION: IMPLICATIONS FOR THE MANAGEMENT OF ACUTE-ON-CHRONIC LIVER FAILURE. Wael Abdelrazek, Claire Francoz, Richard Moreau, Antonella Pironti, Dominique Valla, Francois Durand. *Hepatology, Hopital Beaujon, Clichy, France*

Background/aims: Since the implementation of MELD score-based allocation system, the sickest patients have the highest priority for transplantation. This policy gave renewed interest to the management of patients with acute-on-chronic liver failure. Except for elective surgery, the need for mechanical ventilation (MV) in cirrhotic patients is associated with a poor outcome. However, prognostic factors in this population have not been clearly defined. The aim of this retrospective study was to better identify prognostic factors in critically ill cirrhotic patients undergoing MV.

Methods: One hundred cirrhotic patients admitted in the ICU for acute complications necessitating MV were studied. Mean age was 52 ± 11 years. The cause of cirrhosis was alcohol in 60, chronic viral hepatitis in 29 and others in 9. Mean MELD score was 28 ± 9. Indications for MV were variceal bleeding in 10%, encephalopathy in 33%, acute respiratory distress syndrome in 46% and miscellaneous in 11%.

Results: Thirty, 60 and 90-day survival rates were 25%, 19% and 18% respectively. Based upon ROC curve analysis, MELD score was more accurate for predicting 90-day mortality (c-statistic: 0.80) than the more general APACHE II and SOFA scores (c-statistic: 0.69 for both). On multivariate analysis (Cox model) the following variables were independent predictive factors of mortality: MELD score (p<0.0001), cause of cirrhosis (alcohol vs others; p=0.0005) and baseline serum bicarbonate (p=0.007). Patients with alcoholic cirrhosis and high serum bicarbonate had better outcome compared to others. A score for predicting 90-day mortality risk was created combining these 3 variables: score= (0.07*MELD)-(0.05*bicarbonate {mmol/L}) + (0.84*cause of cirrhosis {1 if alcohol, 2 if other}). Ninety-day survival was 56% in those with a score below 1.23 (25% of patients) compared to 4% in those with a score over 1.23. The c statistic of this 90-day mortality risk score was 0.87.

Conclusions : This series confirms that the prognosis of cirrhotic patients undergoing MV is poor. However, a simple prognostic score may allows identify a subgroup with more than 50% 90-day survival. It may help better identify the patients who should undergo aggressive management in the ICU, with a reasonable chance of access to transplantation.

Abstract# O-148

DUCT-TO-DUCT ANASTOMOSIS USING FUNNEL SHAPE RECIPIENT BILE DUCT: A NOVEL TECHNIQUE TO REDUCE BILE DUCT COMPLICATION IN LIVING DONOR LIVER TRANSPLANTATION. Kwang-Woong Lee,

Seong Yeon Cho, Seong Hoon Kim, Sung-Sik Han, Young-Kyu Kim, Yumi Lee, Sang Jae Park. *Center for Liver Cancer, National Cancer Center, Goyang-si, Gyeonggi-do, Korea*

Background; Bile duct complications are still Achilles tendon of living donor liver transplantation (LDLT). In this study, we introduce new duct-to-duct anastomosis technique and evaluate the feasibility of this technique.

Patients and Methods; Between Jan 2008 and Aug 2008, 45 LDLT recipients who received duct-to-duct anastomosis for biliary reconstruction by single surgeon were included. 44 patients received right lobe and 1 patient received left lobe. Recipient's bile ducts were prepared by same high hilar technique. Among them, 23 LDLT have been performed with conventional end-to-end anastomosis between recipient and graft bile ducts and 22 LDLT have been performed with our new funnel technique (By un-roofing the whole bile duct plate between right and left hepatic duct down to confluence, funnel shape bile duct end was prepared. Everted mucosal side of size matched location of recipient bile duct was sutured with the end of graft bile duct). Clinicopathologic data were analyzed retrospectively.

Results; For the 45 patients, mean age was 52.8 (34-67), male was 75.6%, mean MELD score was 17.8 (7-40), mean cold ischemic time was 66.6 (20-137), mean warm ischemic was 33.3 (18-55) and mean GRWR was 1.09

(0.53-1.93). Follow up duration was more than 4 months in all cases. Age, gender, MELD score, duration of steroid use, total dosage of steroid, cold ischemic time, warm ischemic time, GRWR, blood loss during operation and type of immunosuppression were not significantly different between two groups. However, the new funnel technique group showed better outcome to the conventional group in terms of bile leakage (0% vs. 30.4%, $p=0.005$), bile duct stenosis (9.1% vs. 34.8%, $p=0.037$) and overall biliary complications (9.1% vs. 43.5%, $p=0.008$).

Conclusion: Our new technique showed superior short term result for bile duct anastomosis compared with conventional end-to-end anastomosis. The advantages of our technique are 1) more deep located blood rich mucosal layer was used for anastomosis, and 2) funnel shape of recipient bile duct provided variable size matching location for anastomosis, so less prone to size discrepancy. Our new funnel technique of bile duct reconstruction will provide better quality of life for the recipients who underwent LDLT to reduce bile duct complication.

Abstract# O-149

ADULT TO ADULT LIVING DONOR LIVER TRANSPLANTATION (A-A LDLT) IN FULMINANT HEPATIC FAILURE (FHF): SHOULD IT AFFECT THE TREATMENT ALGORITHM IN COUNTRIES WITH SEVERE ORGAN SHORTAGE? Menahem Ben-Haim, Richard Nakache, Ran Oren, Patrick Sorkine, Adi Nimrod, Michal Carmiel-Haggai. *Liver Surgery and Transplantation, ICU and Hepatology, Tel-Aviv Sourasky Medical Center, Tel-Aviv, Israel*

Background: Timely urgent transplantation is the key for survival following FHF. The application of urgent A-A LDLT in this setting is controversial, but inevitable in countries with severe shortage of cadaveric organs, such as Israel. Therefore, we applied a unique algorithm to manage FHF.

Methods: A retrospective analysis of prospectively collected data. Included are patients with FHF, who were transplant candidates and were listed as status 1. For each, a parallel thorough search for a potential LD was initiated. Donor evaluation and selection was according to strict criteria and approved an independent ethic committee. In the absence of any LD, transplantation was with the first available cadaveric liver. When a LD was ready and approved, A-A LDLT was carried out only when grade III encephalopathy occurred and the patient was ventilated.

Results: Thirty three patients (19 women), aged 15-58 years with FHF, fulfilled King's criteria for liver transplantation (Mean MELD score, 43; range, 17-61).

Sixty nine members of 20 patient's families expressed motivation for donation. Of these 35 were screened and 20 were suitable for donation (for 11 candidates).

Following FHF, 10 patients (30%) recovered spontaneously. Sixteen (48%) were transplanted, 9 from cadaveric donors (including 2 marginal and 2 non-compatible grafts) and 7 from LD. Seven patients (21%) died in the absence of any donor or from intracranial hemorrhage just before LDT (one case).

All the patients who were transplanted from LD are alive. Two out of nine patients died following cadaveric transplantation (1 marginal and 1 non-compatible grafts).

The overall survival of patient with FHF who were managed according this algorithm is 73%. Notably, are 3 patients who had a LD ready and were finally transplanted successfully with cadaveric grafts.

Conclusions: Applying the concept of A-ALDLT for FHF as a "safety-net", we could achieve excellent results, even in the milieu of severe organ scarcity and un-predictability.

Abstract# O-150

EFFICACY OF ANTIVIRAL THERAPY IN LIVER TRANSPLANT RECIPIENTS WITH RECURRENT HEPATITIS C: EFFECT OF BASELINE CALCINEURINIC AGENT. Angel Rubin¹, Victoria Aguilera^{1,3}, Marina Berenguer^{1,3}, Josep L. Melero¹, Cecilia Ortiz^{2,3}, Maria Rodriguez-Soler¹, Martín Prieto^{1,3}. ¹Hepatology Unit, Hospital la Fe, Valencia, Spain; ²Experimental Immunity Unit, Hospital la Fe, Valencia, Spain; ³CIBER-EHD, Hospital la Fe, Valencia, Spain

Aim: To assess whether baseline immunosuppressive therapy with cyclosporine (CyA) or tacrolimus (Tac) modifies the efficacy of pegIFN-ribavirin treatment in transplant recipients with recurrent hepatitis C. **Methods:** 107 liver transplantation (LT) patients (74% men, 55.5 years (range: 37.5-69.5)) were included. Tac was used in 65 patients (61%), whereas CyA in 42 (39%). There were no significant differences between

both groups regarding basal conditions as age, sex, donor age, and rates of pre-LT antiviral treatment, duration from transplantation to antiviral therapy, genotype distribution, or severity of liver disease. Biochemical parameters were similar in both groups at the beginning of the treatment, without statistical differences in mean hemoglobin, bilirubin or creatinine levels. However, there were more patients with impaired renal function ($Cr > 1.5$ mg/dl) in the CyA group (17% vs. 3.1% $p=.002$). Both groups were treated with pegIFN-ribavirin, with no differences in the initial dosage between groups. The main end point was sustained viral response (SVR). Secondary endpoints were early viral response (EVR) at 3 months, and complete viral response (CVR) at end of treatment. **Results:** A (SVR) was achieved in 39 (36.4%) patients, with no statistical differences between patients on Tac (23 responders, 35%) and those on CyA (16 responders, 38%) with $p=.008$. There were also no differences in EVR (Tac 60%, CyA 60%) and CVR (Tac 66%, CyA 71%) rates. The mean duration of treatment was 365 days (31-623) for the Tac group and 295 (16-574) for the CyA group. Patients in CyA group required premature discontinuation more often (50% vs 29% $p=.003$) greater use of epoetin (66.7% vs. 43% $p=.17$). Main causes of antiviral discontinuation were similar in both groups, but for graft rejection, which was higher in the CyA group (36% vs. 13%). **Conclusions:** Baseline immunosuppression with anticalcineurinic agents as CyA or TAC, has no effect on the efficacy of antiviral therapy with pegIFN-ribavirin in patients with recurrent hepatitis C.

Abstract# O-151

USE OF OLDER LIVING LIVER DONOR GRAFTS FOR HEPATITIS C VIRUS (HCV) POSITIVE RECIPIENTS: ANALYSIS FROM UNITED NETWORK FOR ORGAN SHARING (UNOS) DATABASE. Randeep Kashyap¹, Saman Safadjou¹, Rajeev Sharma¹, Benedict Maliakkal², Mark Orloff¹. ¹Dept. of Surgery, University of Rochester Medical Center, Rochester, NY, USA; ²Dept. of Gastroenterology and Hepatology, University of Rochester Medical Center, Rochester, NY, USA

Hypothesis: Older donor grafts from living donors provide suitable results of liver transplant in recipients with HCV.

Background: Although HCV remains the leading indication for liver transplant in adults in the United States, it is associated with HCV recurrence, increased graft loss, and reduced survival. In addition, recent studies suggest that the use of older donors in recipients with HCV is associated with significantly worse short and long-term survival.

Patients: A retrospective analysis of UNOS database for all patients transplanted in the United States from September 1987 to September 2006 was done. A total of 80445 liver transplants were performed. 74890 transplants were excluded since they either had "unknown / not done" HCV RNA test result status or were lost to follow up. Of the remaining adult patients, 3224 (58.03%) had HCV as the primary indication for transplant and 2331 (41.9%) had other indications.

Main outcome measures: Patient and graft survival.

Results: At 1, 3, 5 and 10 years, overall patient survival was 83.3%, 70.8%, 62.9% and 54.5%, for HCV positive and 86.9%, 81.5%, 77.0% and 55.5%, for HCV negative, respectively, while graft survival was 79.1%, 66.3%, 57.7% and 49.9%, for HCV positive and 82.1%, 75.6%, 71.1% and 62.1%, for HCV negative, respectively. Among live donors there was no significant difference in patient or graft survival between patients with donor age less than 50 or more than fifty in HCV positive recipients. No difference was demonstrated in short or medium-term patient or graft survival in recipients of grafts from older donors.

Conclusion: The increasing use of carefully selected older living donors does not seem to adversely affect short or medium-term results and may be a source of additional organs for expanding liver transplant waiting lists.

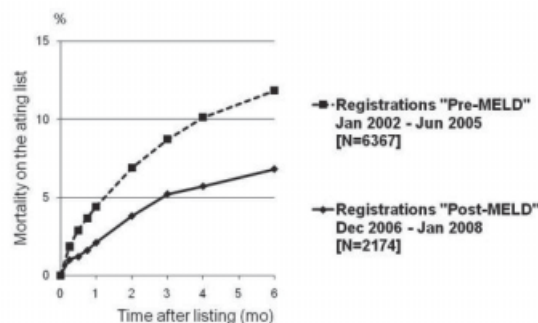
Abstract# O-152

TWO-YEAR EXPERIENCE WITH MELD-BASED LIVER ALLOCATION IN EUROTRANSPLANT SHOWS A SUBSTANTIAL DECREASE IN MORTALITY ON THE WAITING LIST IN THE FIRST 6 MONTHS AFTER LISTING. Axel O. Rahmel¹, Laura Boogert¹, Xavier Rogiers², for the Eurotransplant Liver and Intestine Advisory Committee¹. ¹Eurotransplant International, Leiden, Netherlands; ²Department of Surgery, Ghent University, Ghent, Belgium

Eurotransplant (ET) is an international organ exchange organization responsible for organ allocation in 7 European countries (Austria (A), Belgium (B), Croatia (C), Germany (G), Luxemburg (L), Netherlands (N)

and Slovenia (S)). In December 2006, a MELD-based liver allocation system for elective patients was introduced in three of the ET countries (B, G, N = MELD-countries (MC)). Allocation is generally based on the calculated MELD-Score (labMELD). For 15 liver diseases, whose urgency is not well reflected by labMELD "standard exceptions" (SE) are defined. If neither labMELD nor a SE represents the urgency of the patient a "non-standard exception" (NSE) can be assigned via an audit process. The other countries (A, C, S = Non-MELD countries (NMC)) use a center-based allocation system. We now report on two-year experience after introduction of MELD in the MC.

Results: In the two-year period 2897 deceased donor liver transplants were performed in MC, 2464 of them in elective patients. 1600 patients (65%) received their donor liver based on a labMELD, 801 (32,5%) based on a SE and only 63 (2,5%) via a NSE. The most frequent SE leading to a transplantation was HCC (402 pts), followed by adult polycystic degeneration of the liver (APDL) with 67 pts. Average MELD at time of allocation was 27,1 with substantial differences between blood groups (A; 27,0; B; 25,7; AB; 21,4; O; 29,2). In the first two years several adaptations in the allocation rules were necessary to prevent discrimination against special patient groups. Mortality on the waiting list within 6 months after listing decreased from 11,8% to 6,8% in the MC. This decrease was not seen in the NMC, here 6-months mortality was 13,4%.



Conclusion: MELD-based allocation resulted in a substantial decrease in mortality on the waiting list, close monitoring of allocation is necessary to prevent discrimination against specific patient groups and an undesirable increase in mortality after transplantation.

Abstract# O-153

A NOVEL APPROACH TO PROTECT LIVER GRAFT AGAINST ISCHEMIA/REPERFUSION INJURY VIA A CELL PENETRATING HEME OXYGENASE PROTEIN. Yan Liu¹, Kwan Man¹, Björn Nashan², Hans J. Schlitt³, Tung Yu Tsui².

¹Department of Surgery, The University of Hong Kong, Hong Kong, China; ²Department of Hepatobiliary and Transplant Surgery, University Medical Center Hamburg-Eppendorf, Hamburg, Germany; ³Department of Surgery, Regensburg University Medical Center, Regensburg, Germany

Backgrounds: Ischemia/reperfusion injury is one of major limiting factors that significantly affects the outcome of liver transplantation. In the study, we established a novel protein transduction system to extend extreme graft preservation time and to prevent ischemia and reperfusion injury.

Methods and results: modified human heme oxygenase-1 (HO-1) or enhanced green fluorescent protein (EGFP) recombinant protein containing a cell-penetrating domain (PTD) was generated and purified in a large scale for in vivo study. Their biological activities were investigated in a syngeneic liver transplantation model using whole graft. PTD/HO-1 or PTD/EGFP was administered through portal vein after the graft harvesting and the grafts were preserved in cold HTK solution. The targeted protein was found in the vessel wall of portal areas and adjuvant liver cells at 10 min after administration. With this approach, the extreme preservation time of liver graft could be significantly extended to 24 hrs. PTD-HO-1 significantly improved the graft survival at day 7, six of six animals bearing PTD/HO-1-treated liver grafts survived after transplantation (200µg/graft), whereas none of animals bearing PTD/EGFP-treated liver graft survived after transplantation at day 7. Histomorphological analysis of the grafts with 12 hrs cold preservation and 2 hrs reperfusion showed significantly less apoptotic cells (TUNEL positive), less endothelial cell activation (ICAM-1 positive), less neutrophil (myeloperoxidase positive) and macrophage (ED-1 positive) infiltration in

PTD/HO-1-treated liver grafts as compared to controls. In addition, electron microscopy shows less intrahepatic bile duct damage after reperfusion in the graft treated with PTD-HO-1 as compared to controls.

Conclusions: we demonstrate here a novel method to protect liver graft against I/R injury that might have great potentials for clinical application in future.

Abstract# O-154

THE PREDICTIVE POWER OF DONOR RECIPIENT MATCH. A 4-YEARS ANALYSIS OF THE OPTN DATABASE.

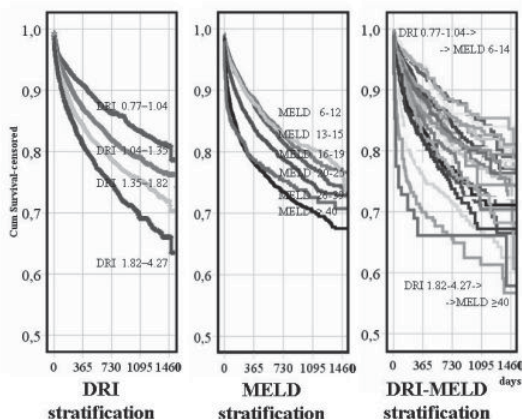
A. W. Avolio¹, M. Siciliano², M. Barone³, W. Perilli⁴, R. Gaspari⁴, B. Annicchiarico², N. Nicolotti⁵, M. C. Lirosi¹, L. Vargiu¹, S. Agnes¹.

¹Dept of Surgery - Transplantation Service, "A.Gemelli" Catholic University, Rome, Italy; ²Dept of Internal Medicine, "A.Gemelli" Catholic University, Rome, Italy; ³Dept of Gastroenterology and Organ Transplantation, University of Bari, Bari, Italy; ⁴Dept of Anesthesiology and Intensive Care, "A.Gemelli" Catholic University, Rome, Italy; ⁵Dept of Hygiene and Epidemiology, "A.Gemelli" Catholic University, Rome, Italy

Background. Donor Risk Index (DRI) has been introduced to predict post-transplant graft survival (GS) using donor data. The MELD score, which is the gold-standard in scoring liver disease in liver transplant candidates, has a prognostic significance also in short and medium term after liver transplantation. The predictive power of donor-recipient MATCH has not been elucidated.

Patients and Methods. The present analysis is aimed to assess the role of DRI and of MELD score in predicting the outcome after transplantation, in short (180 days) and medium term (1460 days). The Organ Procurement Transplantation Network (OPTN) database relevant to 23.392 consecutive cases in the MELD era was used. Cases were stratified in classes according to DRI (4 classes), MELD (6 classes), and DRI-MELD match (24 classes). GS was assessed by Kaplan Meier method at 0-1460 days. Differences were tested by Log-rank test.

Results. All three parameters allow an effective stratification (figure). Using the DRI, the gaps between the highest and lowest GS were 7.8% and 14.9%, at 180 and 1460 days, respectively. Using the MELD score, the gaps were 10.2% and 9.5%, respectively. Using DRI-MELD, the gaps were 25.5% and 35.4%, respectively. Both the DRI and the MELD can predict the outcome, although the predictive power of the DRI is the highest of the two, and the predictive power of the donor-recipient match, is higher.



Discussion. Combination of DRI and MELD represents the best prognostic index in both short and medium-term observation period. On the basis of our results we believe that, in order to increase GS without refusing donors with high DRI, we should not allocate these organs to patients with a high MELD score.

Abstract# O-155

PEDIATRIC LIVER TRANSPLANT RECIPIENTS 20 YEARS LATER: GUARDED OPTIMISM. Robert S. Venick, Sue V. McDiarmid, Douglas G. Farmer, Susan Feist, John Duffy, Johnny Hong, Jorge H. Vargas, Marvin E. Ament, Ronald W. Busuttil. *David Geffen School of Medicine, Los Angeles, CA, USA*

BACKGROUND: There remains a paucity of data on long-term outcomes after pediatric liver transplantation (pLTx). This study aimed to describe in detail liver function, metabolic disease, renal function & social circumstances of pLTx recipients with > 20 years follow-up.

METHODS: An IRB-approved, retrospective, single-center cohort study of all pLTx recipients with > 20 years follow-up was conducted. The most recent liver function tests, fasting glucose & cholesterol, BMI, blood pressure, eCrCl (Cockcroft-Gault), immunosuppression, education level & social data were gathered.

RESULTS: Between 1984-1988 114 children underwent 143 isolated pLTx. The overall 1/5/10/15/20 year actuarial patient survival was: 79/74/70/68/62%. The following patients were excluded from further analysis: 46 patients who died at median of 1.0 years post-pLTx, 14 lost to follow-up, 19 alive & followed at other centers. Complete data was available on 35 patients. The median age at pLTx was 3.9 years. Median follow-up was 21.5 years. The 1/5/10/15/20 year graft survival was: 83/76/73/67/65%. 37% of patients have been re-transplanted including 4 patients who received three grafts. 26% developed post-pLTx HCV, and 20% have abnormal graft function (defined as ALT>100 or Total Bilirubin > 2.0) including 9% who are re-listed. 9% have received or are being worked up for kidney Tx. 9% are off immunosuppression. Laboratory data is provided in Table 1. 41% of patients were overweight, 30% are on antihypertensive medications, 15% had elevated fasting total cholesterol levels (>200), 16% elevated fasting glucose (>110) & 6% required insulin. 83% of patients have attended college or are currently working. 17% are married & 20% have children.

Table 1. Median Laboratory Values at Time of Most Recent Follow-up

ALT	Total Bilirubin	Albumin	Alkaline Phosphatase	Creatinine	eCrCl	Fasting Glucose	Fasting Cholesterol
24 U/L	0.8 mg/dL	4.0 g/dL	111 U/L	1.0 mg/dL	100 mL/min	92 mg/dL	150 mg/dL

CONCLUSIONS: This study represents one of the largest long-term follow-ups for pLTx recipients. The majority of patients with >20 year follow-up have good graft function & metabolic parameters & social situations similar to the general population. However, over 1/3 have required reTx. The incidence we show of graft dysfunction, post-LTx HCV & renal failure mandate assiduous long-term follow-up.

Abstract# O-156

USE OF TISSUE PLASMINOGEN ACTIVATOR IN DONOR HEPATIC ARTERY OF DONATION AFTER CARDIAC DEATH DONORS: CAN WE LOWER THE RISK OF ISCHEMIC-TYPE BILIARY STRICTURE AFTER LIVER TRANSPLANTATION? K. Hashimoto¹, B. Eghtesadi¹, N. Ahmed¹, G. Gunasekaran¹, C. Quintini¹, F. Aucejo¹, D. Kelly¹, C. Winans¹, D. Vogt¹, B. Parker², S. Irefin², C. Miller¹, J. Fung¹. ¹*Liver Transplant Program, General Surgery, Cleveland Clinic, Cleveland, OH, USA;*

²*General Anesthesiology, Cleveland Clinic, Cleveland, OH, USA*
Aim: Development of ischemic-type biliary stricture (ITBS) has been shown to occur in 33 - 50% of recipients of livers from donation after cardiac death (DCD) donors. The pathophysiologic mechanism(s) postulated involve the formation of thrombus in the peribiliary microcirculation during the period of warm ischemia, in which case, the use of thrombolytic agents may be of benefit. The aim of this study was to evaluate the effect of tissue plasminogen activator (TPA) administration into the donor hepatic artery in DCD livers at the time of transplantation.

Methods: This protocol was used in 15 recipients of livers from controlled DCD donors preserved with HTK solution. Mean donor age was 38 ± 12 years. Due to OPO regulations, heparin could not be given prior to declaration of death. Mean warm and cold ischemia time was 25 ± 9 min and 427 ± 97 min, respectively. 3 to 10 mg of TPA was injected into the donor hepatic artery in the backtable before implantation. The hepatic artery was kept clamped until 10 - 15 min after reperfusion of the portal vein. The artery was then unclamped to allow excess TPA to back-bleed and the effluent was discarded.

Results: Follow-up period was 3 to 40 months. No recipient developed ITBS. Primary nonfunction was seen in one recipient who was salvaged with retransplantation. Although systemic post-reperfusion fibrinolysis was seen in 10 recipients (67%), it is uncertain whether this was secondary to

TPA or due to graft dysfunction due to ischemia/reperfusion injury, as the degree of fibrinolysis did not correlate with the amount of TPA used. This was managed by standard blood product administration and anti-thrombotic agent administration.

Conclusion: The administration of TPA in the donor hepatic artery appears to have the potential to lower the risk of ITBS in DCD livers in a rigorous situation of warm ischemia. In this situation, recipients may experience an increased risk of intraoperative blood loss. Nevertheless, given the morbidity and mortality associated with ITBS, the impact of this approach should be validated by additional experience in a larger group of patients.

Abstract# O-157

EMTRICITABINE/TENOFOVIR DF (FTC/TDF) FIXED DOSE COMBINATION IN PATIENTS WITH NORMAL AND IMPAIRED RENAL FUNCTION POST ORTHOTOPIC LIVER TRANSPLANT (OLT) FOR PREVENTION OF CHRONIC HEPATITIS B (CHB) RECURRENCE IN THE PRESENCE OR ABSENCE OF HBIG: UPDATED SAFETY ANALYSIS. Lewis Teperman¹, James Spivey², Fred Poordad³, Thomas Schiano⁴, Derek Coombs⁵, Jane Anderson⁵, David Oldach⁵, Franck Rousseau⁵. ¹*New York University Medical Center, New York, USA;* ²*Emory Healthcare, Atlanta, USA;* ³*Cedars-Sinai Medical Center, Los Angeles, USA;* ⁴*Recanati/Miller Transplantation Institute, Mount Sinai Hospital, New York, USA;* ⁵*Gilead Sciences, Durham, USA*

Background: This study evaluates the safety and efficacy of FTC/TDF with/without HBIG in preventing recurrence of CHB post-OLT. **Methods:** Stable patients ≥12 weeks post-OLT with a creatinine clearance ≥40 mL/min and no CHB recurrence post-OLT are eligible. Patients are treated 24 weeks with FTC/TDF plus HBIG and at week (W) 24 randomized to HBIG + FTC/TDF or FTC/TDF alone for an additional 72 weeks. Preliminary safety data are described. **Results:** Currently 29/50 patients are enrolled with 24 patients through W24. At baseline, median age was 59 years, 83% men, 38% Asian, 24% Black and 31% White; all patients had undetectable HBV DNA and 28/29 had normal ALT. Median time (min, max) since transplant was 3.8 yrs (0.6, 6.0). Creatinine clearance values at baseline include: 15 patients >70 mL/min (5 with normal renal function >80 mL/min); 7 patients ≥50 to 70 mL/min and 7 patients <50 mL/min (moderate renal impairment). Patients with creatinine clearance <50 mL/min are dosed every 48 hours. Among patients treated for 24 weeks, median change from baseline in creatinine clearance was +2.0, -4.0 and +8.0 mL/min and median phosphorus values were 2.7, 3.1 and 3.75 mg/dL, respectively. No patient had a confirmed increase in creatinine ≥0.5 mg/dL or phosphorus <2mg/dL. One patient underwent a dose reduction to every 48 hours (creatinine clearance decreased from 50 mL/min at baseline to 43 mL/min at W16). Three serious AEs, all considered unrelated to study medications, have occurred: cytomegalovirus (CMV) hepatitis (liver donor positive), hypertension and diarrhea. The only Grade 3 or 4 laboratory abnormalities included: serum or urine glucose (all history of diabetes) and WBC and bilirubin (CMV patient). To date, no patient has experienced CHB recurrence. Safety data through W48 will be presented. **Conclusion:** Preliminary safety data through W24 indicate that FTC/TDF is well tolerated in patients with mild to moderate renal impairment post-OLT.

Poster Session I

Abstract# P-1

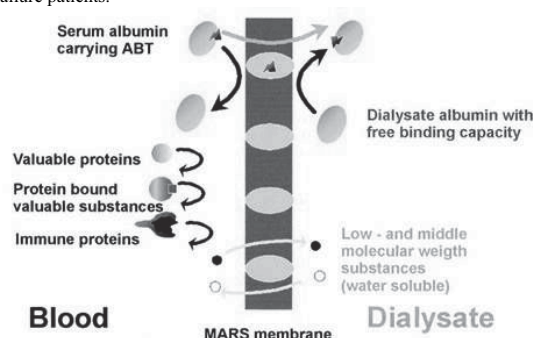
MOLECULAR ADSORBENT RECIRCULATING SYSTEM: A BRIDGE TO LIVER TRANSPLANTATION. Zalak Patel, Haran Fisher, Ernesto Pretto. *Department of Anesthesiology, Jackson Memorial Hospital, UM-Miller School of Medicine, Miami, FL, USA*

Liver failure and end-stage liver disease (ESLD) is a devastating syndrome characterized by development of progressive jaundice, rapidly worsening encephalopathy, coagulopathy and multiple organ failure as a terminal event.

Multiple organ failure is caused by the loss of synthetic, detoxifying and metabolic functions of the liver responsible for homeostasis. The definitive treatment for the liver failure is orthotopic liver transplant (OLT).

It is a costly and complex procedure requiring life long immunosuppressive therapy. Currently one-third of the patients die while waiting for a transplant

and organ shortage is increasing. Many patients with acute on chronic liver failure are not eligible for transplant due to extra-hepatic organ dysfunction progressing to Multiple Organ Dysfunction Syndrome (MODS). The artificial liver support system - Molecular Absorbent Recirculating System (MARS), can provide beneficial effects both in patients with liver failure prior to expected recovery i.e. re-compensation of the liver (bridge to recovery) as well as in patients awaiting liver transplant (bridge to OLT). In this paper we review published reports on MARS and its use in liver failure patients.



[Mitzner et al. Liver transplantation 2000 (6) 3: 277-286]. ABT-Albumin Bound Toxin.

MARS has significantly improved the hemodynamic profile and kidney function that determine patient survival in acute liver failure and post OLT patients with primary non-function awaiting re-transplantation.

Use of MARS in acute liver failure pre-transplant is associated with better 6 and 12 month survival rate and native liver recovery rate, in some cases precluding OLT.

MARS can be used as a bridge to transplantation when fulminant hepatic failure requires urgent transplantation in patient with adult onset Still's disease or decompensated Wilson disease.

In recent years, small sized clinical studies on patient with acute liver failure or with decompensated chronic liver failure showed favourable outcome with MARS, while no adverse effects have been reported. Large-scale, prospective, randomized clinical trials are still pending.

Abstract# P-2

POSTOPERATIVE PULMONARY CARE OF THE HEPATOPULMONARY SYNDROME: A SURVEY REPORT.

Yoogoo Kang, Vincent Franze, Cataldo Doria. *Anesthesiology, Jefferson Medical College, Thomas Jefferson University, Philadelphia, PA, USA; Anesthesiology, Jefferson Medical College, Thomas Jefferson University, Philadelphia, PA, USA; Surgery, Jefferson Medical College, Thomas Jefferson University, Philadelphia, PA, USA*

Hepatopulmonary syndrome (HPS), reversible after orthotopic liver transplantation (OLT), may precipitate respiratory failure. HPS has unique pathophysiology, but postoperative respiratory care has not been established. In this report, the clinical course of a patient with the HPS was submitted to anesthesiologists/intensivists of ten leading OLT centers to develop a consensus and to stimulate further investigations on this issue.

Case Presentation & Questions: A 58-year-old female with ESLD and the HPS requiring home O₂ underwent OLT. Chest CT showed increased interstitial markings and V-Q mismatching. Echocardiography (Echo) showed intrapulmonary shunting. PaO₂ was 271 mmHg*, and repeat PaO₂ was 468 mmHg*. (*PaO₂ at FiO₂ of 1.0.)

[Q1: Is the major difference in PaO₂ a technical error or dynamic changes in intrapulmonary shunting?]

OLT was uneventful, and PaO₂ was 242-360 mmHg*. During a Valsalva maneuver, air bubbles appeared in the left atrium.

[Q2: Is this a communication between alveoli and pulmonary capillary? If so, can high positive pressure ventilation (PPV) be harmful?]

She was awake in 5 hours: Graft function was excellent, but PaO₂ decreased to 74 mmHg*. Oxygenation deteriorated further (PaO₂ of 48-54 mmHg), and PPV included a PEEP of 10 cmH₂O. Echo showed mildly reduced LV systolic fx, and CXR showed patchy atelectasis with minimal pulmonary edema.

[Q3: Is PPV superior to spontaneous ventilation?]

Nitric oxide (5-40 ppm) was added to the respiratory circuit for 18 days with no improvement.

[Q4: Do you advise the use of nitric oxide?]

For the next 16 days, she was ventilated with high airway pressure (Bi-modal, 25-40/10-15 mmHg), and PaO₂ was 49-72 mmHg. CXR showed mild pulmonary edema, and Echo findings were RV overload, normal LV fx, and PASP of 54 mmHg. Nitric oxide (5-40 ppm) was added again with no improvement.

[Q5: Is it possible high PEEP could have worsened the intrapulmonary shunting?]

Spontaneous ventilation was possible on the POD#43 (PaO₂, 79 mmHg) and she has recovered from the HPS: PaO₂ was 548 mmHg* in 6 months and 499 mmHg* in 2 years.

[Q6: What is your overall impression? Do you have an institutional guideline?]

Results: Questionnaire responses are being and analyzed, and results will be presented.

Abstract# P-3

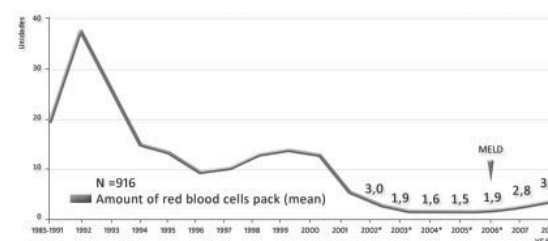
PACKED RED BLOOD CELLS TRANSFUSION DURING LIVER TRANSPLANTATION IN A SINGLE BRAZILIAN CENTER: 1030 TRANSPLANTS FROM 1985 TO 2008.

Thomson M. Palma, Carlos E. S. Baia, Rafael Pecora, Alexandre Teruya, Flavio Takaoka, Alexandre P. Oliveira, Ana Olga N. G. F. Mies, Eloisa H. D. Quintela, Leonardo R. Ferraz, Margareth P. Lallée, Sergio Mies. *Liver Unit, Instituto Dante Pazzanese de Cardiologia, Sao Paulo, SP, Brazil*

Introduction: The Liver Unit was the first Latin American team to perform a successful liver transplantation in 1985. The aim of this paper is to describe the profile of packed blood red cells transfusions required for the procedures.

Methods: Until June, 30th 2008, 1030 transplants were performed in 913 patients, 828 with deceased donors and 202 with living donors, 36 of those were "domino" liver transplantations. Only 17 of 913 patients were younger than 14 years-old in the time of transplantation. Patients' files were consulted for the amount of packed blood red cells transfusions required in each transplant.

Results: The results are summarized in the graphic.



The mean amount of packed blood red cells transfusions needed achieved 40 units in the first years. Coincidentally with the increase in casuistic, progressively less transfusions were needed. The lowest mean occurred in 2005, with 1.5 units/transplantation. The last years showed a tendency to increase the mean need of packed red blood cells transfusion, and an important factor that may be associated is the MELD criteria for allocation of organs, that started in Brazil in July 2006.

Conclusion: We conclude that the experience of the surgical team, and the technical and pharmacological innovations applied during the intra-op by the anesthesiologists contributed in a significant way to reduce the amount of packed red blood cells transfusions in liver transplantation.

Abstract# P-4

THE IMPACT OF UW AND HTK PRESERVATION SOLUTIONS ON CHANGES IN THE SERUM POTASSIUM LEVELS OF PATIENTS UNDERGOING LIVING DONOR LIVER TRANSPLANTATION.

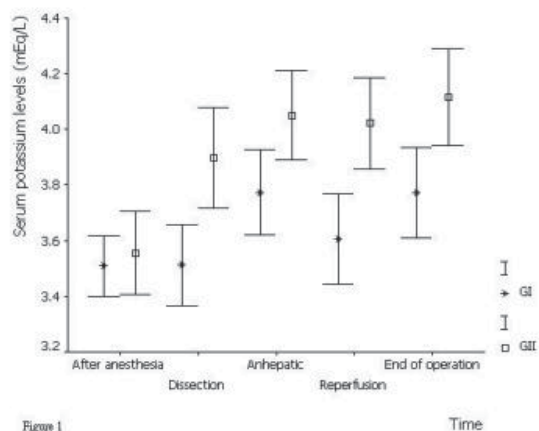
Bruno Jawan¹, Chao-Long Chen², Chih-Hsien Wang¹, Chia-Jung Huang¹, Allan M. Concejro². *¹Anesthesiology, Chang Gung Memorial Hospital, Kaohsiung Medical Center, Kaohsiung, Taiwan; ²Liver Transplant Program, Chang Gung Memorial Hospital, Kaohsiung Medical Center, Kaohsiung, Taiwan*

Background and objective: The potassium content of University of Wisconsin (UW) is 125 mEq/L and Histidine- Tryptophan-Ketoglutarate (HTK) contains only 9 mEq/L. The aim of this study is to analyze and compare the changes in

the serum potassium levels of patients undergoing living liver transplantation receiving a graft preserved form either UW or HTK.

Patients and methods: Anesthesia records of adult living liver transplantation were reviewed retrospectively. Patients who received grafts preserved in UW were classified in Group I (GI) and that from HTK in Group II (GII). During vascular reconstruction, the graft was flushed with 40C lactated Ringer's solution in order to wash-out the UW or HTK from the graft before reperfusion. The potassium levels after induction of anesthesia, dissection phase, anhepatic phase, 5 minutes after reperfusion, and at the end of the operation were analyzed and compared. The changes in the potassium levels from anhepatic to reperfusion phase within groups were also compared using paired sample T-test to identify the effect of the two preservation solutions in the recipient's serum potassium. Data were given as mean $\pm$ SD. A p value <0.05 was regarded as significant.

Results: The demographic data of the patients in both groups were not significantly different. Eighty-five patients were included in GI and 36 in GII. Figure 1 showed that the changes in serum potassium levels between groups were all within normal limits and there was no significant difference noted between groups. Intra and inter group analyses showed that there was also no difference in the changes of potassium levels from the anhepatic to the reperfusion phase.



Conclusion: Although UW contains higher potassium than HTK, it appears to have no significant influence in the perioperative changes in the serum potassium levels in recipients undergoing living donor liver transplantation.

Abstract# P-5

IMMEDIATE TRACHEAL EXTUBATION OF LIVING DONOR LIVER TRANSPLANT RECIPIENTS IN THE OPERATING ROOM. Takashi Matsusaki¹, Hiroshi Morimatsu¹, Masao Hayashi¹, Tetsufumi Sato¹, Junya Matsumi¹, Ryuji Kaku¹, Masaki Matsumi¹, Kiyoshi Morita¹, Takahito Yagi². ¹Department of Anesthesiology and Resuscitology, Okayama University Hospital, Okayama, Japan; ²Department of Surgery, Okayama University Hospital, Okayama, Japan

INTRODUCTION: Immediate tracheal extubation of selected adult patients after liver transplantation (LT) is common practice. Recently, we tried to extubate aggressively in the operating room rather than in the intensive care unit (ICU). We hypothesized that selected patients may be safely extubated in the Operating room (OR) after living donor liver transplantation (LDLT) and avoid potentially deleterious effects of artificial ventilation and sedation.

METHODS: After May 2006, we chose immediate extubation in the OR unless a specific contraindication was identified. At first, we identified 20 patients extubated in the OR (Group A). Then, we made the matched control group (Group B) using age, operation time, the amount of bleeding, and MELD score as matching variables. Patients in the Group B were extubated in the ICU after 10-12 hours after LDLT. We have analyzed postoperative liver function tests, such as aspartate aminotransferase (AST), alanine aminotransferase (ALT) and prothrombin time (PT) taken at postoperative day 1, 2, 4 and 7.

RESULTS: We could not find any significant differences in the patient characteristics and background between two groups. All patients were extubated in the OR safely. All patients did not need reintubation during postoperative course. In the group A, we had only one patient needed

non-invasive positive pressure ventilation within 72 hours after extubation. About the postoperative liver function test, mean AST and ALT were not significantly different between two groups. However, a mean PT-INR in the Group A was significantly decreased compared with Group B on POD 1, 2, 4, 7. (p value: <0.0001). We have also found that T-Bil at POD 4, 7 were lower in the Group A compared with the Group B (p value: 0.04, 0.03). We could not find any differences in postoperative complications and clinical outcomes between two groups.

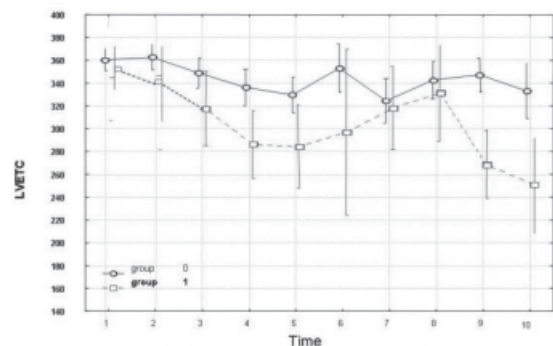
CONCLUSION: Our early experience with 20 LDLT recipients extubated immediately after surgery showed good emergence from anesthesia safely. Postoperative liver function tests were better in the early extubation group than in the control group. Early extubation in an OR might facilitate the recovery of liver function after LDLT.

Abstract# P-6

EVALUATION OF CORRECTED LVET IN ESOPHAGEAL ECHO-DOPPLER AS A PREDICTOR OF EARLY OUTCOME IN LIVER TRANSPLANTATION. PRELIMINARY REPORT.

V. Perilli¹, A. W. Avolio², P. P. Ciochetti¹, D. Eleuteri¹, A. Rundo¹, I. Marusco¹, S. Magalini², S. Agnes¹, L. Sollazzi¹. ¹Anesthesiology, Catholic University, Rome, Italy; ²Surgery - Transplantation Service, Catholic University, Rome, Italy

Background. The optimization of cardiac preload is a relevant problem in cirrhotic patients undergoing liver transplantation (LT), particularly when massive blood losses take place. In this connection, some Authors have shown that LVETc, a parameter derived from esophageal echo-Doppler devices, seems to be a more precise indicator of cardiac preload than filling pressures.⁽¹⁾ The aim of this retrospective study was to evaluate if LVETc may be a predictor of early graft function in LT. **Materials and methods.** 42 adult patients scheduled for liver transplantation were included in the study. The patients were retrospectively allocated in two groups according to Toronto classification of graft function: group 0, with good graft function (grades I and II), and group I with bad early function (grades III and IV). Intraoperative monitoring included invasive arterial pressure, pulmonary artery catheterization and an esophageal echo-Doppler device (Hemosonic tm-Arrow). Hemodynamic parameters from pulmonary artery catheter and echoDoppler parameters were obtained at ten time-points during LT. Statistical analysis was performed by ANOVA. **Results.** A significant difference in LVETc has been detected between group 0 and group I patients (fig). Interestingly the two groups did not differ for other parameters such as cardiac output, filling pressures, blood lactates, recipients age (group 0 =51.4 $\pm$ 11 vs group I =50.6 $\pm$ 9, ns) and MELD score (group 0 =17.8 $\pm$ 6.1 vs group I =18.2 $\pm$ 7.4, ns); group I patients exhibited significantly higher blood losses (group 0 = 880 $\pm$ 236 ml vs group I = 2410 $\pm$ 552 ml, p<0.01).



The risks of maintaining a patient in a hypovolemic state cannot be extended to the liver transplant recipients;⁽²⁾ even further studies are requested, LVETc might be an useful parameter for detecting intraoperative hypovolemia and improving early outcome.

1. Lee JH et al. Br J Anaesth 2007;99(3): 343-348

2. Schroeder RA et al. J cardiothor and vasc. Anesth. 2004;18(4):438-441.

Abstract# P-7

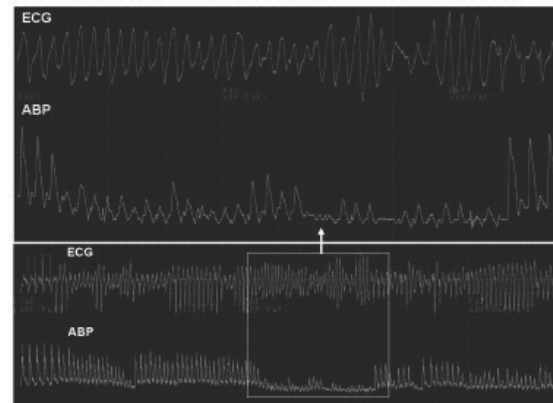
COMPARISON OF STROKE VOLUME VARIATIONS DERIVED FROM RADIAL AND FEMORAL ARTERIAL PRESSURE WAVEFORM DURING LIVER TRANSPLANTATION. Hee Yeong Kim, Seung Hye Sung, Won Jung Shin, Young Kug Kim, Gyu Sam Hwang. *Department of Anesthesiology and Pain Medicine, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea*

BACKGROUND: Several studies have demonstrated that stroke volume variation (SVV) is useful in predicting fluid responsiveness. Although the discrepancy between radial and femoral arterial pressure can usually occur during liver transplantation (LT), the effect of different arterial waveform on SVV and cardiac output (CO) derived from the Vigileo device has not been investigated. Therefore, we compared SVV values derived from radial (SVV_{RAP}) and femoral (SVV_{FAP}) arterial pressure waveform and CO values derived from radial (CO_{RAP}) and femoral (CO_{FAP}) arterial pressure waveform with the Vigileo device during LT.

METHODS: The linear association and the agreement between SVV_{RAP} and SVV_{FAP} and between CO_{RAP} and CO_{FAP} were assessed by the correlation analysis and calculating the bias, limits of agreement, and percentage error in 32 recipients during living donor LT. Hemodynamic measurements of 288 data pairs at 9 predefined time points were compared.

RESULTS: Significant correlations were observed between SVV_{RAP} and SVV_{FAP} and between CO_{RAP} and CO_{FAP} at all the time points of LT ($r=0.961$, $P<0.001$; $r=0.848$, $P<0.001$). The Bland-Altman plots comparing differences between SVV_{RAP} and SVV_{FAP} and between CO_{RAP} and CO_{FAP} showed weak biases (-0.2% and -0.5 l/min) and reasonable limits of agreement (-2.2 to 1.8% and -1.9 to 0.9 l/min). The percentage errors of SVV and CO values were 27.0% and 22.2%.

CONCLUSIONS: There were small differences between SVV_{RAP} and SVV_{FAP} and between CO_{RAP} and CO_{FAP} that were obtained by the Vigileo device during LT. This suggests that SVV measurement using the Vigileo monitoring system could offer relatively consistent information during LT regardless of arterial catheterization sites.



Abstract# P-9

POST-REPERFUSION SYNDROME (PRS) DEFINED BY THERAPEUTIC INTERVENTION. Nicola J. Pert¹, Alistair Lee², Dermot W. McKeown². *¹University of Edinburgh Medical School, Edinburgh, United Kingdom; ²Anaesthesia and Critical Care, Scottish Liver Transplant Unit, Royal Infirmary of Edinburgh, Edinburgh, United Kingdom*

Cardiac arrest at reperfusion is unusual in our transplant programme, but in early 2008 occurred on three occasions. We decided to review the incidence and severity of PRS in our unit.

PRS is characterised by cardiovascular changes in the early period following reperfusion of the liver graft. Anaesthesiologists may treat these changes pre-emptively or concurrently to maintain cardiovascular stability, which may lead to underdiagnosis of PRS by current definitions. We wished to study PRS despite these limitations, and propose a method for redefining the syndrome by considering cardiovascular interventions.

We studied 52 successive elective first transplants over a 1 year period. Charts were reviewed for cardiovascular changes and administration of vasoactive medications. 50 charts had sufficient information for study.

PRS was defined as:

NONE-no bolus medications at reperfusion, vasoactive infusion (if running) not increased by >100%

MODERATE-bolus medications at reperfusion, vasoactive infusion (if running) not increased by >100%

SEVERE-Cardiac arrest, vasoactive infusion commenced or (if running) increased by >100%. $\pm$ bolus medications.

PRS SEVERITY

NONE	MODERATE	SEVERE	TOTAL
Vasopressor infusion before reperfusion			
6	5	5	16
No vasopressor infusion before reperfusion			
7	14	13	34
TOTALS			
13	19	18	50

Conclusions: 74% of patients were treated for PRS. 36% experienced severe PRS requiring initiation of vasoactive infusion or doubling of rate of a prior vasoactive infusion. 32% of patients were commenced on vasopressor infusion prior to reperfusion, and this was associated with higher MELD scores at the time of assessment for transplantation.

Redefining RPS to include vasoactive treatment allows study of the syndrome despite moderation of cardiovascular changes.

Abstract# P-10

HOW OFTEN SHOULD LIVER TRANSPLANT CANDIDATES BE SCREENED FOR PULMONARY HYPERTENSION?

Michael A. E. Ramsay¹, Kate B. Newman¹, Edmund Q. Sanchez², Goran B. Klintmalm². *¹Anesthesiology and Pain Management, Baylor University Medical Center, Dallas, TX, USA; ²Baylor Regional Transplant Institute, Baylor University Medical Center, Dallas, TX, USA*

The frequency of screening for PHTN prior to OLT remains to be answered.

We present a case series of 3 patients cleared for transplant but had surgery cancelled due to elevated PA pressures.

Abstract# P-8

EXPERIENCE OF TORSADE DE POINTES IN NEOHEPATIC STAGE OF LIVER TRANSPLANTATION: A CASE REPORT.

Jun Young Park, Sung Hoon Kim, Young Kug Kim, Gyu Sam Hwang, Pyong Hwan Park. *Department of Anesthesiology and Pain Medicine, University of Ulsan College of Medicine, Asan Medical Center, Seoul, Korea*

Torsade de pointes (TdP), which is associated with prolonging of QT interval, is life threatening polymorphic tachycardia. Prompt detection and adequate treatment of TdP are important for prevention of the progressive fatal ventricular fibrillation.

In liver transplantation, hemodynamic instability can frequently occur due to vascular clamping, severe bleeding, and surgical manipulation. Electrolyte imbalance during liver transplantation may be also developed by metabolic derangement, transfusion and diuretics administration.

We present a 39-year-old hepatitis B virus-related cirrhotic patient (male, Child C) with prolonged QT interval who suffered from the TdP developed in neohepatic stage. During preanhepatic and anhepatic stages, no arrhythmia was found. Multiple premature ventricular complex, ventricular tachycardia, and TdP were suddenly developed 16 minutes after graft reperfusion without any prodromal sign of arrhythmia and persisted for 118 sec (Figure 1). Serum magnesium level was within normal range (1.93 mg/dL). The suggested causative factors of TdP in this case were as follows: prolonged corrected QT interval (646 ms), low hematocrit (21%), low diastolic blood pressure (systolic blood pressure: 110-120 mmHg; diastolic blood pressure: 26-28 mmHg), and hypocalcemia (0.59 mmol/L) in neohepatic stage of liver transplantation. This case demonstrated that the adequate maintenance of arterial blood pressure, hematocrit level and electrolyte concentration were important in cirrhotic patients with prolonged QT interval during orthotopic liver transplantation.

Case #1

A 49 yo female with Laennec's cirrhosis was evaluated for OLT and cleared for transplant. Five years later, a liver was available and upon insertion of the PA catheter she was found to have PHTN and the surgery was cancelled (Table 1). The following day her PAP was 107/38 (mPAP 68). A follow up TTE showed dilated right sided chambers, RVSP estimated at 75 mmHg and a D shaped septum suggestive of systemic level pulmonary hypertension. She was discharged on epoprostenol.

Case #2

A 61 yo male with HCC and Laennec's cirrhosis had a cardiac consultation for OLT by nuclear stress test and echocardiogram and cleared for transplant given his asymptomatic state and negative stress test. A liver became available 3 months later and upon insertion of the PA catheter, PHTN was found with a TEE showing dilated RA and RV.

Case #3

A 48 yo male with Laennec's cirrhosis was cleared for transplant following a TTE and right heart cath. A liver was available 34 months later but the surgery was aborted upon insertion of the PA catheter. A TEE found severe dilation of the right heart chambers and hypertrophy. An epoprostenol infusion was started and the patient was transplanted after 11 months of therapy. He expired of PHTN 15 months after transplant.

Table 1. Timeline and results of cardiac workup

	Cardiac work-up prior to cancelled surgery	Result	PAP, mPAP (mmHg) at cancelled surgery
Case #1	Echo 5 years prior	Normal	72/33, 46
Case #2	Echo, stress test 3 mos prior	dilated LA and mild concentric LV hypertrophy, negative stress test	76/31, 41 (PVR 499 dyne*s*cm ⁻⁵)
Case #3	Echo & R heart cath 40 mos prior	Preserved LV function, LV hypertrophy, LA enlargement, mitral & tricuspid regurgitation, mPAP 27 mmHg	80/30, 47
	Echo 34 mos prior	Normal	

Discussion

These three cases follow the recommendation of an echocardiogram followed by a right heart cath if elevated PA pressures are suspected. However, the timeline of screening varies from 3 months to 5 years. And if mild PHTN is known, does the frequency of screening become greater? Protocols for frequency for screening need to be addressed.

Abstract# P-11

ALPROSTIDIL (Prostin®) HAS LIMITED UTILITY IN THE IMMEDIATELY POST-OPERATIVE LIVER TRANSPLANT RECIPIENT. Neha Patel¹, David J. Taber¹, Nicole A. Weimert¹, Jenna L. Scheffert¹, Brie L. Dunn¹, Michael G. Hughes², John W. McGillicuddy², Charles F. Bratton², Angello Lin², Prabhakar K. Baliga², Kenneth D. Chavin². ¹Dept of Pharmacy Services, MUSC, Charleston, SC, USA; ²Department of Transplant Surgery, Medical University of South Carolina, Charleston, SC, USA

Objective: The aim of this study was to determine the effects of alprostadil on hemodynamics, liver function, and kidney function, in the immediate post-op liver transplant (LTX) patient.

Methods: This was an analysis of all adult liver transplants from 1/00 to 9/08 that received alprostadil. Pediatrics and multiorgan transplants were excluded. Due to differences in important baseline characteristic, propensity score analysis with matching was conducted. Patients were divided into two groups (alprostadil or not) and matched for age, gender, race, MELD, renal function, fulminant, hepatitis C, and donor characteristics.

Results: A total of 509 patients were initially analyzed; of those patients, 251 patients received alprostadil post-operatively, and 206 patients were matched via propensity scores. Table 1 displays immediate post-operative measurements. Blood pressure and MAPs were consistently lower in patients that received alprostadil and reached significance at 18 hours (p=0.035). Patient that did not receive alprostadil had lower AST values immediately post-operatively with levels on day 3 reaching statistical significance (p=0.001). Renal function was similar between groups. Table 2 displays long-term clinical outcomes, which were equal between groups.

Outcome	Alprostadil (N=103)	No Alprostadil (N=103)	P-value
MAP 0 hrs	83±17	84±19	0.80
MAP 4 hrs	82±26	82±15	0.98
MAP 12 hrs	96±105	94±45	0.84
MAP 18 hrs	85±15	91±17	0.035
CrCl Pre-op	77±24	76±26	0.72
CrCl day 7	75±26	78±25	0.49
CrCl day 30	72±22	76±22	0.39
CrCl year 1	76±20	76±20	0.39
AST day 1 (peak)	1881±1703	1382±1908	0.07
AST day 2	1578±2596	715±655	0.001
AST day 3	739±1479	362±427	0.005
AST day 4	273±452	203±429	0.30

Clinical Outcomes	Alprostadil (N=103)	No Alprostadil (N = 103)	P-value
Acute Rejection at 1-year	29%	29%	1.00
Mean Follow-up time in months	38±31	34±32	0.28
Graft Survival at last follow-up	81%	81%	1.00
Patient Survival at last follow-up	78%	82%	0.60

Conclusions: Overall, the use of alprostadil may lead to lower immediate post-operative blood pressure, with minor detrimental effects on early liver function. Alprostadil use did not show benefit in short or long-term renal function or overall graft and patient survival.

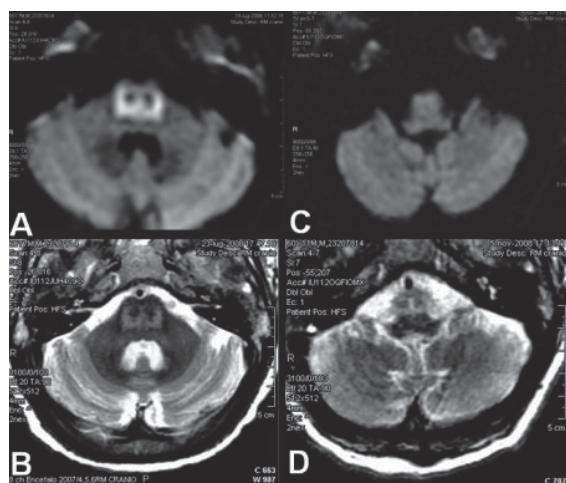
Abstract# P-12

SUCCESSFUL RECOVERY OF CENTRAL PONTINE MYELINOLYSIS AFTER LIVER TRANSPLANTATION. R. Gaspari¹, A. W. Avolio², G. Della Marca³, I. Melchionda¹, S. Agnes².

¹ICU, "A.Gemelli" Catholic University, Rome, Italy; ²Surgery and Transplantation Service, "A.Gemelli" Catholic University, Rome, Italy; ³Neurosciences, "A.Gemelli" Catholic University, Rome, Italy

Background. Central pontine myelinolysis (CPM) occurs in 1.2-8% of liver transplant (LTx) cases. CPM is related to rapid correction of hyponatremia. Magnetic resonance imaging (MRI) is the gold standard in the diagnosis. As yet the prognosis is poor. Recently, episodic treatments with plasmaexchange (PE) and immunoglobulins (IVIg) have been reported.

Case report. A 60 y.o. man with cirrhosis (alcohol) was listed for LTx. MELD score was 27. He presented grade 2 encephalopathy; severe hyponatremia (107 mmol/l), hypophosphatemia (1.0 mmol/l), coagulopathy (INR 2.8), jaundice (18.1 mg/dl) and advanced malnutrition state (cholesterol level 12 mg/dl). Plasma osmolality (PO) was 223 mOsm/Kg. Two days after patient was transplanted (Na level and PO were 112 mmol/l and 256 mOsm/Kg, respectively). At the end of surgery Na level was 142 mmol/l and PA 305 mOsm/Kg. Initial immunosuppressive therapy consisted of Mycophenolate mofetil and low steroids. Patient was admitted to ICU and was extubated on the 2nd p.o.d. Two days after he developed tetraplegia, impairment of ocular movement, dyspnea, anarthria and became comatose. Patient was intubated again. EEG showed diffuse, low voltage 0-δ activity, scarcely modified by stimuli. No epileptiform discharges were observed. 7 days later MRI showed areas of signal hyperintensity in diffusion-weighted images (DWI, fig A) and in T2-weighted sequences (fig B) are visible in the pons bilaterally, with 'batlike' shape. Patient was treated with PE (5 sessions) and IVIg (0.4 g/Kg/day x 5 days). Patient awaked from coma 3 months after LTx when MRI showed resolution of signal abnormalities previously observed in DWI (fig C) and in T2-weighted sequences (fig D). A significant neurological improvement with full recovery of vigilance and without focal motor signs was observed 2 months later when he was discharged from ICU.



Discussion. The prompt diagnosis by MRI, the PE, the IVIg and the long term treatment in the ICU should be considered the key for the recovery.

Abstract# P-13

MULTIDISCIPLINARY MANAGEMENT OF PEDIATRIC FULMINANT HEPATIC FAILURE. Chiaki Karaki, Satoshi Nakagawa, Takuya Kimura, Akinari Fukuda, Atuko Nakagawa, Mureo Kasahara. *National Center for Child Health and Development, Setagaya City, Tokyo, Japan*

Purpose of the study: To assess our multidisciplinary approach to pediatric fulminant hepatic failure (FHF).

Design: Retrospective review of the medical records of pediatric FHF cases.

Setting: Pediatric Intensive Care Unit (PICU) at a tertiary children's hospital in Japan.

Management protocol: All FHF patients are admitted to PICU. Tracheal intubation and mechanical ventilation were instituted based on neurological status. Continuous veno-venous hemodiafiltration (CVVHDF) and plasma exchange were commenced. If no recovery in liver function is seen by this medical management, liver biopsy is performed. Indication of live donor liver transplantation (LDLT) is discussed based on the clinical course and liver pathology.

Results: Total 17 cases were identified from March 2002 to December 2008. Twelve cases were male and 5 were female. They aged 1 month to 7 years (median 11 months) and weighed 3.0 to 22 kg (median 8 kg). Eight cases presented acute and 9 did subacute type. One survived by medical management and 1 died without LDLT. Fifteen cases underwent LDLT. The period to LDLT was 1day to 10days (5.6 days). 14 of them survived but one died 2.5 months after the surgery. We haven't experienced relapse case for 3 years. Total survival was 88% (15/17).

Conclusion: Multidisciplinary approach to pediatric FHF, including aggressive medical management and LDLT, showed improved survival compared with previous reports.

Abstract# P-14

ALPHA-1-ACID GLYCOPROTEIN CONCENTRATION AND PROTEIN BINDING OF TACROLIMUS IN LIVER TRANSPLANT RECIPIENT. Satoshi Kishino¹, Nobuo Mochizuki¹, Keiko Ohno¹, Tsuyoshi Shimamura², Hiroyuki Furukawa², Satoru Todo². ¹Medication Use Analysis and Clinical Research, Meiji Pharmaceutical University, Kiyose, Tokyo, Japan; ²First Department of Surgery, Hokkaido University Hospital, School of Medicine, Hokkaido University, Sapporo, Hokkaido, Japan

Aims: Plasma alpha-1-acid glycoprotein (AAG) is an acute phase reactant protein and its concentration is subject to great changes depending on physiologic or pathologic conditions. Several reports indicate that changes in plasma AAG concentration influence the protein binding ability of many basic and neutral drugs, resulting in differences in pharmacokinetic and the pharmacological effects of these drugs. Little is known, however, about the correlation between the change in plasma AAG concentration and the effect on liver regeneration in liver transplant recipients. The aim of this study was to

clarify the changes in plasma AAG concentration and in vitro protein binding of tacrolimus at therapeutic concentrations in liver transplant recipients.

Methods: Eighteen liver transplant recipients were enrolled in this study. Blood samples were obtained from the venous line early every morning.

Results: Plasma AAG concentrations showed great intra-individual variability, but were notably low in the immediate post-transplant period. The AAG concentration increased during the first 3 weeks and reached a peak between 25 and 30 days after transplantation. Then the concentration started to decrease and was almost normalized at 2 months. On the other hand, the plasma AAG concentration varied over 10-fold (from 0.2 mg/mL to 2.0 mg/mL) among the same recipients, and no significant correlation was observed between biomedical parameters characterizing liver function and plasma AAG concentration was found. An obvious inverse relationship between the unbound fraction of tacrolimus and plasma AAG concentration was observed. In contrast, the free fraction was not influenced significantly by the presence of various albumin concentrations.

Conclusions: Plasma AAG concentrations increased remarkably in many recipients after liver transplant, but the concentrations varied among recipients. Changes in plasma AAG concentration affected the concentration of unbound tacrolimus. For optimal treatment, the concentration of free tacrolimus and the AAG concentration should be frequently measured in transplant recipients, especially during the early postoperative phase.

Abstract# P-15

DETECTION OF Val30Met MUTATION BY REAL-TIME PCR IN BRAZILIAN FAMILIES. Vanessa F. D. Castro¹, Roberta Sitnik¹, Marcio D. Almeida², João R. R. Pinho¹, Bianca Della-Guardia², Rogerio C. Afonso², Ben-Hur Ferraz-Neto². ¹Molecular Biology Laboratory, Hospital Albert Einstein, Sao Paulo, SP, Brazil; ²Liver Transplantation, Hospital Albert Einstein, Sao Paulo, SP, Brazil

Familial amyloid polyneuropathy (FAP) is a lethal autosomal dominant disorder in which fibrils derived from mutant forms of transthyretin (TTR) are deposited in tissues. As TTR is predominantly synthesised by the liver, a domino liver transplantation is the solution to avoid the progression of disease.

Over 90 TTR sequence variants are associated with FAP, but the aminoacid substitutions alone do not completely explain the variability in disease penetrance, pathology and progressive clinical course. Among the more common mutations is the Val30Met mutation in which the aminoacid valine is replaced by a methionine at position 30 of the molecule. It is endemic in areas of Japan, Sweden, Portugal, Argentina and Brazil.

To analyze the frequency of this mutation among Brazilian patients we have developed a real-time PCR and studied 26 patients followed by the Liver Transplantation Department from Hospital Albert Einstein, São Paulo, Brazil. This protocol was approved by the local Ethical Committee and all patients gave a writing consent for participating in the study.

For the RT-PCR, genomic DNA was extracted using the EasyMag (Biomérieux, Paris, France) and amplification and detection of the TTR gene was carried on a AB7500 Real-Time PCR System (Applied Biosystems) using universal conditions cycling. The Taqman SNP Genotyping Assay (Applied Biosystems, Foster City, CA, EUA) was used with a pair of primers flanking the Val30Met mutation and probes with different fluorophores that cover the mutation and allow to distinguish homozygotes and heterozygotes.

From the 26 patients studied, 25 were heterozygotes for the mutation and 1 was homozygote (son of marriage consanguinity), concluding 16 genealogies and the relationship between the carriers of the mutation. Concluding, it was shown that the Val30Met mutation is common in Brazilian families, since it was found in all 16 studied families. The search for this mutation allows genetic counseling on those families and is very important mainly before the onset of symptoms. The presence of mutation leads to the monitoring of some symptoms that can pass unnoticed (e.g. autonomic, peripheral neuropathy) and the patient can refer to an earlier liver transplantation and to a better prognosis of the disease.

Abstract# P-16

ANTI-HIGH MOBILITY GROUP Box-1 ANTIBODY IMPROVED FULMINANT HEPATIC FAILURE IN A RAT MODEL. Kiminori Takano¹, Masahiro Shinoda¹, Minoru Tanabe¹, Go Oshima¹, Taku Miyasho², Shingo Yamada³, Hiroya Takeuchi¹, Koichi Fukunaga⁴, Hideaki Obara¹, Shigeyuki Kawachi¹, Yasushi Fuchimoto⁵, Ken Hoshino⁵, Yasuhide Morikawa⁵, Ikuro Maruyama⁶, Akitoshi Ishizaka⁴, Yuko Kitagawa¹. ¹*Surgery, Keio University School of Medicine, Tokyo, Japan;* ²*School of Veterinary Medicine, Rakuno Gakuen University, Hokkaido, Japan;* ³*Shino-Test Corporation, Kanagawa, Japan;* ⁴*Internal Medicine, Keio University School of Medicine, Tokyo, Japan;* ⁵*Pediatric Surgery, Keio University School of Medicine, Tokyo, Japan;* ⁶*Department of Laboratory and Molecular Medicine, Kagoshima University, Kagoshima, Japan*

Background: High-mobility group box-1 (HMGB-1) is a monocyte derived late-acting inflammatory mediator, that is released in some conditions including endotoxin-induced lethality. In this study, we determined the serum and hepatic tissue levels of HMGB-1 in a rat fulminant hepatic failure (FHF) model and investigated if an antibody to HMGB-1 has a protective effect on FHF. **Materials and methods:** Male SD rats were used for this study. <Exp. 1> D-galactosamine was injected into the penile vein to induce FHF at the dose of 1.4 g/kg. Serum and hepatic tissue samples were collected at 12, 24, 36, 48, 72, and 96 h after FHF induction. The serum levels of hepatic enzymes, cytokines, and HMGB-1 and the hepatic tissue levels of cytokines and HMGB-1 were determined. <Exp. 2> D-galactosamine was injected into the penile vein to induce FHF. Then, the rats were randomly divided into two groups: an anti-HMGB1 Ab group and a control group. In the groups, anti-HMGB-1 polyclonal antibodies and control antibodies were injected into the penile vein right after the injection of D-galactosamine, respectively. Serum and hepatic tissue samples were collected at 48 h after FHF induction. The survival was observed for 7 days. **Results:** <Exp. 1> The serum levels of AST, ALT, LDH, IL-1 β , IL-6, TNF- α , and HMGB-1 were significantly elevated after FHF induction. The hepatic tissue levels of IL-1 β and TNF- α were also significantly elevated after FHF induction. The tissue level of HMGB-1 was significantly decreased after FHF induction. <Exp. 2> In the anti-HMGB-1 Ab group, survival, elevations of AST, ALT, LDH and HMGB1, and HE finding were significantly or markedly improved compared to the control group. **Conclusions:** The rat FHF model has an increased serum level and a decreased hepatic tissue level of HMGB-1. Blocking HMGB-1 may have a protective effect on FHF in the rat model.

Abstract# P-17

CYP450 AMINOPYRINE BREATH TEST: A NOVEL TOOL FOR EVALUATION OF GRAFT FUNCTION FOLLOWING RAT OLT. Martin Veit¹, Edouard Matevosian², Wolf Otto Bechstein¹, Christian Moench¹. ¹*Dept. of Surgery, Johann Wolfgang Goethe Universität, Frankfurt, Germany;* ²*Dept. of Surgery, Technische Universität, München, Germany*

Purpose: Orthotopic liver transplantation (OLT) in rats is an excellent and established model for immunological studies. It was the aim of this study to evaluate CYP450 detoxification capacity as an early marker of graft deterioration versus ex vivo isoenzyme capacity, histopathological findings and blood counts following rat OLT.

Material and methods: Full allogeneic rat liver transplantation was performed with DA-rats as donors and LEWIS-rats as recipients (n=11). Syngeneic transplanted untreated rats (n=12) as well as allogeneic Tacrolimus-treated rats served as controls (n=12). Evaluation of graft function by a dynamic aminopyrine breathtest (ABT) utilizing a one-way airflow chamber was established to quantify in vivo the detoxification by the CYP450 throughout a period of 90 minutes after C¹⁴aminopyrine injection. Aminopyrine breath test as well as in vitro CYP450-isoenzyme assays, HE-staining and blood counts were carried out on days 5, 8, 10 and 30 postoperatively.

Results: Allogeneic untreated rats (ALLO) succumbed to acute rejection on day 11.3 $\pm$ 1.7 whereas syngeneic (SYN) as well as allogeneic Tacrolimus-treated rats (TAC) presented long term survival >30 days (p<0,01). All groups exhibited similar ABT-levels on day 5 (ALLO 73.41($\pm$ 7.40) [%dose $\times$ kg BW/ mM CO₂], SYN 76.16 ($\pm$ 7.63), TAC 79.56 ($\pm$ 12.48)). ABT in SYN and TAC increased on day 8 (SYN 94.39 ($\pm$ 21.75), TAC 93.01 ($\pm$ 8.76)), day 10 (SYN 115.65 ($\pm$ 15.06), TAC 109.75 ($\pm$ 7.94)) and day 30 (SYN 163.73 ($\pm$ 16.59), TAC 125.55 ($\pm$ 6.42)) whereas it stagnated in the ALLO-group on day 8 (74.66 ($\pm$ 4.46), p<0,05) and decreased until rejection (31.42 ($\pm$ 5.89), p<0,05).

ABT not only correlates strongly with ex vivo isoenzyme assays but also exhibits a predictable value concerning the fate of the rat liver graft 2-3 days prior to rejection.

Conclusions: Any histological or blood marker can reflect graft function only partly. Evaluation of graft function by cytochrome P450 capacity turned out to be a very specific and early marker of impaired liver function which can be assessed precisely by the dynamic aminopyrine breath test following OLT.

Abstract# P-18

BELATACEPT DOES NOT INDUCE DIRECT GENE EXPRESSION CHANGES IN ANTIGEN PRESENTING CELLS. Julie A. Carman¹, Patricia M. Davis¹, Jun Zhu¹, Han Chang¹, Aiqing He¹, Amy Truong¹, Suzanne J. Suchard¹, Michael Heifets², Steven G. Nadler¹. ¹*Discovery Biology, Bristol-Myers Squibb, Princeton, NJ, USA;* ²*Global Medical Affairs, Bristol-Myers Squibb, Princeton, NJ, USA*

Background: Belatacept, currently in Phase III clinical trials as immunosuppression therapy for kidney transplant patients, is a soluble human fusion protein consisting of a modified extracellular domain of human CTLA-4 fused to a modified IgG₁ Fc tail. It has been suggested that belatacept and abatacept trigger reverse signaling into antigen presenting cells (APCs), inducing the indoleamine 2,3 dioxygenase (IDO) pathway, which catabolizes tryptophan to kynurenine, ultimately inhibiting T-cell proliferation. Previous studies demonstrated that abatacept does not upregulate IDO on APCs. The current study examined the effects of belatacept on gene expression in APCs.

Methods: Affymetrix chips were used to measure gene expression levels using mRNA isolated from both immature and mature human dendritic cells (DCs) following 6 hours of treatment with: belatacept; abatacept; commercially available CTLA-4Ig, lacking the Fc mutations found in abatacept or belatacept (CTLA-4Fc); phorbol myristate acetate (PMA); or immune complexes (IC).

Results: PMA and IC induced robust transcriptional changes in human DCs, triggering differential expression of up to 2380 genes. CTLA-4Fc and abatacept were associated with more modest changes in gene expression, and belatacept was associated with no significant differential gene expression. Most of the changes in gene expression triggered by IC and CTLA-4Fc overlapped with those of PMA. PMA, IC and CTLA-4Fc induced production of several cytokines (CXCL10, MCP1, TNF α , and IFN γ) in DCs, while belatacept and abatacept did not. Exposure of an EBV-transformed B cell line to the same agents resulted in differential gene expression in response to PMA, but not to the other agents.

Conclusions: Belatacept does not appear to induce reverse signaling in APCs, suggesting that the main mechanism of action is via blockade of CD28 signaling on T cells.

Abstract# P-19

USE OF A HANGING-WEIGHT SYSTEM FOR LIVER ISCHEMIC PRECONDITIONING IN MICE. M. Susan Mandell¹, Melanie L. Hart², Tobias Eckle¹, Holger E. Eltzschig¹. ¹*Department of Anesthesiology, University of Colorado, Aurora, CO, USA;* ²*Department of Anesthesiology and Intensive Care, University of Tübingen, Hospital D-72076, Tübingen, Germany*

Ischemic preconditioning (IP) represents a powerful experimental strategy to identify novel molecular targets to attenuate hepatic injury during ischemia. As a result, murine studies of hepatic IP have become an important field of research. However, murine IP is technically challenging and experimental details can alter the results. Therefore, we systematically tested a novel model of hepatic IP by using a hanging-weight system for portal triad occlusion. This system has the benefit of applying intermittent hepatic ischemia and reperfusion without manipulation of a surgical clamp or suture, thus minimizing surgical trauma. Systematic evaluation of this model revealed a close correlation of hepatic ischemia time with liver damage as measured by ALT and AST serum levels. Using different numbers of IP cycles and times intervals, we found optimal liver protection with 4 cycles of 3 min ischemia/3 min reperfusion as measured by ALT, AST, LDH, and IL-6. Similarly, ischemia associated increases in hepatic infarct size, neutrophil infiltration and histological injury were maximally attenuated with the above regimen. To demonstrate transcriptional consequences of liver IP, we isolated RNA from preconditioned liver and confirmed transcriptional modulation of known target genes (equilibrative nucleoside transporters, acute phase complement genes). Taken together, these studies confirm highly reproducible

liver injury and protection by IP when using the hanging-weight system for hepatic ischemia and intermittent reperfusion. Further studies of murine IP may consider this technique.

Abstract# P-20

COULD MONOCYTE DERIVED NEO-HEPATOCYTES FUNCTION AS AN ALTERNATIVE TO HEPATOCYTE OR LIVER TRANSPLANTATION IN ACUTE LIVER FAILURE?

Maren Schulze¹, James Hutchinson¹, Hendrik Ungefroren¹, Andreas Nüssler², Fred Fandrich¹, Jan Hengstler³. ¹Department of General and Thoracic Surgery, University of Schleswig Holstein Campus Kiel, Kiel, Germany; ²Dep. of Surgery, Klinikum Rechts der Isar, München, Germany; ³Dep of Toxicology, University of Leipzig, Leipzig, Germany

BACKGROUND: There is growing interest in new therapeutic options for the treatment of end-stage liver diseases. In addition to mechanical devices supporting liver function, such as bioreactors, the transplantation of hepatocyte-like cells derived from (adult) stem cells offer great perspectives. We have generated hepatocyte-like (NeoHep) cells from terminally differentiated peripheral blood monocytes and, in this study, have evaluated these cells as a possible tool for autologous cell therapy. **METHODS:** Peripheral blood monocytes were cultured under conditions that promote hepatocyte-like differentiation and were characterized for hepatocyte marker expression by reverse-transcriptase polymerase chain reaction, immunohistochemistry, and immunoblotting and for specific secretory and metabolic functions with the appropriate biochemical assays. **RESULTS:** NeoHep cells resembled primary human hepatocytes with respect to morphology, expression of hepatocyte markers (albumin, cytochrome P450 isoenzymes, asialoglycoprotein receptor, coagulation factor VII), various secretory and metabolic functions (albumin secretion, urea production, lactate formation, and lactate dehydrogenase and aspartate transaminase release), and drug detoxification activities (phase I metabolism of ethoxycoumarin into 7OH-coumarin after stimulation with 3-methylcholanthrene, induction of CYP3A4 activity, and phase II metabolism through UDP-glucuronidation of 4-methyl-umbelliferone). **CONCLUSIONS:** These data convincingly show that NeoHep cells display a phenotype and specific in vitro metabolic functions that are quantitatively and qualitatively comparable in part with those of primary human hepatocytes. These cells could thus be clinically applied in an autologous setting for the treatment of end-stage liver diseases or for improving liver function in patients who have undergone critical liver-mass resection.

Abstract# P-21

OUTCOME OF PATIENTS WITH HEPATO-RENAL SYNDROME TYPE 1 AFTER LIVER TRANSPLANTATION: HANGZHOU EXPERIENCE.

Xiao Xu, Qi Ling, Min Zhang, Feng Gao, Shusen Zheng. Division of Hepatobiliary and Pancreatic Surgery, Department of Surgery, First Affiliated Hospital, Zhejiang University School of Medicine, Hangzhou, Zhejiang, China

Background. Patients with hepato-renal syndrome (HRS) type 1 have an extremely poor prognosis. Liver transplantation (LT) is the only treatment that can cure terminal stage liver disease and reverse HRS. However, the data showing the impact of LT on patients with HRS type 1 are limited.

Methods. The outcome and prognostic factors of 32 patients with HRS type 1 receiving LT were investigated. The natural course of renal recovery and the efficacy of continuous post-LT veno-veno hemodialysis (CVVH) were also evaluated.

Results. Overall patient mortality was 34.4% (11/32), with 8 patients passing away during the first month after LT. Scoring model was based on independent prognostic factors for the model end-stage liver diseases (MELD) (risk ratio [RR] = 1.169) and serum sodium (RR = 0.769). High MELD score (> 36) or/and low serum sodium (≤ 126 mEq/L) were associated with reduced patient survival. HRS was resolved in 30 patients (median time: 24 days). Eight patients received post-LT CVVH. The need for CVVH was associated with higher pre-transplant serum creatinine, longer duration of HRS, more pre-transplant CVVH, more intraoperative blood products infusion, lower intraoperative urine output and higher serum creatinine at 1 week post-transplant. However, serum creatinine at 1 month post-transplant and patient survival did not differ significantly between patients with and without CVVH.

Conclusion. Patients developing HRS type 1 in the absence of high MELD score and low serum sodium would benefit from LT.

Keywords: Continuous veno-veno hemodialysis, Hepato-renal syndrome, Liver transplantation, Model for end-stage liver diseases, Prognosis, Serum sodium.

Abstract# P-22

ANALYSIS OF GENE EXPRESSION PROFILE BEFORE AND AFTER LIVER TRANSPLANTATION IN PATIENTS WITH ALCOHOLIC CIRRHOSIS.

Carmen Olmedo-Martin¹, Karim Muffak-Granero², Fernando Garcia-Alcalde³, Ana Comino-Pardo¹, Javier Martin Cano², Jesus Villar del Moral², Daniel Garrote-Lara², Armando Blanco-Morón³, Pablo Bueno-Laraño¹, Jose-Antonio Ferrón-Orihuela². ¹Experimental Surgery Research Unit, Virgen de las Nieves University Hospital, Granada, Spain; ²General and Digestive Surgery Department, Virgen de las Nieves University Hospital, Granada, Spain; ³Computational Sciences and Artificial Intelligence, High Technical School of Informatic Engineering, University of Granada, Granada, Spain

Objective: To identify differences in gene expression profile using microarrays technology in liver transplant recipients with alcoholic cirrhosis before and after liver transplantation.

Methods: Study performed in liver transplant recipients with alcoholic cirrhosis (n=10) and in healthy volunteers (n=10) as reference group. Peripheral blood samples were obtained before (T0) and 7 days after liver transplantation (T7d) using tubes with a RNA stabilizer. RNA was purified and quality tested. From each participant in the study, microarrays were done in duplicate using 2 ug of cRNA. After reverse transcription, cRNAs were labelled and used for hybridization of 20000 human genes CodeLink bioarrays. Arrays were read with a laser scanner and quantified and normalized with CodeLink Software 4.2. Over-expressed genes were confirmed by real-time reverse transcription PCR (RT-PCR).

Results: Liver transplant recipients showed a gene expression profile before transplantation (T0) of 73 over-expressed genes >2-fold (p<0.05) when compared with healthy volunteers. After transplantation (T7d), the same group of patients showed a profile of 109 over-expressed genes when compared with their T0, being increased the expression of these genes >2-fold (p<0.05). Selected genes before transplantation (T0) for RT-PCR experiments were: interleukin 2 receptor, beta; BCL2L12; IKK2 binding protein; NKIRAS2; IL4; IL4R; alcohol dehydrogenase 1A; aldehyde dehydrogenase 1; TNFRSF9; NOX5; PEX5; PPARG. Selected genes after transplantation (T7d) for RT-PCR experiments were: myeloperoxidase; natriuretic peptide precursor A; BCL2A1; GADD45A; Bax inhibitor 1; PIK3CA; IFNGR2; Janus Kinase 2 (JAK2); Fas; TANK; TTRAP; annexin A5.

Conclusion: Determining gene expression profile in peripheral blood samples obtained before and after liver transplantation gives a report from these patients. These results could be used to dynamically monitor the impact and adequacy of immunosuppression in individual patients.

Abstract# P-23

MOBILIZATION, IMMUNOMODULATION AND HEPATIC DIFFERENTIATION OF HUMAN GRAFT MESENCHYMAL STEM CELLS IN LIVER TRANSPLANTATION.

Qiuwei Pan¹, Suomi M. G. Fouraschen², Fatima S. F. Aerts-Kaya³, Antoine van der Sloot², Geert Kazemier², Jaap Kwekkeboom¹, Herold J. Metselaar¹, Hugo W. Tilanus², Gerard Wagemaker³, Harry L. A. Janssen¹, Luc J. W. van der Laan². ¹Depts of Gastroenterology & Hepatology, Erasmus MC, Rotterdam, Netherlands; ²Surgery, Erasmus MC, Rotterdam, Netherlands; ³Hematology, Erasmus MC, Rotterdam, Netherlands

Mesenchymal stem cells (MSC) have multi-lineage differentiation capacity and play an important role in responses to tissue injury by promoting regeneration and dampening inflammatory. It remains unknown whether MSC are resident in adult human liver and respond to transplantation-associated injury. The aim of this study is to investigate the presence of MSC in human liver and demonstrate their mobilization, engraftment, differentiation and anti-proliferative potential in liver transplantation.

Liver tissue samples and perfused graft preservation fluids were collected for MSC isolation at the time of liver transplantation and characterized in vitro and in vivo.

Liver tissue samples as well as perfusates contained a small (<0.1%) but consistent population of cells expressing MSC markers. These cells rapidly

expanded upon culturing, could be subcultured for at least 15 passages and showed distinctive fibroblast-like morphology. Cells displayed a characteristic MSC phenotype that is highly positive for CD90, CD105, CD166, and negative for CD34, CD45, HLA-DR. Liver MSC effectively differentiated into adipocyte, osteoblasts and hepatocyte lineages. Hepatic-differentiated MSC gained the ability to support hepatitis C virus replication, a characteristic property of hepatocytes. In vivo, in a CCL4 liver injury model both liver and BM MSC showed hepatic differentiation as demonstrated by albumin immunostaining and RT-PCR (n=5). Importantly, MSC could be retrieved and rapidly expanded from the NOD/SCID mice liver even at four weeks after engraftment, indicating their self-renewal capacity. Undifferentiated MSC possessed potent immunosuppressive capacity, shown by significant inhibition of allogenic or mitogenic stimulated T cell proliferation in vitro (92% average inhibition at MSC:T-cell ratio 1:4, $p<0.001$).

Conclusions: Multipotent MSC are present in adult human liver tissue and mobilize from the liver graft at time of transplantation. Immunomodulation, hepatic differentiation and self-renew capacity of liver MSC suggest that they may contribute.

Abstract# P-24

PRELIMINARY STUDY OF THE EFFECT ON PROLIFERATION OF CELL LINE HEPG2 AND HL7-702 BY METHYLPREDNISOLONE. Li Hong Song, Ping., Wei Zheng, Yang Zhong Shen. *Department of Organ Transplant, Tianjin First Central Hospital, Tianjin, China; Department of Organ Transplant, Tianjin First Central Hospital, Tianjin, China; Department of Organ Transplant, Tianjin First Central Hospital, Tianjin, China*

Object: To observe the effect of Methylprednisolone (MP) on proliferation, cell cycle and cyclin expression of normal liver cells and liver cancer cells in vitro, in order to study the effects of MP on liver-derived cells and its mechanism.

Methods: Human hepatocellular carcinoma cell line HepG2 and normal liver cell line HL7-702 were cultured in vitro adding different concentration of MP for different duration of time. MTT colorimetric assay and quantitative flow cytometric analysis were used to assess the effect of MP on proliferation activity, cell cycle distribution and expression of CyclinA in these two cell lines.

Results: MP with different concentration or different duration showed inhibitory effect on the proliferation of HepG2 ($p<0.01$ / $p<0.05$), and the inhibitory effect increased as the duration or the concentration increased. With the duration or the concentration increased, the cells in G0/G1 phase (pre-proliferation phase) increased, which showed that the inhibitory effect of MP on HepG2 was blocking cell proliferation at G0/G1 phase. The expression of CyclinA in HepG2 decreased with the concentration of MP increased. MP with different concentration or different duration showed no inhibitory effect on the proliferation of HL7-702, except that high concentration and low concentration with 24 hours of MP showed mild inhibitory effect. MP inhibited HL7-702 through the interference of the normal cell cycle. The expression of CyclinA in normal liver cells did not decrease with the concentration of MP increased.

Conclusion: 1.MP showed inhibitory effect on the proliferation of hepatocellular carcinoma cell line by blocking cell proliferation at G0/G1 phase. The inhibitory effect was time-dependent and concentration-dependent, and was associated with the level of CyclinA expression. 2.As for normal liver cells, large dose or short duration of MP inhibited their proliferation, in contrast to long duration of low dose of MP showed no inhibitory effect.

Abstract# P-25

SYSTEMIC NORMOTHERMIC HTK INFUSION OF DONORS REDUCES ISCHEMIA/REPERFUSION INJURY IN RAT LIVER TRANSPLANTATION. Gero Puhl¹, Peter Olschewski¹, Wenzel Schöning¹, Volker Schmitz¹, Veeravorn Ariyakhagorn², Peter Neuhaus¹. *¹Klinik für Allgemein, Viszeral und Transplantationschirurgie, Charité Campus Virchow-Klinikum, Berlin, Germany; ²Department of Surgery, Chiangmai University, Chiangmai, Thailand*

Introduction: Since preservation damage has a significant influence on subsequent organ function, organ preservation protocols should be further optimized. Many protective strategies have been shown to be effective against ischemic injury in animal models. In our study we investigated

a protocol foreseeing intravenous systemic preconditioning of the donor using the well-established preservation solution HTK in a model of rat liver transplantation.

Methods: Rats were divided into two groups. In the study group, 15 minutes prior to organ procurement, donors were preconditioned with systemic intravenous infusion of warm HTK (0.01ml/g body weight). The same amount of saline was given in the control group. After organ procurement with cold HTK, livers were stored at 4°C for 6 hours and reflushed with cold saline prior to implantation. Recipients were sacrificed after 4 hours, 2 and 5 days following transplantation to obtain liver function parameters (Bilirubin, ASAT, ALAT, LDH) and histology. For each time point in each group a total of 6 liver transplantations were performed (total number 36).

Results: Four hours after transplantation, serum transaminases ASAT (1900 ± 1200 U/L; $p=0.015$), ALAT (789 ± 330 U/L; $p=0.005$) and LDH (5938 ± 4415 ; $p=0.035$) were significantly lower after HTK preconditioning compared to the control group (ASAT: 3800 ± 1900 /ALAT: 2500 ± 1100 /LDH: 17380 ± 10346 U/L). However, at later time points (2 and 5 days), values normalized and there was also no difference in regard of serum bilirubin during the entire observation period. Survival was 100% for both groups. For all time points, based on a semiquantitative score from 0-3, liver endothelial cells were less damaged following donor pre-treatment with HTK, whereas hepatocellular damage did not differ microscopically between the groups.

Discussion: Our data shows that in a rat liver transplantation model, preconditioning of the donor with HTK has a beneficial influence on the negative effects of ischemia/reperfusion injury. Reduction of histological damage and enzyme release were found at an early period after transplantation without any adverse reaction to either the donor or the recipient animals. Further studies are warranted to elucidate the exact mechanisms.

Abstract# P-26

SURAMIN PROTECTS LIVER FROM ISCHEMIA/REPERFUSION INJURY IN MICE. Tadahiro Uemura¹, Lucy X. Lou², John Liang³, Zakiah Kadry¹, Samuel S. M. Zhang².

¹Department of Surgery, Penn State Milton S. Hershey Medical Center, Hershey, PA, USA; ²Neural and Behavioral Sciences, Penn State Milton S. Hershey Medical Center, Hershey, PA, USA;

³Department of Pathology, Penn State Milton S. Hershey Medical Center, Hershey, PA, USA

Background

Liver ischemia/reperfusion (I/R) injury is associated with morbidity and mortality in liver resection and transplantation. Pharmacological intervention is one of the effective protective strategies against I/R injury. The FDA-approved drug Suramin is polysulfonated naphthylurea originally designed as a treatment for trypanosomiasis. It has also been studied as treatment in murine models of fulminant hepatic failure, renal I/R injury and focal brain ischemia through its antiapoptotic property. In this study, we determined the effects of suramin on warm liver I/R injury.

Material and Methods

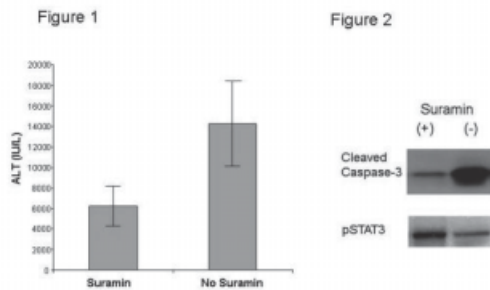
C57BL/6 mice were subjected to 70% partial liver ischemia for 90 mins. Suramin (250mg/kg) was administered intraperitoneally 30 mins before ischemia. Animals were sacrificed at 6 hours after reperfusion. Serum ALT level, liver pathology, STAT3 and Caspase-3 expression were compared with and without suramin administration. Histological changes were scored from 0 to 3 based on the degree of cytoplasmic vacuolation, congestion and necrosis using the Suzuki Score.

Results

Serum ALT level was significantly decreased in mice receiving suramin ($P=0.006$) (Figure 1). Suramin pretreatment showed significantly less damage comparing with control by histopathological Suzuki Score with 1.3 ± 0.6 and 2.2 ± 0.86 , respectively ($p<0.05$). Suramin pretreatment increased STAT3 and decreased cleaved Caspase-3 expression (Figure 2).

Conclusion

Suramin protects liver from I/R injury. The antiapoptotic effects and increased cell survival signals are suggested for the protective mechanism. Suramin may be useful agent for liver preservation.



Abstract# P-27

RELATIONSHIP BETWEEN GH/IGF-1 AXIS, GRAFT RECOVERY AND EARLY SURVIVORSHIP IN PATIENTS UNDERGOING LIVER TRANSPLANTATION. Luca Toti¹, Tommaso M. Manzia¹, Leonardo Baiocchi², Linda De Luca¹, Andrea Monaco¹, Irene Bellini¹, Alessandro Anselmo¹, Giuseppe Iaria¹, Giuseppe Tisone¹. ¹Liver Transplant, University of Rome Tor Vergata, Rome, Italy; ²Hepatology, University of Rome Tor Vergata, Rome, Italy

Background. While IGF-1 serum levels are associated with graft function in chronic liver disease, the relationship of GH/IGF-1 axis and graft recovery after liver transplantation (LT) was rarely evaluated. In a previous study high levels of IGF-1 were associated to primary non function of the graft. However, correlation with other clinical variables and early (>3 months) survivorship were not extensively investigated. **Aim:** i) to evaluate the GH/IGF-1 profile as a function of liver necrosis and function; ii) to assess the possible relationship among GH/IGF-1 system and survivorship after LT. **Methods.** 30 patients (23/7 M/F; mean age 55.2±11.7 years) transplanted for various indication in our centre, were enrolled in the study. Among them, seven died before month three after grafting. GH and IGF-1 serum levels were assessed (ELISA) in serum at: baseline, graft reperfusion and 1, 7, 15, 30, 90 days after LT. Individual biochemical variables and survivorship were also recorded. Continuous and discrete variables were analyzed employing the Student t-test and Fisher exact test, respectively. For specificity and sensitivity analysis ROC curves were used. **Results.** After LT, GH and IGF-1 serum levels were negatively correlated ($r=-0.02$, $p=0.05$). GH in blood was positively correlated with GPT ($r=0.04$, $p=0.01$), while IGF-1 linearly correlated with cholesterol serum levels ($r=0.6$, $p=0.001$). IGF-1 serum levels were statistically higher in the first months after LT in survivors in comparison with non survivors (163 ± 80 vs 75 ± 15 $\mu\text{g/L}$, $p=0.04$), while GH levels did not change significantly (10.2 ± 16.8 vs 11.4 ± 11.4 $\mu\text{IU/mL}$; $p=n.s.$). ROC curves analysis identified an IGF-1 cut-off >90 $\mu\text{g/L}$ at day 30 as a good predictor of survivorship after OLT (sensitivity 100%, specificity 90%, PPV 0.8, NPV 1, Fisher exact test $p<0.01$). **Conclusion.** After LT, GH levels correlates with the extent of cytotoxicity, while IGF-1 is an indicator of liver synthetic function recovery. IGF-1 serum levels >90 $\mu\text{g/L}$ at day 30 after LT seems to be an excellent indicator of survivorship, while this latter finding remains to be confirmed in larger series.

Abstract# P-28

LIVER PROCUREMENT AND TRANSPLANT IN “CALCULATED RISK” DONORS IN ITALY. Carlo De Cillia¹, Paolo Grossi², Lucia Rizzato¹, Andrea Ricci¹, Francesca D’Alessandro¹, Sante Venettoni¹, Alessandro Nanni Costa¹. ¹Italian National Transplant Centre, Istituto Superiore di Sanità, Roma, Italy; ²University of Insubria, Varese, Italy

Introduction

To minimize the gap between organ supply and demand for transplantation, “expanded criteria” have been implemented over the years. The “calculated risk” protocol was implemented in Italy in 2003.

Aim of the study

Aim of this study is to review liver procurement in Italy between 2003 and 2007 in “calculated risk” donors and related transplantation. Then to assess graft and recipient survival in related transplants carried out between 2003 and 2005.

Material and methods

“Calculated risk” donors have been divided into 7 categories:

- 1) HBsAg+ 2)HCV+ 3)HBsAg+ and HCV+ 4)HCV+ and HBcAb+ 5) HBcAb+ 6)Meningitis 7)Bacteremia

All “calculated risk” effective liver donors with related transplants between 2003 and 2007 have been reviewed. Afterwards graft and recipient survival data concerning these transplants carried out between 2003 and 2005 have been analyzed.

Results

818 “calculated risk” effective liver donors in all were reported between 2003 and 2007.

Table 1 shows liver transplants divided according to the risk category.

Liver	2003	2004	2005	2006	2007	Total
HBsAg+	1	10	7	7	9	34
HCV+	6	12	11	10	11	50
HBsAg+HCV+	0	0	1	1	0	2
HCV+HBcAb+	2	3	5	6	3	19
HBcAb+	113	149	139	80	126	607
Meningitis	0	4	9	10	9	32
Bacteremia	8	11	3	19	33	74
Total	130	189	176	133	191	818

Table 1

Graft and recipient survival appears to be comparable to that concerning the sample of all transplanted in the same period.

Table 2 shows recipient survival in liver transplants.

Recipient survival	1 year	2 years	3 years	4 years
Liver	%	%	%	%
All transplanted sample	86,5	82,5	79,4	77,9
HBsAg+	84,2	84,2	84,2	84,2
HCV+	91,9	89,6	86,5	86,5
HBsAg+HCV+	100	100	100	100
HCV+HBcAb+	100	100	100	100
HBcAb+	87,8	82,6	77,1	76,5
Meningitis	84,6	76,2	66,6	66,6
Bacteremia	88,8	76,6	72,1	72,1

Table 2

Conclusion

Graft and recipient survival appears to be satisfying in every risk category; whilst data regarding HBcAb+ category are several, those regarding the other categories are quite few. The positive outcome of this study, together with further improvements in treatment of these infections, may actually broaden the range of liver choice and increase liver procurement.

Abstract# P-29

SEROLOGICAL PROFILE IN PRETRANSPLANTATIONS LIVER PATIENTS. Yuri L. Botteon, Raquel S. B. Stucchi, Marilia I. Leonardi, Ilka F. S. F. Boin. Unit of Liver Transplantation, Faculty of Medical Science - State University of Campinas, Campinas, Sao Paulo, Brazil

The liver transplant is at present the first choice treatment for patients with hepatic insufficiency for chronic hepatic diseases. Infections in the postoperative period represent one of the most important causes of mortality in those cases. However few works related the predominance of certain infectious diseases in the pre-transplantation period and its influence in the postoperative mortality. **Method:** We evaluated, retrospectively, the medical handbooks recordings of 236 patients undergone to liver transplantation in the liver transplant center, from to January of 1997 to January of 2007. The serologic profile was checked for the same diseases in these records: toxoplasmosis, syphilis, infection for the HTLV-I and II, Chagas disease, hepatitis A, hepatitis B, hepatitis C, paracoccidiodomicosis, tuberculosis, Acquired Immunodeficiency Syndrome, cytomegalovirus (CMV) and mononucleosis (EBV). The statistical analysis was carried out for descriptive analysis and for table frequencies. The significance adopted was 5% ($p<0.05$) and 95% confidence intervals were used in the presented frequencies.

Result: CMV had positivity (CMV-IGG) in 94.7% of the patients; 95.8% for EBV, 33.3% for toxoplasmosis, 47.9% for hepatitis C and 5% for hepatitis B.

Conclusion: The analysis showed the importance of serologic investigation and diagnostic examinations before the transplantation procedure, aiming to minimize possible reactivation of the diseases after the use of immunocompromised medications used mainly in the first six months after the transplant or even avoiding a primary infection in this situation.

Abstract# P-30

SCHISTOSOMIASIS AND LIVE DONOR LIVER TRANSPLANTATION. Joao Seda-Neto, Eduardo Carone, Eduardo Fonseca, Vincenzo Pugliese, Andre Godoy, Vera Baggio, Irene Miura, Gilda Porta, Renata Pugliese, Katia Ramos, Teresa Guimaraes, Adriana Porta, Paulo Chapchap. *Hepatology and Liver Transplantation, Sirio-Libanes Hospital/A.C. Camargo Hospital, Sao Paulo, SP, Brazil*

Background: Schistosomiasis affects 200 to 250 million people worldwide. It is a parasitic disease which causes liver fibrosis. Eggs trapped in the liver parenchyma induce granuloma and inflammation that can lead to periportal fibrosis and portal hypertension. **Aim:** To describe the outcome of 5 patients who received live donor liver grafts infected with *Schistosoma mansoni*, and to describe the impact of the hepatectomy to these donors. **Methods:** From Jun/1995 to Dec/2008, 334 pediatric LDLT were performed in 320 recipients at the A.C. Camargo and Sirio-Libanes Hospitals, Sao Paulo, Brazil. 30% of donors/recipients were referred from endemic areas of Schistosomiasis in the north-east of Brazil. Besides routine blood tests, donor evaluation included parasitological fecal test and abdominal ultrasound. **Results:** All donors had a negative fecal analysis for *Schistosoma* infection and none presented with signs of portal hypertension, including splenomegaly. Five children received infected liver allografts. The diagnosis was done either thorough histopathological analysis of the partially resected segment IV (n=3) in the donor operation, or in post-transplant liver biopsies (n=2). Focal noncasing granulomas with parasite ova, some within portoseptal areas, others within the parenchyma, were the main histopathological findings. Two recipients died of Kaposi sarcoma and lymphoma at 13 and 31 months, respectively. The others have normal allograft function at a median follow-up of 22 months. None of the recipients were treated for the infection post-operatively. None of the donors received blood transfusions and their post-operative course was uneventful. All donors were treated with a single dose of Praziquantel (40mg/KG). **Conclusion:** The presence of the eggs of the parasites in the liver tissue did not impair allograft function. There is no need to treat the recipients since they do not harbor the *Schistosoma mansoni* in their portal system. The donor's hepatectomy and the post-operative course were uneventful but, donors from endemic areas might need further investigation such as rectal or liver biopsy before donation.

Abstract# P-31

TRANSMISSION OF COAGULATION FACTOR XII DEFICIENCY THROUGH LIVER TRANSPLANTATION.

Matej Kocik¹, Milos Adamec¹, Libor Janousek¹, Martin Oliverius¹, Libuse Pagacova², Pavel Trunecka³. ¹Transplant Surgery Department, IKEM, Prague, Czech Republic; ²Hematology Department, IKEM, Prague, Czech Republic; ³Hepatology Department, IKEM, Prague, Czech Republic

Introduction: Transmission of congenital clotting factor deficiencies through liver transplantation (LTx) is rare and there are a very few reports available. Factor XII deficiency is a rare coagulation disorder inherited as an autosomal recessive trait. We report two cases of factor XII deficiency acquired by LTx.

Methods: Two males underwent LTx for alcoholic cirrhosis in April and September 2004. The first patient had a relaparotomy for bleeding on day 1. On day 8 had a liver biopsy complicated by bleeding which required transfusion of 4 units of packed RBC and 2 units of FFP. The second patient had no bleeding complications. He suffered bilateral deep vein thrombosis with pulmonary embolism 36 months after LTx during hospitalisation for an infection treatment. Both patients have 4 and 6 times elevation of aPTT since LTx. Extensive coagulation testing showed isolated severe factor XII deficiency with activity levels 2.2% and <1%. The patients have a good liver graft function 56 and 51 months after LTx. The second patient is on a long-term warfarin treatment. In both cases donors have a prolonged aPTT as well.

Discussion: Individuals affected with factor XII deficiency have prolonged aPTT. They do not have a bleeding diathesis but might have a tendency to thrombotic complications due to reduced plasma fibrinolysis. The influence of factor XII deficiency on bleeding in our patient cannot be assessed exactly. It can be explained by technical problems only. However development of massive bilateral deep vein thrombosis is suspicious of a coagulation defect.

Conclusion: According to our experience factor XII deficiency should not preclude organ donation. The recipient should be closely monitored for both bleeding and thrombosis and FFP administration or anticoagulation treatment

should be started if complications occur. Transmission of factor VII, VIII and XI deficiency through LTx have been reported as a cause of increased aPTT. The recipient of the liver from known hemophilic patient had major bleeding episodes due to the presence of factor VIII inhibitor. Factor VII and XI deficiencies did not result in significant complications. According to this we suggest that donors with isolated prolonged aPTT without known history of coagulation disorders should not be excluded from the donor pool.

Abstract# P-32

USE OF EXPANDED CRITERIA LIVER DONORS IN ITALY AND THEIR ALLOCATION ACCORDING TO PATIENT DISEASE SEVERITY: CROSS-SECTIONAL RESULTS OF THE LIVER-MATCH STUDY. Mario Angelico¹, Tania Marianelli¹, Andrea Ricci², The Liver Match Investigators. ¹Liver Unit, Tor Vergata University, Rome, Italy; ²Centro Nazionale Trapianti, Rome, Italy

Expanded criteria donors are a challenge to face the shortage of organs. We investigated this issue within the Liver Match project, a nationwide observational study, sponsored by the Italian Association for Liver Diseases (AISF) and the National Transplant Center (CNT), involving 21 Transplant Centers in Italy. **Methods:** We analyzed the data of 895 liver grafts from deceased heart-beating donors transplanted to adult recipients from June 2007 to September 2008. Expanded criteria donors were defined by one or more of the following: ≥ 60 years; BMI ≥ 30 ; macrovesicular steatosis $\geq 30\%$; serum sodium > 155 mEq/L; cold ischemia time ≥ 10 hours; partial/split liver. Donor Risk Index (DRI) was computed according to Feng. **Results:** Donors with at least one expanded criteria were 812 (90.7%). The median DRI was 1.63 (range 0.82-3.08). The median age of donors was 55 yrs (12-97). Donors aged ≥ 60 yrs were 363 (40.6%) and those ≥ 70 yrs 188 (21%). The median BMI was 24.9 (15.6-39.5). Donors with BMI ≥ 30 were 83 (9.3%) and BMI ≥ 35 17 (1.9%). Macrovesicular steatosis was found in 42 (6.8%) of 614 biopsied grafts. Donors deceased for non-traumatic causes were 650 (72.6%). While in ICU 196 donors (22%) had serum sodium > 155 mEq/L and 653 (73%) received vaso-active drugs. Median cold ischemia time was 7.4 hours (range 2.6-16). Grafts with a cold ischemia time ≥ 10 hrs were 84 (9.8%) and those with ≥ 12 hrs 22 (2.2%). Forty-nine patients (5.5%) received a partial/split liver. Median unadjusted MELD score at transplant was 17 (6-40). Donors aged ≥ 60 yrs were 180 (38.5%) among 468 recipients with MELD ≥ 17 and 181 (42.4%) among 427 with MELD < 17 (p=0.2). Donors deceased for trauma were 137 (29%) and 108 (25%), respectively in the two groups (n.s.). Median cold ischemia time was 7.3 (2.7-14) and 7.4 (2.6-16) hrs in the two groups. Eighteen (3.8%) partial/split grafts were allocated to recipients with MELD ≥ 17 and 31 (7.3%) with MELD < 17 (p=0.016). **Conclusion:** The proportion of expanded criteria donors in Italy is very high. No specific allocation policy of organs from these donors is currently apparent in relation to disease severity of adult recipients, with the exception of split/partial livers.

* Liver Match investigators: AISF governing board, CNT governing board, Directors of Italian Liver Transplant Programs and AISF fellowship recipients.

Abstract# P-33

ARE EXPANDED CRITERIA DONOR LIVERS ASSOCIATED WITH INCREASED BLEEDING COMPLICATIONS AFTER GRAFT REPERFUSION DURING LIVER TRANSPLANTATION? Marieke T. de Boer¹, Andrie C. Westerkamp¹, Herman G. Hendriks², Wojciech G. Polak¹, Paul M. Peeters¹, Koert P. de Jong¹, Robert J. Porte¹. ¹HPB Surgery and Liver Transplantation, University Medical Center Groningen, Groningen, Netherlands; ²Anesthesiology, University Medical Center Groningen, Groningen, Netherlands

Background: Several studies have shown that selective use of expanded criteria donor livers can result in acceptable survival rates after transplantation. Although these organs are clearly associated with higher postoperative morbidity, the possible impact on intraoperative bleeding is not well defined. Aim of this study was to determine the impact of expanded donor liver criteria on intraoperative blood loss after graft reperfusion.

Methods: In a prospective series of 193 adult patients undergoing a first liver transplantation we collected data on blood loss and transfusion requirements in the three separate stages of the procedure (pre-anhepatic, anhepatic and postreperfusion). Blood loss and transfusion requirements in the postreperfusion stage (stage III) were correlated with donor liver characteristics using uni- and multivariate analyses. We focused on the

following expanded donor liver criteria: graft steatosis (>30%), type of donor (brain death donor vs donation after cardiac death), cause of death, type of graft (split vs full size), donor ICU stay > 7 days, cold ischemia time (CIT) > 10hr, donor age > 60 yr, gender match and BMI.

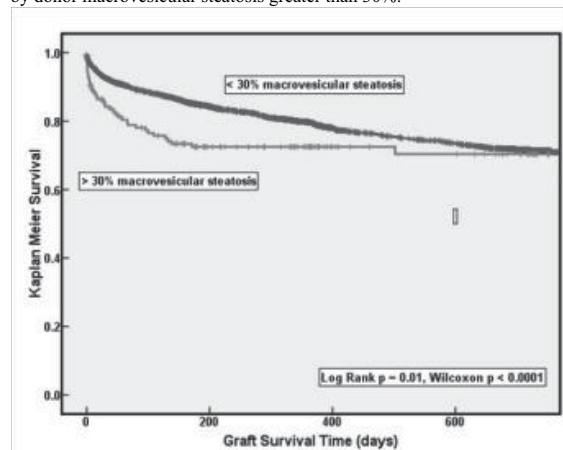
Results: Median (IQR) blood loss in the postreperfusion stage was 975 ml (500-1500). Median RBC and FFP transfusion requirement in this stage was 250 (0-750ml) and 0 (0-0ml), respectively. In univariate analyses only CIT >10 hr was associated with increased RBC transfusion requirements in the postreperfusion stage. In addition, blood transfusion requirement before reperfusion (stage I and II) was associated with RBC transfusion requirements after reperfusion (stage III). In multivariate analysis only CIT and blood transfusion requirement in stage I and II were identified as independent predictors of RBC transfusion in stage III.

Conclusions: Expanded donor liver criteria are not a risk factor for increased intraoperative blood loss after graft reperfusion. The only graft-related variable that is significantly associated with blood loss after reperfusion is CIT. These findings indicate that moderate to severe graft steatosis and advanced donor age are not associated with increased bleeding complications after graft reperfusion in liver transplantation.

Abstract# P-34

LIVERS WITH GREATER THAN THIRTY PERCENT MACROVESICULAR STEATOSIS ARE AT SIGNIFICANTLY GREATER RISK FOR GRAFT FAILURE – RESULTS FROM A LARGE DATABASE. Stephen C. Rayhill, David Scott, Susan Orloff, Jordana Gaumond, Jonathan Schwartz, Atif Zaman, Michael Chang, Scott Naugler, Anna Susaki, John Ham. *OHSU, Portland, OR, USA*

Evidence suggests that fatty donor livers are at greater risk for graft loss than non-steatotic livers. It is also believed that, in contrast to macrovesicular steatosis, microvesicular steatosis is not a risk factor. Detailed information describing the risks associated with fatty donor livers might be helpful in guiding donor selection and as this question has not been evaluated in a large population, therefore we have evaluated the effect of steatosis on allograft survival using the UNOS registry database. **Methods:** All liver transplants listed in the UNOS database from June 30, 2004 (when donor liver fat content data began to be collected) through November, 2007 were analyzed. Graft survival and death censored graft survival were the endpoints. All 4985 recipients with graft survival data were included in the analysis. Kaplan Meier survival was compared using the log rank test and Cox analysis was used for multivariate analysis. **Results:** Macrovesicular steatosis was a statistically significant risk factor for worse graft survival when evaluated as a continuous variable ($p = 0.03$), even when adjusted for recipient and donor age and gender, and CIT. Microvesicular steatosis was not a significant risk factor. Donor BMI also was not a significant risk factor for graft loss. Censoring for death did not alter the results. See the graph below for graft survival stratified by donor macrovesicular steatosis greater than 30%.



Donor's with a BMI greater than 30 kg/m² were at greater risk for steatosis 5% vs. 2%, $p < 0.0001$. Donor diabetes mellitus was not predictive of macrovesicular steatosis in this dataset (it did, however, have a deleterious effect on graft survival). **Conclusions:** Donor macrovesicular steatosis is a significant risk factor for early liver graft loss, especially when over 30%.

Increased donor BMI, especially > 30 kg/m², is associated with a greater likelihood for macrovesicular steatosis. Donor microvesicular steatosis does not appear to be important.

Abstract# P-35

ACRITICAL LOOK AT DISCARDED LIVERS IN DONATION AFTER CARDIAC DEATH (DCD). Jason Y. Rhee¹, Robin Ruthazer¹, Kevin O'Connor², Francis L. Delmonico², Richard Lusk², Richard B. Freeman¹. ¹*Transplantation Surgery, Tufts Medical Center, Boston, MA, USA;* ²*New England Organ Bank, Newton, MA, USA*

Background: Discard rates of procured DCD livers range from 7.4-20% worldwide, however liver discard rates from DCD donors are much higher. Surprisingly, there is no accurate assessment of the factors associated with DCD liver discard. Our aim was identify factors associated with discard of procured livers from DCD donors.

Methods: Data from 394 consecutive DCD potential donors were collected from the New England Organ Bank (NEOB) registry for DCD cases from 1/1/00–7/1/2008. All subjects met criteria for potential solid organ donation as defined by NEOB. Univariate and multivariate linear regression analyses were performed with discard of the liver as the dependent variable to identify factors associated with discard.

Results: 102 DCD underwent liver recovery (25.9% of all DCD). 63 (61.8%) livers were transplanted, while 39 (38.2%) livers were discarded. Of these, 27 (42.9%) transplanted livers and 29 (76.3%) discarded livers had biopsies. The discarded livers had ≥1 of the following reasons for discard: biopsy (14 cases, 36.8%); anatomy (8, 21.1%); warm ischemia time (WIT) (8, 21.1%); medical history (4, 10.5%); poor flush (3, 7.9%); age (2, 5.3%); cancer (1, 2.6%); other (6, 15.8%); unknown (2, 5.3%). Of the 38 parameters included in univariate analysis, only age, BMI, head trauma as cause of brain injury, ≥2 blood transfusions, use of vasopressors, MAP, HCT, HR, and MAP were associated with discard ($p < 0.20$) and were included in multivariate analysis. The low rate of biopsies prevented its inclusion into multivariate analysis, though microsteatosis and macrosteatosis were associated with discard when reported ($P < 0.05$). Multivariate analysis revealed that increasing age was predictive of discard, while use of vasopressors prior to extubation was associated with a decreased odds of discard (Model Chi-square 16.4; $p < 0.001$; ROC 0.715). The inclusion of WIT within the multivariate analysis did not significantly alter the results (16.6; $p < 0.001$; 0.712).

Conclusions: The high discard rate of DCD livers can be attributed various reasons; however, only age and lack of use of vasopressors appear to be predictive of discard. The large amount of overlap among the other variable examined suggests that some discarded DCD livers may actually provide good graft function.

Abstract# P-36

LIVER TRANSPLANTATION WITH HEPATITIS B CORE ANTIBODY-POSITIVE GRAFTS UNDER HEPATITIS B IMMUNOGLOBULIN AND LAMIVUDINE PROPHYLAXIS.

Luigi L. Lupo¹, Piercarmino P. Panzera¹, Francesco F. Tandoi¹, Michele M. Colasuonno¹, Angela Daniela A. D. Di Franco¹, Riccardo R. Memeo¹, Roberta R. Gialò¹, Andrea A. Cesana¹, Rosamaria R. Notarnicola¹, Onofrio O. Caputi Jambrenghi¹, Maria M. Rendina², Teresa T. Santantonio³, Vincenzo V. Memeo¹. ¹*D.E.T.O., University General Surgery and Liver Transplant Unit, Bari, Italy;* ²*D.E.T.O., University Gastroenterology Unit, Bari, Italy;* ³*Internal Medicine, University Infection Disease Unit, Bari, Italy*

Background: With an increasing demand, increasing number of patients in waiting list (WL) and drop-out, grafts from HBcAb+/HBsAg- donors are currently accepted for Liver Transplantation (LTx). HBV-recurrence is prevented by HBV-Immunoglobulin (HBIG) and Lamivudine, alone or in combination. **Aim:** The clinical outcome of transplanted patients was examined. **End-Points:** Overall Survival (OS, %), HBV Hepatitis Recurrence Free Survival (DFS). **Patients & Methods:** Twenty-five (14 %) patients (15 HBcAb+ and 10 HBcAb-) out of 179 received a liver from HBcAb+/HBsAg- donors: 11 for HCC (6 HCC/HBV, 2 HCC/HBV+HCV, 3 HCC/HCV), 4 for Fulminant Hepatic Failure, 3 for HBV, 2 for HBV/HCV, 3 for HCV and 2 for Alcoholic Cirrhosis. All of them received HBIG and 11 HBIG and Lamivudine long-term prophylaxis. In the same frame 154 patients (58 HBV+, 96 HBV-) were transplanted with HBcAb- donor livers. During follow-up patient were routinely screened for HBV and HCV recurrence. **Statistical Analysis:** Fisher's or Chi-square test, Mann-Whitney test, Life-

tables and log-rank test, Relative Risk (RR). Results: Matching Donors and recipients, four groups are identified D+/R+(15), D+/R-(10), D-/R+(58) and D-/R-(96). During follow up (median: 24months; range 3-100months), two patients experienced HBV recurrence: 1/10 in the D+/R- group at 5 months, within a multiple virus infection (CMV, EBV and HHV-8) and died, and 1/58 in the D-/R+ at 42 months (p=ns). OS and DFS did not differ between the four groups: 87.5 vs 87.5 vs 94 vs 87 and 100 vs 87.5 vs 100 vs 100 at 3 years, and 87.5 vs 87.5 vs 91 vs 79 and 100 vs 87.5 vs 100 vs 100 at 5 years (p=ns). However, the RR for HBV recurrence was 6.3 for HBcAb+ donors, irrespective of the recipient virological status and 1.2 for HBcAb+ recipient irrespective of donor status. WL stay resulted shorter for patients who accepted HBcAb+ grafts: 82 (1-285) vs 123 (1-1112) days. Conclusions: The use of HBcAb+ grafts is safe under prophylaxis protocol, allowing shorter WL stay without compromising OS and DFS.

Abstract# P-37

BILIARY COMPLICATIONS AFTER USING LIVERS FROM DONATION AFTER CARDIAC DEATH DONORS. Abdaal W. Khan, Ibrahim Alsarraj, Osama Nafea, Ali N. Khan, Wael Ohali, Khalid O. Abdullah, Abdulmajeed Al-Abdulkareem. *Hepato-Biliary Sciences & Transplantation, King Abdulaziz Medical City, National Guard Hospital, Riyadh, Saudi Arabia; Radiology, King Abdulaziz Medical City, National Guard Hospital, Riyadh, Saudi Arabia*

Introduction:

A much higher incidence of biliary strictures has been noted in donation after cardiac death (DCD) due to ischemic cholangiopathy. In China, prisoners on death penalty have provided uncontrolled non-heart beating donation (DCD) to many overseas patients.

Patients and Methods:

During the period Jan. 2005-Jan.2007, 51 patients arrived back from mainland China after undergoing liver transplantation. One patient died in early post-op period (day 16). Charts were reviewed for biliary complications.

Results:

There were 39 males, 12 females. The mean age was 57.1(9.8) years. Hepatitis C was present in 34%, hepatitis B in 28%, 10% had both. 24% were placed in cryptogenic category. The anastomosis was duct-to-duct in all cases and 18 patients also had T-tubes. 17 biliary complications occurred in 13 (26%) patients. There were 6 minor bile leaks (anastomotic x 2, T-tube removal x 4, managed by ERCP and stent x 4, percutaneous aspiration x 1) and 1 major bile leak with peritonitis (requiring laparotomy & Roux-en-Y-hepaticojejunostomy).

Nine patients developed strictures in 10 grafts after a mean interval of 12 months (10.6). These were classified as purely extrahepatic x 3, extra and intrahepatic x 3 and intrahepatic x 4. The intrahepatic were unifocal x 1, hilar x 1, and bilateral multifocal x 4 and diffuse necrosis x 1. These were managed in 7/9 cases by ERCP and interventional radiology and one with diffuse necrosis had a re-transplant. Of the 4 patients with bilateral multifocal strictures, 3 also had extra-hepatic disease. In one severe disease occurred within 3 months and died of liver failure/sepsis at 9 months. 3 had disease diagnosed at 5 months, 12 months and 22 months and are surviving with multiple PTBDs and have required repeated admissions for sepsis or dilatations.

Conclusions: Anastomotic & donor duct strictures can be managed with endoscopic and percutaneous means. Delayed appearance (>6months) of multiple intrahepatic strictures could be managed initially with percutaneous transhepatic drains & dilatations, but graft survival is reduced.

Abstract# P-38

PROSPECTIVE RANDOMIZED STUDY OF ANTIVIRAL THERAPY POST-TRANSPLANTATION: EFFECT OF THE TYPE OF PEGYLATED IFN AND BASELINE IMMUNOSUPPRESSION. Cecilia Ortiz^{1,3}, F. Xavier Lopez-Labrador^{4,5,6}, Raquel Cañada^{1,3}, Blas Risdale^{1,2,3}, Victoria Aguilera^{2,3}, Martin Prieto^{2,3}, Marina Berenguer^{2,3}. ¹Experimental Immunity Unit, Hospital la Fe, Valencia, Spain; ²Hepatology Unit, Hospital la Fe, Valencia, Spain; ³CIBER-EHD, Hospital la Fe, Valencia, Spain; ⁴CSISP Public Health Department, Generalitat Valenciana, Valencia, Spain; ⁵Evolutionary Genetics Unit, Instituto Cavanilles de Biodiversidad y Biología Evolutiva, Valencia, Spain; ⁶CIBER-ESP, Instituto Cavanilles de Biodiversidad y Biología Evolutiva, Valencia, Spain

Antiviral therapy post-liver transplantation (LT) has a limited efficacy. There is an interest in determining factors associated with sustained virologic

response (SVR). Aim: To assess whether the kinetics of viral response in LT recipients treated with pegIFN-ribavirin differ depending on the baseline immunosuppression (tacrolimus-Tac- vs cyclosporine-CsA-) and type of IFN (pegintron vs pegasys). Methods: Ongoing prospective randomized study of LT patients randomized to pegintron vs pegasys in combination with ribavirin started in 2006. A detailed kinetic study was performed in 16 LT patients (Tac-pegasys, n=4, Tac-pegintron, n=4; CsA-pegasys, n=4; CsA-pegintron, n=4) and 4 immunocompetent patients (2 Pegintron and 2 Pegasys). Results: Of 65 patients randomized during 2006-2007, complete follow-up (6 months post-treatment) is available in 25 patients (pegasys, n=13; pegintron, n=12). There were 21 men, with a median age of 58 years (range: 39-69). Baseline immunosuppression consisted of Tac in 17, cyclosporine in 8. The overall SVR was 24%, not statistically different between the two groups (pegasys 31% vs pegintron 17%, p=.6). The SVR did not differ based on baseline immunosuppression (tacrolimus: 29% vs cyclosporine: 13%; p=.6). The only variables associated with SVR included baseline viremia (p=.05) and rapid virologic response (p=.006). No differences in viral decline at 1 day, 1 week, 1 month and 3 months were observed between the four groups. A trend towards a more pronounced viral decline at the 3 time-points was observed in the 4 immunocompetent patients compared to the 16 LT recipients. Conclusions: In recurrent hepatitis C, there are no differences in early viral kinetics between pegIFN alfa-2a and 2b regardless of baseline immunosuppression (Tac vs CsA).

Abstract# P-39

DONOR LIVER STEATOSIS OF >30% HAS NO IMPACT ON HEPATITIS C VIRUS RECURRENCE FOLLOWING LIVER TRANSPLANTATION. Maresh S. Gopasetty¹, David Taber², Michel Hughes³, Angello Lin⁴, John McGillicuddy⁵, Charles Bratton⁶, Prabhakar Baliga⁷, Kenneth Chavin⁸. ¹Transplant Surgery, Medical University of South Carolina, Charleston, SC, USA; ²Transplant Surgery, Medical University of South Carolina, Charleston, SC, USA; ³Transplant Surgery, Medical University of South Carolina, Charleston, SC, USA; ⁴Transplant Surgery, Medical University of South Carolina, Charleston, SC, USA; ⁵Transplant Surgery, Medical University of South Carolina, Charleston, SC, USA; ⁶Transplant Surgery, Medical University of South Carolina, Charleston, SC, USA; ⁷Transplant Surgery, Medical University of South Carolina, Charleston, SC, USA; ⁸Transplant Surgery, Medical University of South Carolina, Charleston, SC, USA

Background:

This study examines the impact of donor liver steatosis on recurrence of hepatitis C virus (HCV) disease after liver transplantation.

Methods:

Between June 1999 to December 2001, 51 adult patients underwent liver transplantation for HCV related cirrhosis. Time to histological recurrence (fibrosis score ≥2) was the end point for the study. Recurrence was graded according to the system of Ludwig and Batts. A Cox's proportional hazard regressive model was used to analyze the association between donor liver steatosis and HCV recurrence. Donor liver steatosis was quantified by staining with oil red O.

Results:

Recurrence free survival for patients who received steatotic liver (>30% fat) was 80% and 42% at one and five years, respectively, and 82% and 62% for patients who received a non steatotic liver. After 6 years of follow up death rates were not significantly different in both groups (P=0.175). Donor liver steatosis was not found to have any impact on HCV recurrence. (p=0.37). Donor age >35 years (p<0.0001) was found to increase the relative risk of HCV recurrence. In both the groups, MELD, cold ischemic time, length of follow-up and age were not significantly different. Among the donors used in both the groups of recipients, BMI, age, peak sodium and liver enzymes were not significantly different.

Conclusion:

Mild to moderate donor liver steatosis has no impact on HCV recurrence after liver transplantation for HCV related cirrhosis. Donor age increased the likelihood of HCV recurrence.

Abstract# P-40

EARLY VIROLOGICAL RESPONSE AND ABSENCE OF DIABETES ARE ASSOCIATED WITH SUSTAINED VIROLOGICAL RESPONSE TO HCV TREATMENT AFTER LIVER TRANSPLANTATION IN PATIENTS WITH CYCLOSPORINE A BASED IMMUNOSUPPRESSION. M. Hurtova¹, M. Fourti¹, N. Medjahed¹, D. Samuel², M. Neau-Cransac³, Y. Calmus⁴, G. Pageaux⁵, R. Lorho⁶, C. Vanlemmens⁷, A. Laurent⁸, T. Decaens¹, C. Duvoux¹. ¹Hepatology, H. Mondor Hospital, Créteil, France; ²Hepatobiliary Center, P.Brousse Hospital, Villejuif; ³Hepatology, Pellegrin Hospital, Bordeaux; ⁴Hepatology, Cochin Hospital, Paris; ⁵Hepatology, St Eloi Hospital, Montpellier; ⁶Hepatology, Pontchaillou Hospital, Rennes; ⁷Hepatology, J.Minoz Hospital, Besançon; ⁸Digestive Surgery, H. Mondor Hospital, Créteil

Antiviral properties of cyclosporine (CsA) might increase the chance of a sustained virological response (SVR) to HCV treatment after liver transplantation (LT).

Aims: To evaluate virological response to Peg Interferon (Peg IFN) and Ribavirine (Riba) based therapy of HCV recurrence in patients on CsA.

Patients and methods: We retrospectively reviewed charts of 46 patients with proven recurrent HCV transplanted in 7 French centers.

Inclusion criteria: +ve HCV RNA, CsA based immunosuppression, first antiviral therapy after LT, Peg IFN+Riba treatment. We assessed virological response at Week 12 (EVR), Week 48 (ETR) and Month 18 (SVR), observed side effects, analyzed factors associated with SVR. **Results:** Patients characteristics: 34 M, 12 F, median age at LT 53.5±9 years. Mean post LT pre-treatment follow-up was 55.5 (3-204) months, median pre-treatment viral load was 6.4 log, 68% of patients had HCV G1/4, 32% had G 2/3. Fibrosis (Metavir score) was F1-2 in 60%, F3-4 in 40% of patients. 65% of patients received Peg IFN alpha 2a; 35% alpha 2b; mean initial ribavirine dose was 800mg daily (400-1200). Median treatment period was 12 (4-18) months. EPO and GCSF were used in 84 and 13% of patients. The EVR, ETR, and SVR rates were 67, 85 and 62%. 82% of patients with EVR achieved SVR. Univariate analysis: patients with SVR had significantly lower rate of diabetes (73 vs 27%, p=0.01), higher EVR rate (54 vs 7%, p=0.004), lower bilirubin (16±11 vs 28±24 µmol/L, p=0.05) and alkaline phosphatase (105±57 vs 227±199 U/L, p=0.02) levels. SVR tended to be higher in G 2/3 than in G 1/2 patients (78 vs 54%, p=0.1) and associated to slightly lower pre-treatment viral load (5.9 vs 6.4 log, p=0.1). In multivariate analysis absence of diabetes and EVR are independently associated with SVR.

Conclusions: Peg IFN-Riba therapy in CsA treated LT patients can result in SVR rates similar to non-transplant setting. In patients on CsA, diabetes significantly decreases SVR.

Abstract# P-41

ROLE OF ANGIOTENSINOGEN (AGT) AND HEMOCHROMATOSIS (HFE) GENE MUTATIONS FOR THE DEVELOPMENT OF FIBROSIS AFTER HCV REINFECTION FOLLOWING LIVER TRANSPLANTATION.

Volker Schmitz¹, Heiko Witt², Marcus Bahra¹, Florian Spies¹, Ruth Neuhaus¹, Tobias Müller², Juliane Harlank², Ulf P. Neumann¹, Peter Neuhaus¹, Thomas Berg². ¹Department of General, Visceral and Transplantation Surgery, Charité, Campus Virchow, Berlin, Germany; ²Department of Gastroenterology, Charité, Campus Virchow, Berlin, Germany

Background. Polymorphisms of the HFE (Hemochromatosis) and AGT (Angiotensinogen) gene have been identified as possible risk factors for progressing liver fibrosis in non-transplant patients with hepatitis C infection. Aim of our study was to characterize the role of such mutations in HCV positive liver transplant recipients.

Methods. 300 HCV positive transplant recipients (68.7% males, median age 53 years.) transplanted between 1989 and 2005 have been followed for five years. Gene analysis has been performed in 147 cases (47.9%) after one year and results were correlated with clinical course and fibrosis progression based on protocol biopsies after year 1, 3 and 5. Whole blood samples were quantitatively analyzed by real-time PCR (fluorescent reporter probe method) on a LightCycler (Roche).

Results. Only two patients revealed a homozygous mutation of the HFE-gene (H63D), whereas the frequency for homozygous mutations of the AGT-gene were seen in 17% (n=25) for M235T and 17% (n=25) for A-6G. Heterozygous mutations were found in 18 patients (12.2%) for C282Y, in 36 (24.5%) for

H63D, in 3 (2.0%) for C65S, in 71 (48.3%) for M235T and in 67 (45.6%) for A-6G. An univariate analysis could not reveal any correlation of these mutations with patient survival or progression of liver fibrosis in the first five years following transplantation.

Conclusions: Although homozygous mutations of the AGT gene have a high prevalence of 50%, neither HFE nor AGT mutations correlate to the dynamics of fibrosis progression or survival in liver transplant patients following hepatitis C re-infection. In our retrospective approach, confounding factors had to be disregarded (e.g. additional treatment with antihypertensive drugs such as angiotensin converting enzyme (ACE) inhibitors may interfere). Thus, to further elucidate the role of gene alterations for the development of fibrosis, prospective studies are warranted.

Abstract# P-42

TREATMENT FOR RECURRENT HCV INFECTION AFTER LIVER TRANSPLANTATION. Cassia Guedes, Fernanda Pousa, Joyce Roma, Ana Carolina Gonzalez, Luciana Agolia, Marcelo Enne, José Manoel Martinho, Luciana Cariús, Elizabeth Balbi, Lúcio Pacheco-Moreira. *Liver Transplantation Unit, Bonsucesso General Hospital, Rio de Janeiro, Brazil*

Cirrhosis due to hepatitis C virus (HCV) infection is the current leading indication for liver transplantation (LT) in the world. This series reports a transplantation program's experience with the treatment of HCV infection after the development of histological hepatitis.

Between March/02 and December/08, patients with recurrent HCV were evaluated to determine if they were eligible for anti-viral treatment. Liver function tests, HCV viral load, genotype and liver biopsies were done prior to treatment. The patients were selected for treatment if the liver biopsy had shown at least F2 degree at Metavir score. HCV viral load was repeated at weeks 4, 12, 24, at the end (End of Treatment Response – ETR), and 6 months after the end of treatment for patients who became HCV-RNA negative (Sustained Virological Response – SVR). In this period 302 liver transplants were done in 295 patients. 131 (44%) patients had HCV cirrhosis as the indication for LT and 28 patients were eligible for anti-viral treatment. 15 patients had completed treatment, 6 remain on treatment and 7 were intolerant. The principal collateral effect was anemia. 14 (50%) required erythropoietin and a subgroup of these patients required hemotransfusion 10 (71%), which was considered a severe adverse event. Only 1 patient had an episode of acute cellular rejection, which responded to adjustment of immunosuppression (IMS). The results are shown in the table 1.

Antiviral treatment in transplanted patients is feasible and does not seem to induce severe immunological effects. Adjuvant therapies to reduce cytopenias are frequently required, principally EPO. The best results (37% of SVR) were found in the Peg+RBV group, which completed the proposed treatment time. The group recommends the use of antiviral treatment for eligible patients with confirmed HCV recurrence using Peg+RBV.

Results					
Treatment	28 (100%)	Stop	On Going	Complete	ETR
RBV	2 (7%)	0	2	0	0
IFNα + RBV	2 (7%)	1	0	1	1
Peg+RBV	23 (82%)	5	4	14	10
Peg	1 (3%)	1	0	0	0

Abstract# P-43

SPONTANEOUS CLEARANCE OF HCV VIRUS AFTER CADAVERIC LIVER TRANSPLANTATION: A PREPORT OF 3 CASES. Mohamed El-Saadany. *Internal Medicine, Faculty of Medicine, Mansoura University, Mansoura, Egypt*

INTRODUCTION: Spontaneous clearance of HCV viremia after liver Tx: is a rare event. We report 3 cases who underwent cadaveric LTx in China for HCV-related ESLD and spontaneously cleared HCV viremia without interferon therapy. **1st case:** A male patient aged 41 years underwent OLT for post-HCV liver cirrhosis. Initial evaluation after 2 months of OLT, we found that he had HBV superinfection with HBsAg +ve and HBV DNA level 1436 IU/ml, HCV RNA level was 159.338 IU/ml. He was on triple therapy including TAC, MMF and steroids. So we stopped steroids and added Lamivudine 100mg/d with HBIG 2000 IU i. m/ 2wks. Then the patient had marked increase transaminases. Liver biopsy showed severe ACR with +ve HBsAg immunostaining. HBV DNA level in blood increased to 78.000 IU/ml and HCV RNA level increased to 1.100.000 IU/ml. After 4 weeks, we added Adefovir Dipivoxil 10 mg/d and stopped HBIG. 4 weeks later HBV DNA disappeared with persistent HBsAg and increase HCV RNA to 2.941.370 IU/ml. 16 weeks later, patient's liver function tests were normal with persistent -ve HCV RNA PCR for 16 months. **2nd Case:** A male patient

aged 43 years who had OLT for post-HCV cirrhosis and HCC. After 5 months of OLT he had abnormal liver function. Liver biopsy showed moderate ACR and HCV RNA PCR was 1.240.000 IU/ml, we increases TAC dose. 4 weeks later, the patient had high transaminasitis. The second liver biopsy showed moderate ACR. The patient had a single injection of methylprednisolone 1.0 gm iv which resulted in normalization of liver enzymes after almost 6 weeks. HCV RNA PCR after 8 weeks increased to 3.715.745 IU/ml. After 10 months, HCV RNA in blood became negative with normal liver function. 3rd Case A male patient aged-54 years who had OLT for HCV cirrhosis and HCC. Perioperative assessment showed Thymoma and subacute thyroiditis. After 6 weeks of OLT. He developed mild increase in transaminases that was clinically-suspected ACR and managed by increasing TAC dose. HCV RNA was 2.372.140 IU/ml which increased to 7.692.310 IU/ml after another 8 weeks. Then the patient developed manifestations of thyrotoxicosis that was treated by anti-thyroid drugs. HCV RNA PCR follow up after 3 months showed no HCV virus. **Conclusion:** Spontaneous clearance of HCV virus after OLT may be preceded by ACR that would enhance immunological mechanisms responsible for viral clearance.

Abstract# P-44

HCV ALLOGRAFT RECURRENCE and LIVER TRANSPLANTATION (LT): THE ROLE OF MINIMAL TACROLIMUS (TAC) BASED IMMUNOSUPPRESSION (MIS). Eliano Bonaccorsi-Riani, Nicolas Piette, Benoît Kabamba, Olga Ciccarelli, Francine Roggen, Chantal De Reick, Jacques Rahier, Christine Sempoux, Ziad Hassoun, Jan Lerut. *Unit of Abdominal Transplantation, Université Catholique de Louvain - Cliniques Universitaires Saint-Luc, Brussels, Belgium*
AIM: Study HCV allograft recurrence after LT based on induction IS and modality of steroid use.

METHODS AND MATERIAL: During the period 2000-2005, 35 HCV patients were included in a prospective, randomized, double-blind, placebo-controlled study comparing TAC-Placebo (PLAC) (n=14) vs. TAC-short-term (3mo) low-dose steroid (STER)(n=21) use. Liver biopsies were done at d7, 6 mo, 12 mo and then yearly. HCV recurrence was classified following Ludwig (taking into account portal (P), lobular (L) infiltration as well as degree of fibrosis (S) scored from 1 to 4: S1: no fibrosis; S2: beginning fibrosis; S3: fibrosis; S4: cirrhosis). All patients had a complete follow-up of minimal 3 years.

RESULTS: One, 3 and 5 year patient survival rates were 93; 93 and 78% in TAC-PLAC group and 90; 71 and 65% in TAC-STER group. One, 3 and 5 year graft survival rates were 93; 86 and 71% in the TAC-PLAC gr. and 90; 65 and 60 % in the TAC-STER gr. (p 0.09). During the first 3 years one TAC-PLAC patient died due to hepatocellular cancer (HCCa); five TAC-STER gr. 5 pts died due to HCV recurrence and one due to HCCa. One (7.1%) TAC-PLAC and two (9.5%) TAC-S TER pts had rejection therapy. One (7.1%) and 4 (19%) pts had antiviral therapy during the first post-LT year. During the first post-LT year no TAC-PLAC patient developed fibrosis (S3), cirrhosis (S4) nor lethal cholestatic hepatitis, whereas 2 (9.5%), 3 (14.3%) and 2 (9.5%) TAC-STER pts did. S3 -4 Ludwig Score at 1 year was significantly higher in the TAC-STER gr. (5 pts vs. none in TAC-PLAC gr.; p 0.03). At 3 years 5 (35%) of 14 TAC-PLAC survivors and 6 (40%) of 15 TAC-STER survivors evolved towards S3-4 Ludwig score. During the 4 and 5 year of follow-up, one TAC-PLAC pt each died of de novo tumour at 45mo and of HCV recurrence and B-lymphoma at 54 mo; 4 TAC-STER pts in contrast died due to HCV recurrence at 49; 73; 76 and 79 mo. In total 1 (7%) of 14 TAC-PLAC pts and 9 of 21 (43%) TAC-STER pts died of HCV recurrence (p 0.045).

CONCLUSION: In this small patient series steroid-free, low-dose TAC IS has a major favorable impact on the early as well as long-term outcome of LT in HCV patients. Larger prospective studies with long-term follow-up are mandatory to confirm the presented results.

Abstract# P-45

SIROLIMUS HAS A POSITIVE EFFECT ON VIRAL RECURRENCE IN HCV POSITIVE LIVER TRANSPLANTED PATIENTS. Doris Wagner, Daniela Kniepeiss, Silvia Schaffellner, Estrella Jakoby, Helmut Mueller, KarlHeinz Tscheliessnigg, Florian Iberer. *Department for Surgery, Division for Transplantation, Medical University Graz, Graz, Austria*
An in-vitro role of mTOR proteins in the protection of HCV infected cells from apoptosis has been proven. The aim of this cohort study was to evaluate the effect of Sirolimus as mTOR inhibitor on Hepatitis C recurrence in liver recipients.

Hepatitis C virus positive patients were followed up prospectively regarding transaminases, immunosuppressive target levels, HCV RNA and influence of donor and recipient factors on viral recurrence and survival.

67 HCV-positive patients were included 39 received a Sirolimus including regimen, 18 patients stayed on calcineurin-inhibitors. Sirolimus patients showed a significant decrease in the HCV PCR levels (p<0.05). Survival of the Sirolimus patients was significantly higher (p<0.03) as compared to the other patient cohort.

Sirolimus has shown to be a potent immunosuppressive agent for patients after liver transplantation but is normally only administered to avoid side-effects of calcineurin-inhibitors. Nothing is known about its effect on HCV. This analysis suggests a potential of Sirolimus to be evaluated as immunosuppressant for HCV positive liver transplant candidates to suppress viral recurrence.

Abstract# P-46

PROLIFERATIVE ALLORESPONSE OF T-CYTOTOXIC CELLS IDENTIFIES REJECTION-PRONE CHILDREN WITH STEROID-FREE LIVER TRANSPLANTATION. Chethan Ashokkumar, Ali Abdulla, Qing Sun, Ankit Gupta, Rakesh Sindhi. *Hillman Center for Pediatric Transplantation, Children's Hospital of Pittsburgh and University of Pittsburgh, Pittsburgh, PA, USA*

Donor- and third-party-induced proliferation of T-helper (Th) and T-cytotoxic (Tc) cells, and their naïve and memory subsets was evaluated simultaneously in single blood samples from 77 children who received steroid-free liver transplantation (LTx) after induction with rabbit anti-human thymocyte globulin. Proliferation was measured by dilution of the intravital dye carboxy-fluorescein-succinimidyl-ester (CFSE) in 3-4 day MLR co-culture. The ratio of donor: third-party-induced proliferated, (CFSE^{low}) T-cells was reported as the immunoreactivity index (IR) for each subset. Rejectors were defined as those who experienced biopsy-proven acute cellular rejection within 60 days of the assay. IR>1 signified increased risk of rejection and IR<1 implied decreased risk. **Results:** Demographics for 32 Rejectors and 45 Non-Rejectors were similar. Proliferated CFSE^{low} T-cells and subsets were significantly higher among Rejectors, compared with Non-Rejectors. In 33 of 77 randomly selected children, logistic regression, leave-one-out cross-validation and ROC analyses showed that the IR of Tc associated best with biopsy-proven rejection (sensitivity>75%, specificity>88%). Sensitivity/specificity were replicated in the remaining 44 children, comprising the validation cohort. IR of CFSE^{low} Tc correlated significantly with IR of pro-inflammatory, allospecific CD154+Tc (r=0.664, p=0.0005), and inversely with IR of allospecific, anti-inflammatory, CTLA4+Tc (r=-0.630, p=0.007). **Conclusions:** Proliferative alloresponses of T-cytotoxic cells can identify rejection-prone children receiving LTx.

Abstract# P-47

CONVERSION FROM PROGRAF TO ADVAGRAF IN PATIENTS AFTER LIVER TRANSPLANTATION. Marta M. Wawrzynowicz-Syczewska. *Infectious Diseases and Hepatology, Pomeranian Medical University, Szczecin, Poland*

Aim: Summary of one-year experience with conversion from b.i.d. formula of tacrolimus (Prograf) to one daily dose formula (Advagraf) in patients with the stable function of the liver graft.

Patients and methods: Replacement of Prograf by Advagraf was done in the following cases: 1. in patients with a stable graft function at least three months after OLTx; 2. in patients on regimens allowing one daily dosing after conversion (i.e. TAC+AZA+GS, TAC); 2. in patients with significant side effects of tacrolimus (i.e. headache, diarrhea) to see whether they would improve or abate; 4. only in subjects accepting frequent checks after conversion (one week apart at the beginning). Conversion dose was 1:1. Rejection episodes were sought. Trough level of tacrolimus and ALT levels before and after conversion were compared (mean value from the 3 subsequent examinations). Patients subjective opinion was questioned.

Results: Altogether 45 patients were converted. The analysis was performed appr. one year after conversion. Acute rejection was reported in three converted patients. In two cases it was a steroid-resistant rejection requiring reOLTx. Conversion as a reason of rejection was not proved (possible alcohol abuse in one case, drug interaction with the NSAIDs in the other). Median trough level of Prograf was 9.5 (5.0-17.6) ng/mL and was significantly higher than the median level of Advagraf of 6.3 (2.8-10.6 ng/mL, p<0.001). Eleven patients required Advagraf dose increase by 1mg and 3 patients by 2 mg. Dose was reduced by 1 mg in 5 cases. Median ALT value on Prograf was 55.2 U/L (14.0-168.7) and was comparable with the median ALT value on

Advagraf (45,3 U/L, range 11-249,0, NS). In 32 patients no difference in the comfort was noted and they appreciated the simplicity of the dosing rather than better tolerance. Five patients reported improvement of side effects of TAC after conversion and in 8 patients reversion to Prograf was necessary (3 abovementioned rejections, significant ALT increase with no clear reason other than drug replacement in 3 patients, restless legs syndrome and severe headache in 2 cases).

Conclusions: In general, conversion from Prograf to Advagraf is safe and improves compliance, but it must be done with a caution as a significantly lower trough level of tacrolimus after conversion poses a risk of sub-optimal immunosuppression. Compliance seems to be the most important (if not the only) reason for conversion.

Abstract# P-48

BENEFICIAL EFFECT OF INDUCTION THERAPY BY BASILIXIMAB IN LIVER TRANSPLANT HIGH RISK RECIPIENTS WITH POOR RENAL FUNCTION. E. Saliba, V. Delvart, P. Ichai, M. Kouassi, T. M. Antonini, B. Roche, D. Azoulay, R. Adam, D. Castaing, D. Samuel. Centre Hepato-Biliaire, AP-HP

Hopital Paul Brousse, Villejuif, France

Induction therapy has been mainly used in patients with poor renal function. The longterm outcome of renal function of these patients and the beneficial effect and safety of induction therapy by basiliximab has not been well established.

Patients and Methods: From 1999 to 2005, 667 consecutive liver transplantations for 594 patients were studied. 160 transplants (24%) having received an induction therapy (IND) with mainly basiliximab (85%) were compared to the 507 transplants with better renal function and who did not receive any induction (NO IND).

Results: Five years patient (75% vs 72%) and graft survival (75% vs 75%) were not significantly different respectively in patients with and without IND therapy. The rate of histologically proven rejection was significantly lower in patients who received IND compared to NO IND therapy (24.1% vs 34.4%, $p=0.02$). In addition, histologically proven and treated rejection was significantly lower in the induction treated group (11.2% vs 18.5%, $p=0.02$). There were no significant difference between both groups in terms of occurrence of diabetes and arterial hypertension. However, there were significantly less HCC tumor recurrence in the IND treated group (0.6% versus 7.7%, $p=0.001$) despite that there were no significant difference in Milan criteria between groups. The proportion of de novo cancer was comparable between groups (5.6% vs 7.3% ; $p=0.46$). Patients with NO IND significantly ($p=0.003$) worsened their renal function from baseline to month 12 (M12): mean creatinine ($\mu\text{mol/mL}$) was at baseline 103 ± 98 , at D14 123 ± 88 , at M1 117 ± 72 , at M6 110 ± 53 and at M12 109 ± 51 ; while patients with IND significantly ($p<0.0001$) improved their renal function from baseline to M12: mean creatinine ($\mu\text{mol/mL}$) was at baseline 236 ± 221 , at D14 162 ± 131 , at M1 135 ± 74 , at M6 128 ± 80 and at M12 131 ± 93 . When the 66 patients who received a combined kidney and liver transplantation were excluded from the study, mean creatinine still deteriorate significantly in the NO IND group while it improve significantly till M3 and stabilize at M12 in the basiliximab group.

Conclusion: In liver transplant recipients with poor renal function and high MELD score, basiliximab induction demonstrated a significant beneficial effect on renal function, and a significant decrease in treated rejection rate and HCC tumor recurrence.

Abstract# P-49

SERUM CYSTATIN C IS A HIGHLY SENSITIVE PREDICTOR OF RENAL IMPAIRMENT IN PATIENTS UNDERGOING ORTHOTOPIC LIVER TRANSPLANTATION. Doris Wagner¹, Daniela Kniepeiss¹, Gerhard Wirnsberger², Estrella Jakob¹, Regina Roller², Helmut Mueller¹, Florian Iberer¹, Karl Heinz Tscheliessnigg¹. ¹Department for Surgery, Medical University Graz, Graz, Austria, Austria; ²Department for Internal Medicine, Medical University Graz, Graz, Austria, Austria

Background
Improved survival of liver transplant recipients increases the incidence of chronic renal failure following transplantation. Highly sensitive, early and effective monitoring of post transplant renal function is still focus of research. The aim of this study was to evaluate the prognostic value of Cystatin C for patients in various times following liver transplantation (OLT).

Methods
98 patients were enrolled to the longitudinal observational study within a period of 24 months following OLT. Serum Creatinine, Cystatin C and GFR were collected prior to transplantation as well as 1, 6, 9, 12 and 24 months thereafter. Renal impairment was defined as serum creatinine levels above 1.4 mg/dl. Serum creatinine, renal glomerular filtration rate calculated by the Modification of Diet in Renal Disease formula 4 and serum Cystatin C levels were collected, risk factors for renal failure were assessed.

Results
Univariate analysis showed a prognostic impact of antihypertensive medication prior transplantation ($p=0.0008$) and serum Cystatin C one month after liver transplantation ($p<0.0001$) on renal failure after transplantation at both time points. Auroc analysis yielded Cystatin C as superior prognostic parameter as compared to the GFR to predict late renal failure regarding all timepoints (AUROC 0.96 – 0.98).

Conclusions
Our results revealed a high impact of serum Cystatin C as an early prognostic and easy to obtain biomarker for monitoring of renal dysfunction following liver transplantation.

Abstract# P-50

EVEROLIMUS AS RESCUE THERAPY IN IMPENDING KIDNEY FAILURE IN LIVER TRANSPLANTATION. Sabina C. Magalini, Erida Nure, Gilda Pepe, Alfonso W. Avolio, Francesco Frongillo, Gabriele Sganga, Salvatore Agnes. Transplant Center, Catholic University Sacred Heart, Rome, Italy

Everolimus (Ev) is a non nephrotoxic immunosuppressant limitedly used in liver transplantation (LTx). Rarely LTx pts experience a rapid progression of chronic kidney disease (CKD) or acute kidney failure (AKF). Usually these conditions are seen in HCV+ pts that already have a stage 3 CKD. Suspension of nephrotoxic drugs is mandatory, but immunosuppression cannot be withdrawn. Ev was utilized as rescue therapy in 3 cases of severe KF in long term LTx pts.

Case 1: 65 y old male treated with low doses of cyclosporine (Ld CSA) at 2 y from LTx, stage 3 CKD, severe HCV recurrence, undergoing interferon therapy (IF), with nephrotic syndrome was admitted for stage 4 CKD (GFR 22 ml/min). Renal biopsy showed interstitial striated tubular nephritis with mixed type glomerulonephritis. Pt was converted to Ev monotherapy (3-6 ng/mL). Despite a significant mielosuppression pt continued IF and at 9 m from the episode reached a GFR of 46 ml/min and negative HCV RNA.

Case 2: 56 y old male treated with LdCSA and mycophenolate mofetil (MMF) at 10 m from LTx, stage 3 CKD (GFR 42 ml/min) was admitted with severe recurrence of HCV infection, hyperbilirubinemia (20 mg/dl) and GFR <15 ml/min. Pt was converted to Ev monotherapy and despite a moderate mielosuppression could initiate IF, still ongoing. At 3 m from conversion pt has returned to stage 3 CKD (GFR 42 ml/min), responds well to IF with reduction of bilirubin and HCV RNA levels.

Case 3: 69 y old male, with a previous colon adenocarcinoma, treated with LdCSA and MMF at 12 y from LTx, HCV+, stage 3 CKD was admitted with large tumor of the right kidney. At nephrectomy GFR fell to 27 ml/min (stage 4 CKD) and patient was converted to Ev. At 7 m from conversion GFR is 38 ml/min and with no sign of neoplastic recurrence.

Conclusions. Best employment of Ev in LTx has yet to be defined: as first line monotherapy or with CNIs for KF sparing, for precocious conversion (at 3 or 6 m from LTx) or for rescue therapy in stage 3 CKD. Conversion studies from CNIs to Ev have shown that converted stage 3 CKD pts have no significant benefit in terms of KF. However, Ev is a very useful drug in pts with stage 3 CKD that have a rapid progression to stage 4 or present an acute KF episode. It can be given as monotherapy in long term LTx pts, side effects are minimal and controllable, it can be associated with IF and it is efficacious in preventing impending KF.

Abstract# P-51
MINIMIZATION OF IMMUNOSUPPRESSION IN PRIMARY ADULT LIVER TRANSPLANTATION WITH STEROID-FREE REGIMEN USING LOW DOSE OF TACROLIMUS WITH MYCOPHENOLATE MOFETIL AFTER DAACLIZUMAB INDUCTION. Olivier Boillot, Gabriella Pittau, Jérôme Dumortier, Thomas Gelas, Olivier Guillaud, Yves Bouffard, Catherine Boucaud, Charles Ber. Liver Transplant Unit, Edouard Herriot Hospital, Lyon, France

Long-term administration of steroids and calcineurin inhibitors may predispose liver transplant (LT) recipients to various complications and

irreversible kidney damage. In the aim to minimize these side-effects, we conducted a pilot study comprising a steroid-free regimen using low dose of tacrolimus (Tac) with mycophenolate mofetil (MMF) after daclizumab induction.

Patients and methods. From september 2005 to december 2007, 64 primary LT adult patients were enrolled in this prospective one-year pilot study. Two doses of daclizumab were given at POD 0 and 7, a 500 mg intra-operative bolus of solumedrol was administered and thereafter stopped. Tac was started at post-operative day (POD) 1 in order to reach trough levels below 10ng/mL and 2 g per day of MMF were given according to white blood cell and platelet counts. All alive patients were followed for one year.

Results. Mean patient age, MELD score were 50 years (18-67) and 16 (6-47) respectively. Mean cold ischemic time and transmissase peak were 585 min (110-960) and 769 UI/L (64-6552) respectively. Mean Tac trough levels at POD 7, 3 months and 1 year were 7.5, 6.7 and 5.9ng/ml respectively. Mean serum creatinine levels prior LT, at 3 months and 1 year were 81, 102 and 94 μ mol/L respectively. Ten (15.6%) patients were withdrawn from MMF secondary to side effects (9 leucopenia and 1 GI disorder). Acute rejection was histologically diagnosed in 18 (28%) patients. Six were mild and observed on the one-year protocol biopsy with normal LTs, 10 were moderate and 1 severe. All rejection episodes resolved with no treatment (n=5), increased tacrolimus dose (n=10), increased MMF dose (n=1) and solumedrol boluses (n=2). In univariate analysis, risk factors for rejection were initial MMF doses and donor BMI. During the first year, 12 (18.7%) patients were switched to everolimus or cyclosporine for various reasons and 6 (10%) patients developed de novo diabetes. One year patient and graft survival was 96.8%.

Conclusions. The one-year results of this dual immunosuppressive steroid-free regimen comprising Tac low dose and MMF suggest that side-effects can be minimized without jeopardizing efficacy.

Abstract# P-52

MEASURING ADHERENCE IN ADULT LIVER TRANSPLANT PATIENTS. Paolo De Simone¹, Juri Ducci¹, Gabriella Schmid-Moehler², Lidiana Baldoni¹, Paola Carrai¹, Massimo Elisei¹, Stefania Petrucci¹, Fabienne Dobbels³, Sabina De Geest^{2,3}, Franco Filippini¹. ¹Liver Transplant Unit, Azienda Ospedaliero-Universitaria Pisana, Pisa, Italy; ²Institute of Nursing Science, University of Basel, Basel, Switzerland; ³Center for Health Services and Nursing Research, Catholic University of Leuven, Leuven, Belgium

There is increasing awareness that patient behavior in view of nonadherence (NA) to the therapeutic regimen after transplantation is an important yet not well substantiated risk factor for poor graft and patient survival. We report the results of a single-center, cross-sectional study on the prevalence and determinants of NA among consenting, maintenance liver transplant (LT) recipients. Inclusion criteria called for adult, de novo LT, single-organ, and Italian native speaking recipients. NA was measured by means of structured questionnaires and collateral reports of the transplant physicians. Self-reporting included the Basel Assessment of Compliance with Immunosuppressive Medication Scale (BAASIS), the Visual Analog Scale (VAS BAASIS), and the Immunosuppressive Therapy Adherence Instrument (ITAS). Patients' attitudes, intentions and normative beliefs towards immunosuppression (IS) were measured by a recently developed instrument consisting of health beliefs that proved to be related to NA in adherence research in transplantation or that were identified in qualitative research as important hindrances to adherence. Self-efficacy expectations were measured by an adapted version of the Long-Term Medication Behavior Self-Efficacy Scale (LTMBSES). Out of 368 potentially eligible candidates, 311 satisfied the inclusion criteria and were contacted. Two hundred sixty-eight of them (86.1%) responded to the questionnaires and were available for the current analysis (male-to-female ratio 207:61; mean age 54.4 $\pm$ 8.9 years). Altogether, 89 patients (33.2%) recalled an episode of NA over the previous 4 weeks, either as skipping one dose of IS, not taking IS exactly as prescribed, or lowering the dose of IS. Nonadherers showed statistically significant weaker intentions (p=0.003) with no difference in terms of attitudes and/or normative beliefs. Prevalence of NA among adult, maintenance LT recipients is about 33% even in the setting of a National-Health-run care delivery system and we suggest nonadherer profiling with the illustrated questionnaires to allow for continued improvement of clinical results in LT.

Abstract# P-53

CONVERSION TO ADVAGRAF IN LIVER TRANSPLANTATION. "12 DE OCTUBRE" UNIVERSITY HOSPITAL EXPERIENCE. MADRID, SPAIN. Yiliam Fundora, Vanessa Barra, Juan Carlos Meneu, Baltasar Perez, Manuel Abradelo, Alberto Gimeno, Carlos Jiménez, Vanessa Lopez, J. I. Salvador Serrano, Manuel O. Salinas, Enrique Moreno. *Digestive Surgery and Abdominal Organs Transplantation, 12 de Octubre University Hospital, Madrid, Spain*

Tacrolimus is an immunosuppressive macrolide lactone that has become the cornerstone of the treatment of solid organ transplantation. Advagraf is the first calcineurin inhibitor designed for administration once a day. Provides pharmacokinetic profiles of efficacy and safety comparable to Prograf.

Objectives: 1) Conversion to Advagraf in stable patients treated with Prograf

2) Determining the efficacy and safety of the drug 3) level of patient satisfaction after the change

Material and Methods: We designed a prospective, longitudinal and descriptive.

The study period was from December 2007 to September 2008. The patients selected for treatment with Prograf conversion met twice daily and liver function were stable. The change was 1:1. We performed analytical and Advagraf levels after initiation of treatment (day 7). Identified side effects associated with Prograf and changes following the change of treatment. Finally a survey of satisfaction. Different variables were analyzed through the SPSS version 10 for Windows.

Results: A total of 72 patients, mean age 54 $\pm$ 13 years. Enolic cirrhosis was the most frequent cause indicated that the transplant. We included patients who received grafts from bipartition (n = 3), living donor (n = 2) and asistolia (n = 3), the remaining total cadaver grafts (n = 64). The average time of initiation of treatment from the transplant was 76 $\pm$ 53 months, being the maximum and minimum value of 204 and 2 months respectively. The previous dose of Prograf was 3 $\pm$ 1.86 mg / day, with an average of 6.3 $\pm$ 2.6 ng / ml, while 22% of patients on dual therapy (n = 22). After changing the average dose was similar, with levels slightly lower (5.3 $\pm$ 2.2 ng / ml). No patient had altered liver profile during the conversion. There were no changes in the levels of creatinine. Side effects were de novo headache in two patients (2.8%). After an average follow up of 5 $\pm$ 4 months effects related Prograf 2 showed no change (p = ns). Patients expressed their satisfaction to maximize adherence to treatment.

Conclusions: The change to Advagraf Prograf is an effective and safe in stable patients transplanted liver. The level of adherence and satisfaction exceeded expectations at the beginning of the proposed study.

Abstract# P-54

A PHASE 2b, OPEN-LABEL, MULTI-CENTER, PROSPECTIVE, RANDOMIZED STUDY TO COMPARE THE PHARMACOKINETICS AND SAFETY OF LCP-TACRO™ TABLETS ONCE-A-DAY TO PROGRAF® CAPSULES TWICE-A-DAY IN DE NOVO LIVER TRANSPLANT PATIENTS. Derek A. DuBay¹, Rita R. Alloway², Angel E. Alsina³, William C. Chapman⁴, Eliezer Katz⁵, H. Eugene Griffin⁶, Robert D. Gordon⁶, Karin J. Hamberg⁶, Lawrence Chodoff⁶. ¹University of Alabama Birmingham, Birmingham, AL, USA; ²University of Cincinnati, Cincinnati, OH, USA; ³Lifelink Healthcare Institute, Tampa, FL, USA; ⁴Washington University School of Medicine, St. Louis, MO, USA; ⁵CTI - Clinical Trial and Consulting Services, Cincinnati, OH, USA; ⁶LifeCycle Pharma, Inc., New York, NY, USA

In a previous Phase 2 conversion study in stable liver transplant patients, LCP-Tacro tablets (tacrolimus, LifeCycle Pharma), an extended release formulation of tacrolimus designed for once-a-day (q.d.) administration, showed a 31% greater bioavailability, reduced C_{max}/C_{min} ratio than Prograf capsules (tacrolimus, Astellas) with good tolerability and a robust AUC to C_{min} correlation. The present Phase 2b study will evaluate tacrolimus exposure (AUC_{0-24}), peak levels (C_{max}), trough levels (C_{24}) and safety in de novo adult liver transplant recipients randomized to LCP-Tacro tablets q.d. vs. Prograf capsules b.i.d. Eligible patients (male or female, at least 18 years old with MELD $\leq$ 30 at the time of transplantation and CIT $\leq$ 10 hours, who received a liver allograft from a deceased donor) are randomized (1:1) within 72 hours after transplantation to LCP-Tacro tablets 0.07 – 0.11 mg/kg q.d. (0.09 – 0.13 mg/kg for African-Americans) or Prograf capsules 0.10 – 0.15 mg/kg/day in

two divided doses (b.i.d.), with the first dose administered within 72 hours after reperfusion of the allograft. Subsequent doses of both study drugs are adjusted to maintain whole blood tacrolimus trough levels of 5–20 ng/mL through Month 12. A 24-hour PK profile is obtained on study days 1, 7 and 14 with periodic trough level and efficacy/safety monitoring through 12 months post-transplant. Up to 60 eligible patients will be recruited. At presentation, the pharmacokinetic results including data on dosing and AUC vs. trough correlations for all patients for the first two weeks will be presented. This study is sponsored by LifeCycle Pharma A/S. ClinicalTrials.gov NCT00772148.

Abstract# P-55

SUCCESSFUL ORTHOTOPIC LIVER TRANSPLANTATION AFTER TREATMENT WITH ANTI-CD20 MONOCLONAL ANTIBODY (RITUXIMAB) FOR SEVERE STEROID-RESISTANT AUTOIMMUNE HAEMOLYTIC ANAEMIA.

Brigida E. Annicchiarico¹, Massimo Siciliano¹, Alfonso W. Avolio², Salvatore Agnes², Bombardieri Giuseppe¹. ¹Internal Medicine, Catholic University, Rome, Italy; ²Surgery - Transplantation Service, Catholic University, Rome, Italy

We report a case of successful orthotopic liver transplantation (OLT) after treatment with rituximab for severe steroid-resistant autoimmune haemolytic anaemia (AIHA) in a type-C cirrhotic. The patient was followed for 49 months after rituximab treatment, 18 of which after OLT.

AIHA, due to the production of antibodies against erythrocyte membrane, is an uncommon manifestation of hepatitis C virus (HCV) infection. Glucocorticoids and/or other immunosuppressive drugs are the mainstay of therapy. However, the simultaneous impairment of both T and B lymphocytes may be potentially dangerous in patients awaiting OLT. Growing evidences support the safety and efficacy of rituximab for the treatment of HCV-related autoimmune disorders. Rituximab is a chimeric murine/human monoclonal antibody that binds to the CD20 antigen on B-lymphocytes surface inducing selective B-lymphocyte and immunoglobulin reduction. The successful use of rituximab before OLT to treat MALT has been recently reported.

A 57-year-old woman with HCV-related cirrhosis listed for OLT experienced severe AIHA. After one month of treatment with prednisone (1 mg/Kg body weight/day), no significant amelioration of anaemia was obtained.

Rituximab was started (375 mg/m², intravenously, weekly for 4 weeks) resulting in a prompt and sustained increase of haemoglobin. The drug was well tolerated and apparently did not interfere with the course of the liver disease.

Thirty-one months after rituximab therapy with resolution of AIHA, the patient was successfully submitted to OLT. Immunosuppressive regimen with tacrolimus and low-dose steroids was started.

Patient was discharged in the 36th post-operative day. No infective event occurred in the post-operative period. Until the 18th month of follow-up after OLT, no infective or haematological event was registered.

In conclusion, our experience supports the use of rituximab in the treatment of HCV-related autoimmune disorders in patients awaiting OLT. The treatment was well tolerated and AIHA did not recur in a four-year follow-up. Moreover, the previous treatment with rituximab did not influence the clinical course after OLT.

Abstract# P-56

RENAL FUNCTION IS WELL MAINTAINED FOLLOWING CONVERSION FROM TWICE-DAILY TO ONCE-DAILY TACROLIMUS IN LIVER TRANSPLANT RECIPIENTS.

P. Wolf¹, L. Paczek², O. Boillot³. ¹Hopital de Hautepierre, Strasbourg, France; ²University Hospital CLO, Warsaw, Poland; ³Hospital Edouard Herriot, Lyon, France

PURPOSE: Tacrolimus once daily (TAC QD), a prolonged-release formulation, may improve adherence and therefore survival rates compared with the established twice-daily (TAC BID) formulation. This study assessed the efficacy and safety of TAC QD over 12 weeks post-conversion from TAC BID in stable liver transplant patients.

METHODS: In this multicenter, crossover study, stable adult liver transplant patients (≥12 months post-transplant, on unchanged dose of TAC BID ≥12 weeks) completed a 6-week TAC BID run-in phase and were converted to TAC QD (morning dose) on a 1:1 mg:mg basis. Patients remained on TAC QD for 12 weeks with dose adjusted only if trough levels deviated >20% or if clinically indicated. The primary endpoint was the change in creatinine clearance (CrCl, Cockcroft–Gault) between TAC BID (Week –6 to Day –1) and TAC QD (Week 6–12) at steady-state. Secondary endpoints included

change in blood pressure (BP), HbA1c and liver function parameters between Day –1 and Week 12, adverse events (AEs), frequency of biopsy-proven acute rejection (BPAr) and patient and graft survival.

RESULTS: 80 patients were included in the Per Protocol Set (comprising all patients without major protocol violation). For both treatment phases, mean daily tacrolimus dose was 0.05mg/kg. Mean tacrolimus trough levels were 7.5ng/mL prior to conversion, 6.2ng/mL at Week 1 and 6.3ng/mL at Week 12. In the TAC QD phase 86% patients did not require a dose change (increase or decrease) and 51% received TAC QD monotherapy. Mean CrCl was 85.7 and 85.5mL/min for TAC BID and QD, respectively (relative mean difference –0.0%; 95% CI –1.4%, 1.3%), meeting the primary endpoint for non-inferiority. Patient and graft survival were 100% and there were no BPAr episodes. There were low rates of serious AEs/discontinuations due to AEs during the 6-week TAC BID (2.7%/1.8%) and 12-week QD (6.1%/0%) treatment phases. AEs reflected the known profile for tacrolimus. BP improved significantly from Day –1 to Week 12: mean difference –2.0mmHg (p=0.0084). There were no significant changes in HbA1c. Liver function was maintained within normal ranges.

CONCLUSIONS: Conversion of stable liver recipients from TAC BID to a simplified TAC QD regimen is straightforward and well tolerated. Patients maintained stable renal function with improved BP and no rejection.

Abstract# P-57

LONG TERM SURVIVAL AFTER DE NOVO USE OF mTOR INHIBITOR EVEROLIMUS (ELR) IN COMBINATION WITH MYCOPHANOLATE SODIUM (MPS) IN PATIENTS UNDERGONE ORTHOTOPIC LIVER TRANSPLANTATION (OLT).

Efstathios A. Antoniou¹, Dimitris Dimitroulis¹, Katerina Labathariou², Dimitris Karoussos², Dimitris Mantas¹, Nikolaos Nikitakis¹, Panorea Paraskeva¹, Konstantinos Konstantoudakis¹, Anastasios Smyrnis¹, Kaliopi Tsinari², Alkiviadis J. Kostatki¹. ¹Liver Surgery and Transplantation Unit, 2nd Department of Propaedeutic Surgery, University of Athens, 'Laikon' Hospital, Athens, Greece; ²Anaesthetic Department, 'Laikon' Hospital, Athens, Greece

Introduction. We present our long-term survival results after de novo use of combination treatment of ELR and MPS, in patients undergone OLTx.

Methods. 11 out of 26 patients undergone OLTx in our centre between July 06 to January 09 received the above treatment. 7 out of 11 patients had viral liver cirrhosis and hepatocellular carcinoma (HCC) and one had PBC and HCC. The remaining 3, one had epithelioid haemangioendothelioma (EHE), one PSC and single kidney with borderline renal function and one with acute renal and liver failure undergone simultaneous OLTx and renal transplantation (RTx). All patients received de novo anti-rejection therapy, starting on the 1st POD, with ELR (1.5-2mg bd), MPS (720mg bd) and prednisolone (10mg bd), except the one with single kidney and PSC, who received half dose of MPS, due to low WCC.

Results. All patients had an improving liver function, coming almost to normal by the end of the first week. All patients but one with HCV+ HCC and the one with EHE, are well and alive. The PSC and single kidney patient, had ELR dose reduced to half after the first week, due to very high ELR level and very low WCC. This patient finally converted to Tacrolimus after two episodes of acute rejection, 3 months after OLTx, keeping ELR and steroids. 8 out of 11 patients continue the above treatment and 2 of them have already been treated for more than 2 +1/2 years. The remaining six have been treated for 4-15 months post-transplant. None presented any side effect due to this treatment. ELR blood levels (Cmin) have been between 4.5 to 7.1ng/ml.

Conclusion. ELR has been mainly used in RTx and nly few centres in OLTx, as late conversion from CyA or FK. To our knowledge, it is the first time of de novo use of ELR and MPS combination, in OLTx patients with long-term survival. Despite the small number of patients, the results show that the above immunosuppression combination can safely be used in OLTx patients as de novo prevention of rejection treatment.

Abstract# P-58

THE PATOPHYSIOLOGIC FUNDAMENTALS OF THE INFLUENCE OF IMMUNOSUPPRESSIVE DRUGS ON THE SMALL BOWEL FUNCTION.

Maciej Malinowski¹, Martus Peter², Neuhaus Peter¹, Stockmann Martin¹. ¹Department of General, Visceral, and Transplantation Surgery, Charité, Campus Virchow, Berlin, Germany; ²Institute for Biometry and Clinical Epidemiology, Charité, Campus Benjamin Franklin, Berlin, Germany

Background : Influence of the actual used immunosuppressive drugs (ISD) on intestinal transport and barrier function is still not clarified. Goal of our work was to characterize the pathomechanisms of gastrointestinal disorders caused by ISD. Therefore the effect of Cyclosporine A (CYA), Tacrolimus (TAC), MMF, MPA/Myfortic (MYF), Sirolimus (SIR), Everolimus (EVE) and FTY720 (FTY) on glucose absorption (I-GLU), chloride secretion (I-CHL), and barrier function (I-BAR) was investigated.

Methods : Short- (STE) and long-time exposition studies (LTE) were performed. In STE jejunum of Wistar rats was mounted into modified Ussing-Chambers and the reafter incubated with a low (therapeutic serum level) or high (toxic level) dose of ISD for one hour. In LTE rats were fed for 14 days with low or high (but not toxic) ISD dose. Transepithelial resistance, 3H-Lactulose-Flux (I-BAR) and short-circuit current (Isc, electrogenic epithelial transport) were measured. I-CHL was assessed through basal, bumetanid inhibited and theophyllin + PgE2 activated Isc. I-GLU was measured by 3OMG kinetics and Isc response to phloridzin.

Results : In STE low ISD doses showed no significance vs. control. I-GLU was increased by high dose of CYA in STE, and decreased by TAC, EVE and MYF in LTE. MMF, MYF, SIR and EVE in STE as well as EVE and MYF in LTE decreased I-CHL. I-BAR was impaired by EVE and SIR in STE and MMF in LTE.

Summary : None of the analyzed ISD directly altered transport and barrier function of the small bowel in therapeutic levels (STE). In LTE influence of the ISD itself on the small bowel barrier and transport function is small but could be of clinical relevance in some drugs. TAC, EVE and MYF decreased absorption of glucose which could cause malabsorption. MMF but not MYF impaired I-BAR which could cause leak-flux diarrhea.

Abstract# P-59

SYMPTOMS PREVALENCE AND BELIEFS IN MAINTENANCE LIVER TRANSPLANT PATIENTS.

Paolo De Simone¹, Juri Ducci¹, Gabriela Schmid-Moehler², Lidiana Baldoni¹, Stefania Petruccielli¹, Beatrice Magni¹, Francesca Meocci¹, Paola Carrai¹, Fabienne Dobbels³, Sabina De Geest^{2,3}, Franco Filipponi¹. ¹Liver Transplant Unit, Azienda Ospedaliero-Universitaria Pisana, Pisa, Italy; ²Institute of Nursing Science, University of Basel, Basel, Switzerland; ³Center for Health Services and Nursing Research, Catholic University of Leuven, Leuven, Belgium

Exploring the prevalence of symptoms in liver transplantation (LT) in view of reducing nonadherence (NA) to immunosuppression (IS) is crucial. We report the results of a single-center, cross-sectional study on symptoms prevalence and beliefs among consenting, maintenance (≥ 6 months), adult LT recipients. The prevalence of symptoms over the last 4 weeks was investigated with a structured questionnaire consisting of 15 items that were identified in previous qualitative research as relevant to organ transplant recipients. Out of 368 potentially eligible candidates, 311 satisfied the inclusion criteria and were contacted. Two hundred sixty-eight (86.1%) responded to the questionnaires and were included in the analysis (M:F = 207:61; mean age 54.4 ± 8.9 years). Symptom prevalence and beliefs are illustrated in the table.

Symptom	Prevalence (%)	Patients who believe that the symptom is related to IS (%)
Unusual tremors/shakes	58 (21.6)	44/58 (75.8)
Increase hair growth	66 (24.6)	51/66 (77.3)
Change in appearance	35 (13)	14/35 (40)
Stomach or bowel upsets	77 (28.7)	48/77 (62.3)
Skin that bruises or tears easily	35 (13)	22/35 (62.8)
Loss of muscle strength	86 (32.1)	58/86 (67.4)
Weight gain	91 (33.9)	34/91 (37.3)
Difficulty in concentrating	87 (32.4)	56/87 (64.3)
Swelling of hands or feet	51 (19)	26/51 (50.9)
Back pain	116 (43.3)	39/116 (33.6)
Lost sex drive	73 (27.2)	44/73 (60.3)
Joint pain	107 (39.9)	59/107 (55.1)
Blurred vision	73 (27.2)	40/73 (54.8)
Fatigue	130 (48.5)	85/130 (65.4)
Sleep disturbance	98 (36.5)	43/98 (43.8)
Mean	29.4%	56.7%

The five most prevalent were fatigue (48.5%), back pain (43.3%), joint pain (39.9%), sleep disturbance (36.5%), and weight gain (33.9%). On the opposite, the symptoms most frequently thought to be correlated with IS were tremors (75.8%), increased hair growth (77.3%), loss of muscular strength (67.4%), blurred vision (65.4%), and fatigue (65.4%). 56.7% of patients reporting symptoms believe that these are related to IS. These data underscore the need for constant patient education and monitoring to reduce the risk for nonadherence to IS.

Abstract# P-60

EVOLUTION OF TECHNIQUE AND OUTCOME IN 284 CONSECUTIVE RIGHT LOBE LIVING DONOR LIVER TRANSPLANTS.

A. Soin, V. Kumaran, R. Mohanka, N. Mehta, S. Saigal, N. Saraf, N. Mohan, S. Nundy. Department of Surgical Gastroenterology & Liver Transplantation, Sir Ganga Ram Hospital, New Delhi, India

Although right lobe live donor liver transplantation (RLDLT) is now established, problems such as frequent vascular anomalies, biliary complications, controversies relating to ideal GRWR, anterior sector drainage and ethical issues with living donors still remain. We studied the evolution of donor selection, surgical technique and outcome in 284 RLDLTs.

Methods: All 284 consecutive RLDLTs in 282 patients (2 retransplants) upto December 2008 were included. Donors and recipients underwent standard preoperative evaluation. Right lobe grafts with ≤ 2 portal veins, 2 hepatic arteries (after case 55), and 4 hepatic ducts (after case 180) were accepted. Recipient operation included bench Y-graft extension of all double portal veins and half of the double hepatic arteries, vascular anastomoses with 2.5x loupes (microvascular in 5% arteries), ensuring adequate outflow of all segments (after case 5), avoidance of bypass and cell saver (after case 30), and interrupted biliary anastomoses (from case 230). Donor protocol included minimum remnant volume of 30%, maximum steatosis of 20%, remnant parenchyma-preserving extended right lobe retrieval (after case 16), CUSA aided split, and retrieval of the graft bile duct(s) with common Glissonian sheath (after case 180).

Results: Of 284 RLDLTs [Male 226; Female 56, Age: Mean 46 (15-70 years)], 267 were elective and 17 emergency. Mean GRWR was 0.91 (0.6-1.92). Median ICU and hospital stays were 6 and 15 days. Mean preoperative MELD score was 24, and Child's class A in 11 (4%), B in 32 (11%) and C in 236 (84%) respectively. There were 241 extended, 36 modified and 7 standard right lobes. HCV was the commonest aetiology followed by HCC, HBV, alcohol and biliary diseases. Donors were first (40%), second (39%) degree relatives, wives (18%), husbands (1%) or others (2%). Donor operative mortality was zero. In recipients, incidence of biliary (5 vs 15%) and vascular (1.5 vs 4%) complications, as well as operative (6 vs 12%) and late mortality (2 vs 4%) were lower in the last 185 compared with the first 100 RLDLTs.

Conclusion: With evolution of donor selection criteria and surgical techniques, anterior sector outflow, anatomical variations and difficult biliary reconstructions cease to be hurdles in adult RLDLT, results of which are as good as those reported with whole liver grafts from established deceased donor programmes.

Abstract# P-61

LEFT LATERAL SEGMENT DONOR HEPATECTOMY ASSOCIATED WITH VERY LOW DONOR MORBIDITY AND EXCELLENT RECIPIENT RESULTS: THE COLUMBIA EXPERIENCE.

Benjamin Samstein, Michael Goldstein, Steve LoBritto, Dominique Jan, Jean Emond. Surgery, Columbia University, New York, NY, USA

Introduction: Living donor liver transplantation (LDLT) has been shown to have excellent outcomes for recipients. The application of LDLT for children with end-stage liver disease has become an important factor in reducing death while on the waiting list. We sought to analyze the short-term and long-term outcomes for the donors. As the application of new techniques including laparoscopy spread it is important to have a comparison to the morbidity associated with left lateral segment hepatectomy for LDLT.

Material and Methods: From January 1998 to Sept 2008, 170 healthy individuals were approved to donate after a three-stage evaluation in our institution, and 47 underwent resection of the segments II and III. We analyzed the outcomes for the donors retrospectively for age, blood loss, post-operative complications, re-admissions to the hospital, and recipient outcomes.

Results: 32 females and 15 males of an average age of 31.04y were operated. The commonest relation to the patient among the donors was the maternal one. 31% of the donors had a variation of the hepatic arterial anatomy. The average the blood loss was 298cc. Average hospital stay was 5.7 days. Only two donors had grade 3 complication according to the Clavien system (grading 1-5). One donor required hernia repair and a second required ERCP. No donors required blood transfusions. The recipient 6-month, 3-year, and 5-year survival rates were 95.5%, 88% and 86% respectively. Conclusions Left lateral hepatectomy in healthy individuals for living liver donation is a safe procedure characterized by low morbidity and mortality rates. The incidence of bile leak, blood transfusions, readmissions to the hospital is very low and sets a high bar for new procedures.

Abstract# P-62

PRELIMINARY RESULTS OF PATIENTS WITH HEPATITIS B AND C CO-INFECTION UNDERGOING LIVING DONOR LIVER TRANSPLANT. Jee K. Low, Chao L. Chen, Chih C. Wang, Shih H. Wang, Yeuh W. Liu, Chee C. Yong, Chin H. Yang, Allan M. Concejero, Yu F. Cheng, Bruno Jawan, Hock L. Eng. *Liver Transplantation Program, Chang Gung Memorial Hospital-Kaohsiung Medical Center, Kaohsiung, Taiwan*

The aim of the study was to evaluate the incidence of hepatitis B (HBV) and hepatitis C (HCV) re-infections and survival in patients who had living donor liver transplantation for end-stage liver disease secondary to HBV and HCV co-infection. Between April 2003 and October 2008, 12 (10 males and 2 females) patients with hepatitis B and C co-infection underwent liver transplantation. HBV and HCV co-infection was diagnosed by serology and polymerase chain reaction. The mean age was 53.3 (range 26.3-69.2) years. 6 patients (50%) received hepatitis B core antibody-positive grafts. All patients received standard HBV prophylaxis therapy and those with positive HBV DNA were given anti-viral therapy before transplant. The mean follow-up period for the rest of the patients was 23.1 (range 0-68) months. Histology confirmed chronic HBV and HCV changes in all patients. 1 patient had AJCC stage I and 9 patients had AJCC stage II hepatocellular carcinomas (HCC). However, none of the patients had detectable HCC recurrence. HBV infection recurred in 1 patient (8.3%) 25 months post transplant. All patients were anti-HCV positive following surgery. HCV RNA was positive in 3 patients (25%) within 1, 3 and 24 months of surgery respectively. There was a single mortality due to bleeding complication. The overall actuarial patient and graft survivals at 6 months, 1 year and 5 years were 91.7, 91.7 and 83.3% respectively. We conclude that our preliminary re-infection, graft and patient survival results are comparable with transplant recipients having either HBV or HCV mono-infection in the literature.

Abstract# P-63

STUDY OF DYNAMIC CHANGES OF POSTOPERATIVE LIVER RESERVE FUNCTION AND LIVER VOLUME RECOVERY IN BOTH RECIPIENTS AND DONORS UNDERWENT LIVING DONOR LIVER TRANSPLANTATION. Bo Li, Jie Yin, Yonggang Wei, Lunan Yan, Tianfu Wen. *Liver Transplantation Center, West China Hospital, Sichuan University, Chengdu, Sichuan, China*

Objective To investigate the potential relationship between postoperative liver reserve function and laboratory data as well as liver volume recovery after adult-to-adult living donor liver transplantation (A-ALDLT) in both recipients and donors, and the predictive capability of liver reserve function on liver/graft function.

Methods

Data of 30 pairs of A-ALDLT right lobe transplantation without middle hepatic vein were prospectively collected at West China Hospital, Sichuan University from June 2007 to December 2007. Indocyanine green (ICG) test and laboratory data were collected preoperatively and at postoperative day (POD) 3, 7, 30 and 90. Liver volume was measured at POD 7, 30 and 90 by MDCT volumetry.

Results

The mean liver volume of the recipients reached 171.8% of its original graft size at POD 7. At POD 90, 181.5% of original graft size was reached. Comparing with the baseline of the K_{ICG} of donors (0.228 ± 0.036), the K_{ICG} of recipients was significantly decreased at POD3 and POD7 ($P=0.004$, $P=0.015$). At POD30 and POD90, the K_{ICG} of recipients did not have significant variation comparing with the baseline. Seven of 30 recipients developed early graft dysfunction, K_{ICG} significantly dropped at POD 3 comparing with those without graft dysfunction ($P=0.001$), but at POD 3, laboratory data

did not show any significant variation between two groups. For donors, the mean hepatic volume regenerated to 68.4% of their original size at POD 7 and thereafter did not show any significant variation comparing with the previous measuring point. At POD 90, only 89.7% of their original size was reached. The K_{ICG} of donors gradually improved between POD 3 and POD 90, but did not recovered to its preoperatively value (0.228 ± 0.036) at POD 90 ($P=0.023$). For donors, INR and TB recovered to normal value at POD 7, but ALT kept elevated before POD 30.

Conclusions

The hepatic volume regenerated dramatically within POD7 for both donors and recipients. The laboratory data of the donors got to normal after POD 30 but reserve function and liver volume of donors did not recover to preoperatively value at POD 90. ICG test showed that volume recovery occurred much more faster than reserve function in the recipients. Comparing with the laboratory data, the ICG test may be a more reliable indicator of graft function and subsequent graft outcome early after LDLT.

Abstract# P-64

TOLERANCE OF THE LIVING DONORS AND RECIPIENTS OF TRANSPLANTATION TO INTENSIVE PHYSICAL ACTIVITIES IN HIGH ALTITUDE. Taehoon Kim, Kyung-Suk Suh, Joohyun Kim, Woo Young Shin, Nam-Joon Yi, Kuhn Uk Lee. *Surgery, Seoul National University College of Medicine, Seoul, Republic of Korea*

Liver transplantation gives not only mere lengthening of survival days but also significantly improved level of physical and mental health to the patients. There are few data on the physical tolerance and capability of transplants in extreme conditions and there are no data on the changes of biochemical parameters of transplant patients with ascent to high altitude. Six liver transplant subjects (four living donor liver transplant subjects included), two living donors of liver, one kidney transplant subject and the donor were selected to participate in a high altitude expedition on the Island Peak (6,189m), Himalayas, Nepal. For the purpose of comparison, six normal healthy control subjects were joined. Blood samplings were performed at three altitudes: Pakding (2610m), Dingboche (4350m) and Island Peak base camp (5150m). At each site, the samples were centrifuged and stored in a liquid nitrogen freezer until analysis. The measurement of blood pressure, heart rate and oxygen saturation and calculation of the Lake Louise acute mountain sickness score were performed every other day during 3 weeks of the expedition. No significant difference was seen in physical performance and acute mountain sickness scores between transplant patients (group 1) and control subjects (group 2) (mean score of group 1 at 5150m was 2.3 ± 2.0 and mean score of group 2 was 2.0 ± 2.0 , $p=0.681$). The blood level of immunosuppressive drug in transplant patients was not changed with ascent to high altitude. Blood pressure (mean systolic blood pressure of group 1 at 5150m: 156.4 ± 14.4 mmHg and group 2: 142.7 ± 14.5 mmHg, $p=0.114$) and heart rate (mean heart rate of group 1 at 5150m: 80.7 ± 16.1 / min and group 2: 91.2 ± 12.0 / min, $p=0.174$) increased and oxygen saturation (mean oxygen saturation of group 1 at 5150m: 66.4 ± 12.0 % and group 2: 76.2 ± 7.6 %, $p=0.071$) decreased with both in group 1 and in group 2 with ascent to high altitude. All transplant subjects and donors reached the base camp and two of the liver transplant patients and a living donor of liver reached the summit. Selected transplant patients can perform intensive physical activities and can show similar tolerance to high altitude with normal healthy control subjects.

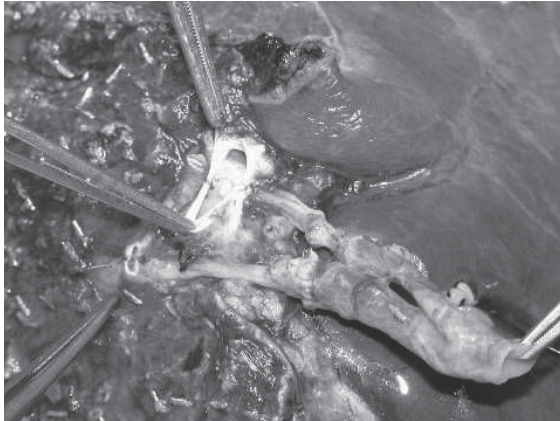
Abstract# P-65

SURGICAL MANAGEMENT OF AN ARTERIAL ANOMALY IN RIGHT LOBE LIVING DONOR LIVER TRANSPLANTATION. Fernando Rotellar, Fernando Pardo, Fernando Martinez-Regueira, Ignacio Herrero, Bruno Sangro, Mercedes Iñarrairaegui, Gabriel Zozaya, Pablo Martí-Cruchaga, Javier A.-Cienfuegos. *University Clinic, Universidad de Navarra, Pamplona, Spain*

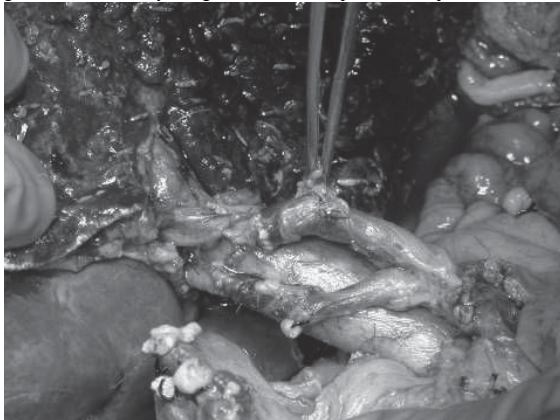
Background. The hepatic arterial anatomy for right liver procurement from living donor has been extensively studied and classified. When two or more branches are present, its reconstruction can be challenging because of their small caliber and close proximity to other hilar structures.

Aim. To present an arterial anomaly in right lobe living donor liver transplantation and its management with a arterial graft from the recipient. **Patients and Methods.** A LDLT was planned for a 68 years male, with an alcoholic cirrhosis and four nodules of hepatocarcinoma. Bil 4.7 INR 1.4 Cr 0.9 MELD: 16. The donor was his 36 years old son. The preoperative studies

showed a single right hepatic artery and its bifurcation in right anterior and posterior branches. During the dissection of the pedicle we found that the common bile duct passed between the anterior and posterior arterial branches forcing to cut these branches separately. The reconstruction was performed at the back table with an arterial Y-type graft from the recipient including the proper hepatic artery and its bifurcation.



The free end of the Y graft was easily anastomosed at the origin of the gastroduodenal artery using standard branch-patch technique.



Results. Both donor and recipient went well without perioperative complications. Not short or long term arterial complications were observed in the recipient.

Conclusion. During right lobe procurement for living donor, undetected anatomic anomalies can be found. Surgeons should be aware to identify and solve them. An arterial graft from the recipient allows to perform multiple arterial anastomosis safely at the back table.

Abstract# P-66

LONG-TERM RENAL OUTCOME IN PEDIATRIC LIVING DONOR LIVER TRANSPLANTATION PATIENTS. Feng-Rong Chuang, Chao-Long Chen, Yu-Fan Cheng, Chih-Chi Wang, Chin-Hsiang Yang, Chih-Cheng Chen, Chih-Hsiung Lee. *Liver Transplant Team, Chang Gung Memorial Hospital, Kaohsiung Hsien, Taiwan*

Background: Living donor liver transplantation (LDLT) can improve survival in children with severe hepatic damage if immunosuppressive treatment is prolonged. The chronic nephrotoxicity of cyclosporine (CsA) is a major concern in long-term survivors of pediatric LT. **Purpose:** The aims of this study are to determine the long-term renal outcome in pediatric LDLT patients and to evaluate the potential risk factors in the development of renal insufficiency. **Material and methods:** There were ninety patients who survived for more than 5 yrs with LDLT performed between June 14, 1994 and December 31, 2003. The mean age was 3.8 ± 3.0 years at the time of LT. Underlying liver diseases mainly include biliary atresia (n=75). The initial immunosuppressive regimen consisted of CsA, azathioprine, and steroids. The dose and serum concentrations (C0) of CsA were reported for each study time. Calculated glomerular filtration rate (cGFR) was using Schwartz formula. Renal insufficiency was defined as a cGFR <80 mL/min/1.73m².

Results: Three (3.33 %) patients developed renal insufficiency 8 years after LDLT. The mean duration of follow-up for renal function was 101.5 ± 27.98 months. The cGFR did not differ and remain stationary from pre-transplant to 12 years after LDLT ($p > 0.05$). Serum CsA level decreased significantly 6 yr after LDLT and decreased again between 7 year and 12 year after LDLT ($p < 0.05$). Surgical complication and high doses of CsA were the significant predictors for renal outcome. 17 patients had 12 mild and 9 moderate acute rejection episodes. MMF was administered in 39 patients due to episodes of acute rejection (n=15) and renal dysfunction (n=24). Early complication was hepatic artery occlusion. Three patients changed to a combination of sirolimus with losartan and developed renal insufficiency. One patient changed to sirolimus a then his renal function returned to normal. Only one patient stopped CsA due to lymphoma 5 years after LT and currently has normal renal function. Two patients expired due to hepatic failure and sepsis. **Conclusion:** The incidence of renal insufficiency was low (3.33%) in our study. The minority of recipients developed renal insufficiency more than 8 years after LDLT. After successful LDLT, cGFR in the majority of patients remained stable, even in long-term follow up. CsA, MMF and surgical complication seem to be important for renal outcome.

Abstract# P-67

LIVING DONOR LIVER TRANSPLANTATION FOR FOREIGN PATIENTS – A SINGLE ASIAN CENTER EXPERIENCE. Jee K. Low, Allan M. Concejero, Chao L. Chen, Chih C. Wang, Shih H. Wang, Yueh W. Liu, Chee C. Yong, Chin H. Yang, Yu F. Cheng, Bruno Jawan, Hock L. Eng. *Liver Transplant Program, Chang Gung Memorial Hospital-Kaohsiung Medical Center, Kaohsiung, Taiwan*

In some countries, access to living donor liver transplantation (LDLT) is not available because of limited expertise. The only alternative is to seek help from an overseas center. The aim of this study was to evaluate the feasibility of performing LDLT on foreign patients in a major liver transplant center. A retrospective review of transplant records from February 2001-February 2008 was done. Nineteen (14 males, 5 females) overseas recipients were included in this study. The median age at transplant was 4 years (range, 1.2-60.8). There were 15 pediatric and 4 adults. All (79%) pediatric transplants were performed for biliary atresia. The disease indications in adult recipients were 2 (10.5%) hepatitis C-related, and 2 (10.5%) hepatitis B-related end-stage liver cirrhoses. The median Child's and Model for End-Stage Liver Disease scores were 7 and 11, respectively. One recipient required re-operation for post-operative bleeding and another for recurrent cholangitis secondary to biliary stricture. One donor, who had a history of biliary operation prior to donation, developed biliary stricture post donation. This donor underwent re-laparotomy and Roux-en-y hepatodochojunostomy. The overall actuarial recipient and graft 6-month, 1-year, and 5-year survivals were all 89.5%. Two children died as in-hospital mortalities, one due to portal vein thrombosis and the other due to intra-pulmonary hemorrhage secondary to idiopathic thrombotic thrombocytopenia. The overall rejection rate was 10.5 %. LDLT can be safely performed in overseas patients with end-stage liver diseases provided that there are expertise, adequate post-operative care facilities, and domestic support for the recipient and their families. Follow-up and surveillance of the patients are important but can be facilitated in the recipients' native countries.

Abstract# P-68

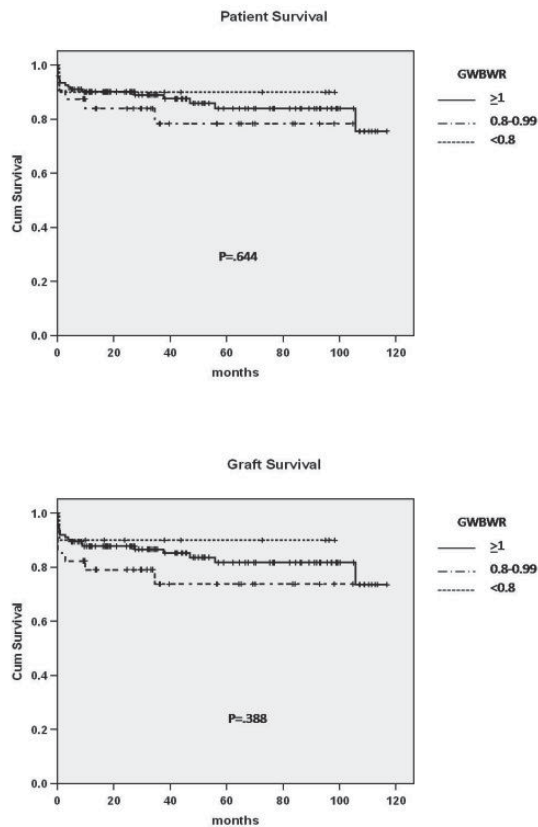
THE IMPACT OF GRAFT WEIGHT/BODY WEIGHT RATIO (GWBWR) ON OUTCOME AFTER LIVE DONOR ADULT LIVER TRANSPLANT (LDALT). Mohamed Akoad, Khayyar Vakili, Yee Lee Cheah, James J. Pomposelli, Khalid Khwaja, Frederic Gordon, Roger L. Jenkins, Elizabeth A. Pomfret. *Transplantation, The Lahey Clinic, Burlington, MA, USA*

Background: GWBWR is an important determinant of success in LDALT. It has been suggested that GWBWR of <0.8 is associated poor outcome. In this single center study we sought to evaluate the impact of GWBWR on outcome after LDALT.

Materials and methods: The medical records of 168 patients who underwent LDALT at a single center between December, 1998 and December 2008 were retrospectively reviewed. Patients were divided into 3 groups based on the actual GWBWR: Group 1: ≥ 1 (n=124), group 2: 0.8-0.99 (n=34), group 3: <0.8 (n=10). Operative data, patient demographics, transplant outcome and patient and graft survival were evaluated.

Results: There was no difference between the groups in age, gender, etiology of liver disease, cold and warm ischemia time, operative mortality, rate of

retransplant, or postoperative complications. The mean calculated MELD score at the time of transplant was: group 1: 16.1, group 2: 16.9, and group 3: 16.2 (p=NS). The overall GWBWR ranged from 0.69 to 2.2. There was no difference between the groups in 1,3, and 5 year patient survival (Figure 1) or graft survival (Figure 2) by Kaplan Meier method.



Conclusion: GWBWR as low as 0.69 can be used in carefully selected recipients with low MELD scores without adversely affecting outcome.

Abstract# P-69

EXPERIENCE OF LAPAROSCOPIC DONOR LEFT LATERAL SECTIONECTOMY. DongHwan Jung, KiHun Kim, SoJin Seok, KyoungA Park, SungGyu Lee, Shin Hwang. *Department of Hepatobiliary Surgery and Liver Transplantation, University of Ulsan and Asan Medical Center, Seoul, Korea*

<Introduction> Laparoscopic surgery has become a minimally invasive treatment or a less invasive treatment than open surgery that offers improved postoperative quality of life for patients in the field of digestive surgery. Good postoperative course and limiting abdominal wall injury should be considered in especially young donors when we perform LDLT. In this circumstances minimally invasive donor nephrectomy using laparoscopic technique has been widely reported and appeared beneficial for the donor as compared with standard open surgery.

<Material and Method> With increasing experiences of laparoscopic hepatectomy, 5 total laparoscopic left lateral sectionectomy and 1 laparoscopic-assisted left lateral sectionectomy in pediatric LDLT were consecutively performed at the Asan Medical Center from May, 2008 to Oct, 2008.

<Result> Male and female were 1 and 5, respectively. Mean age was 29(16-34) years old. Mean blood loss was 366.6(250-500) mL. Mean operation time was 326.6(220-480) mL. Mean hospital stay was 6.8(6-7) days. There was no transfusion and complication in donors. There was no complication in association with laparoscopic surgery in recipients.

<Conclusion> Laparoscopic donor left lateral sectionectomy is a safe and feasible procedure, comparable to open surgery in terms of quality of grafts and complications in donors and recipients.

Abstract# P-70

DUAL GRAFT LIVER TRANSPLANTATION WITH COMBINED ABO-COMPATIBLE AND INCOMPATIBLE GRAFTS TO OVERCOME ABO BLOOD TYPE BARRIER AND SMALL-FOR-SIZE GRAFT. Gi-Won Song¹, Sung-Gyu Lee¹, Hwang Shin¹, Gi-Young Ko², Ki-Hun Kim¹, Chul-Soo Ahn¹, Deok-Bog Moon¹, Tae-Yong Ha¹, Dong-Hwan Jung¹. ¹*Division of Hepatobiliary Surgery and Liver Transplantation, Department of Surgery, Asan Medical Center, Seoul, Korea;* ²*Department of Radiology, Asan Medical Center, Seoul, Korea*

(Background) The ABO blood type barrier is one of major obstacles to liver transplantation (LT). ABO incompatible (ABO-I) LT was generally contraindicated or exceptionally performed in pediatric patient. However, new strategies including local infusion therapy and adoption of anti-CD20 antibody have improved the outcome. In the era of adult living donor liver transplantation, graft size mismatch should be also overcome to guarantee successful recovery of patient. Our procedure was designed to overcome those major obstacles together.

(Patients and Methods) Our strategy to overcome ABO blood type barrier consisted of preoperative anti-CD20 antibody (rituximab), plasma apheresis and intra-arterial infusion with spleen preservation. We considered donor safety first when decided the each graft type. And then, we decided type of graft combination regarding the calculated GRWR.

(Results) (CASE 1) The patient was 40-old male and HBV-LC with HCC patient. MELD score was 9. The blood type of recipient was A. First donor was 35-old female. The blood type of donor was AB. The anti-B antibody titer was 1:16. The estimated GRWR was 0.54% if we utilize right liver only from 1st donor. Therefore, we got the lateral section from cadaveric donor whose blood type was identical and performed dual graft liver transplantation. Actual GRWR was 1.13%. He experienced no episode of humoral rejection and was recovered without any surgical complication. **(CASE 2)** The patient was 51-old alcoholic-LC male patient. MELD score was 13. The blood type of recipient was O. First donor was 25-old male. The blood type was A. The anti-A antibody titer was 1:64. Because anticipated remnant left liver volume of 1st donor was 25.7% of total liver volume, we should select left lobe graft and estimated GRWR was 0.46. Therefore, we performed dual graft LDLT by using the additional graft from his daughter whose blood type was identical with recipient. He also experienced no episode of humoral rejection and surgical complication, neither.

(Conclusion) Dual graft LT by using combined ABO-compatible and incompatible grafts can be the feasible option for ABO blood barrier and small-for-size graft together in adult LDLT.

Abstract# P-71

LIVING DONOR LIVER TRANSPLANTATION – A DELICATE BALANCE. Burckhardt Ringe. *Center for Liver, Biliary and Pancreas Disease, Drexel University College of Medicine, Philadelphia, PA, USA*

Living donor liver transplantation (LDLTx) has become an important tool to alleviate organ shortage. The need and justification of LDLTx may vary in different geographic areas, depending on the access to deceased donor organs, however, one of the principal questions remains universal: how to balance the risks and benefits of this approach.

The controversial discussion in the transplant community illustrates the complexity of this question. If there is agreement that living donation is a violation of “primum non nocere”, in principle, no risk is acceptable for a healthy volunteer. In reality, however, the risk for a liver donor is not zero: reported mortality and morbidity range 0.1-0.3 %, and 20-60 %, respectively. Do recipient benefits justify these donor risks, if “the risk to the donor is very much less than the probability of success for the recipient” (Hamburger 1964) or if donors “were willing to accept mortality rates that far exceed the estimated risk for donation, and favoured outcomes in which a loved one was saved” (Cotler 2001)? Do donor benefits justify the donor risks, and is “donor benefit the key to justified living organ donation” (Spital 2004)? Others argue that “the desperation of illness never justifies the infliction of a hopeless remedy” (Moore 1988), and “the needs of transplant recipients ... do not outweigh the priority of the long-term health of organ donors” (Delmonico 2007). Thus, the premise of the Live Organ Donor Consensus Group (2000) that “the benefits to both donor and recipient must outweigh the risks associated with donation and transplantation of a living donor organ” may be impossible to fulfill.

Balancing the donor versus the recipient is not justifiable. Any risk-benefit calculation between a donor and a recipient is judging the values of two human beings. These values are difficult to quantify, and cumulative benefit

is not the answer to this conflict. Risks and benefits have to be assessed independently for the donor and the recipient. LDLTx is a life-saving operation. We should not ignore its usefulness, but do everything to minimize the risks involved, and understand that there may be donor complications that are not preventable. The final decision in any individual donor and recipient will always be a delicate balance, and everyone involved in this process need to know the facts.

Abstract# P-72

INTENTIONAL PORTAL PRESSURE CONTROL IS A KEY TO IMPROVE THE OUTCOME OF ADULT LIVING DONOR LIVER TRANSPLANTATION (A-LDLT). Yasuhiro Ogura, Tomohide Hori, Walid Elmoghazy, Shinji Uemoto. *Surgery (HPB and Transplant Surgery), Kyoto University Hospital, Kyoto, Japan*

Introduction:

As the idea of small-for-size (SFS) graft was advocated, larger size grafts, i.e. right lobe grafts, became the standard graft type in A-LDLT. However, the concept of graft selection has recently changed in our institute; i.e. relatively smaller grafts can be selected in a certain conditions. The aim of this study is to test the impact of graft size and survival after A-LDLT with portal pressure control.

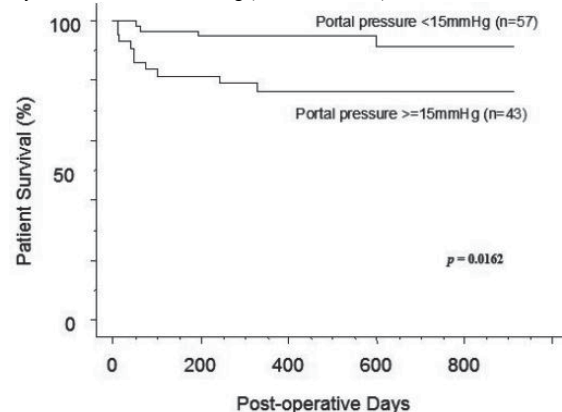
Methods:

A total of 583 A-LDLT were performed since 1998. Large series of portal pressure control was introduced in 2006, and 100 cases were analyzed. Portal pressure was controlled mainly by splenectomy, and by creating port-systemic shunt additionally if indicated. The optimal portal pressure is set <20mmHg after reflow of graft. Graft size, graft type and patient survival were analyzed with or without portal pressure control.

Results:

Prior to portal pressure control, only 10.1% (47 out of 464 A-LDLTs) were graft/recipient weight ratio (GRWR) <0.8%, with 74.4% and 70.0% survival rate at 1- and 5-year after A-LDLT. In contrast, after 2006 (introduction of portal pressure control), the selection of SFS grafts increased up to 23.5% (28 out of 119 A-LDLTs), with slightly improved 78.6% survival rate at 1-year after A-LDLT. Although only 4.7% of A-LDLT used left lobe grafts before 2005, 25.7% of A-LDLT utilized left lobe grafts after 2006 with better outcomes. Not only the survival improvement in SFS grafts, but also those in GRWR>0.8% were observed 89.1% vs.74.8% at 1-year after A-LDLT (after 2006 vs. before 2005).

Retrospectively, we analyzed the patient survival at 15mmHg of final portal pressure, and portal pressure <15mmHg demonstrated significantly better 1-year survival than ≥15mmHg (94.6% vs. 76.0%).



Conclusions:

This study indicates that portal pressure control can improve patient survival in SFS grafts as well as in appropriate size grafts in A-LDLT. As portal pressure control can overcome size mismatching, it may be applied not only in A-LDLT, but also in DDLT or split-liver transplant setting when the graft size is considered smaller for recipient.

Abstract# P-73

PROSPECTIVE COMPARATIVE STUDY OF LIVER REGENERATION IN RIGHT LOBE LIVING DONOR LIVER TRANSPLANTATION. Murat Dayangac¹, Cemal B. Taner², Onur Yaprak¹, Koray Bas¹, Levent Ulusoy¹, Cihan Duran¹, Baris E. Akin¹, Yildiray Yuzer¹, Yaman Tokat¹. ¹Center for Organ Transplantation, Florence Nightingale Hospital, Istanbul, Turkey; ²Department of Transplantation Surgery, Mayo Clinic Transplantation Center, Jacksonville, FL, USA

The middle hepatic vein (MHV) has been shown to play a significant role in liver regeneration of the anterior sector in right lobe (RL) living donor liver transplantation (LDLT). The aim of this study is to elucidate the impact of MHV harvest on regeneration and functional recovery of both the remnant liver and the RL graft.

Twenty-nine consecutive RL donors and their recipients were included. Liver volumes and MHV tributaries were preoperatively estimated using CT. Only candidates having estimated remnant liver of more than 30% with the presence of separate segment 4b drainage vein were considered for MHV harvesting.

RL group included 17 donors who underwent right lobectomy preserving the MHV trunk in the remnant liver (RD) and their recipients (RR). Extended RL group consisted of 12 donors with RL resection involving the MHV (ERD) and their recipients with extended RL grafts (ERR). Postoperative CT volumetry was performed on the seventh postoperative day for evaluation of liver regeneration.

The average regeneration rate was significantly lower in RL grafts without MHV than that of extended RL grafts (71% in ERRs vs. 47% in RRs). However, laboratory data indicated that graft type did not influence liver function recovery.

When the medial and the lateral sectors of the remnant liver were separately measured, comparison between the ERDs and RDs did not show a significant difference in the average volume increase of segment 4 (64% vs. 54%, respectively). However, the average regeneration rate of the left lateral segment and the whole liver remnant were both significantly higher in ERDs (124% in ERDs vs. 93% in RDs and 95% in ERDs vs. 75% in RDs, respectively). These data was in contrary to previous reports showing impaired regeneration of the anterior sector after extended RL resection.

This prospective study contributed to our understanding of liver regeneration patterns in both donors and their recipients. The donor remnant liver regenerated faster than the recipient grafted liver regardless of the MHV harvest. Extended RL LDLT can be safely performed with accurate volumetry, because appropriate regeneration occurs with normal functional recovery in both donors and their recipients.

Abstract# P-74

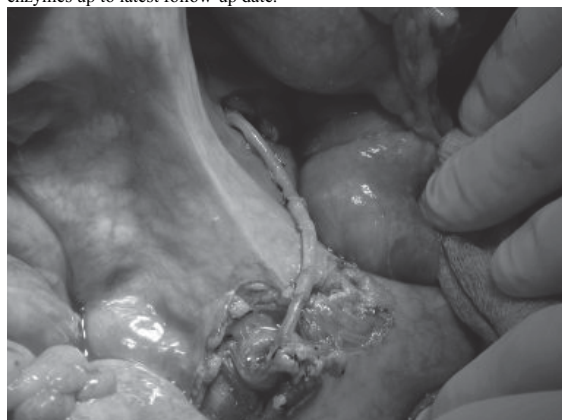
GRAFT SALVAGE FOR HEPATIC ARTERY THROMBOSIS USING ILIO-COLIC ARTERY IN LIVING DONOR LIVER TRANSPLANTATION: CASE REPORT. Chih-Chi Wang, Tsan-Shiun Lin, Chao-Long Chen, Allan Concejero, Shih-Ho Wang, Yueh-Wei Liu, Chee-Chien Yong, Chin-Hsiang Yang. *Department of Surgery, Chang Gung Memorial Hospital-Kaohsiung Medical Center, Kaohsiung, Taiwan, Taiwan*

Background and objective: Hepatic artery (HA) occlusion is a complication after liver transplantation. Urgent arterial reconstruction may reduce the need for re-transplantation. Living donor liver transplantation (LDLT) offers challenges due to smaller caliber vessels, shorter vascular stumps, and occasional multiple HA. Alternatives to the HA are needed when the native HA cannot be used or when HA complications develop. We describe the use of the recipient's ilio-colic artery as an alternate HA in adult LDLT.

Patient and method: The imaging and peri-operative records of a 48-year-old, female, hepatitis C virus-related cirrhosis with hepatoma patient who underwent right lobe LDLT and subsequently developed early HA thrombosis were used to describe the indication, technique and result of our experience using the ilio-colic artery to salvage the graft.

Results: The patient underwent several episodes of trans-arterial embolization for unresectable hepatocellular carcinoma before LDLT. During LDLT operation, the recipient's native HA was judged to be unsuitable for reconstruction. The recipient's right gastroepiploic artery was used and was anastomosed to the graft HA. HA thrombosis was detected by Doppler ultrasound and confirmed by computed tomography angiography 2 weeks after LDLT. Re-laparotomy for graft revascularization was done. Intraoperative findings showed no blood flow in the right gastroepiploic and left gastric arteries. Both the splenic and common hepatic arteries showed

poor quality vessels. The ilio-colic artery was noted to be fairly sized (2.5 mm). Graft revascularization and timely salvage was accomplished by ilio-colic artery-radial artery interposition graft-graft HA reconstruction (Fig.1). A 6-month computed tomography angiography follow-up showed patency of the alternate vessels reconstructed. The patient is well with normal liver enzymes up to latest follow-up date.



Conclusion: The recipient's ilio-colic artery is a good HA alternate vessel in case of HA thrombosis in LDLT.

Abstract# P-75

MULTIPLE BILE DUCT ANASTOMOSES WITHOUT STENT IN LIVING-DONOR LIVER TRANSPLANT.

Mehmet Haberal¹, Gokhan Moray¹, Sinasi Sevmis¹, Hamdi Karakayali¹, Adnan Torgay², Gulnaz Arslan². ¹General Surgery and Transplantation, Baskent University, Faculty of Medicine, Ankara, Turkey; ²Anesthesiology, Baskent University, Faculty of Medicine, Ankara, Turkey

It is unclear whether presence of multiple bile ducts in the graft increases the risk of biliary complications after living-donor liver transplant (LDLT). In this study we analyzed multiple bile duct anastomoses in LDLT. Since 2006, we did not any drainage catheter for bile duct reconstruction, and after that time 57 LDLT were performed at our center. Eighteen (31.5%) of these 57 recipient's graft had multiple bile ducts, which were analyzed retrospectively. There were 12 male, 6 female, with mean age 30.9 ± 22 years (range, 8 months to 54 years). Biliary reconstruction was performed with a duct-to-duct anastomosis in 13 recipients and with a Roux-en-Y hepaticojejunostomy in 5. Fourteen of the 18 grafts had 2 bile ducts, 3 had 3 bile ducts, and 1 had 4 bile ducts. In 4 grafts with 2 bile ducts, 2 separate anastomoses were performed. In the remaining 10 grafts with 2 bile ducts, we create a single orifice at the back-table. In two grafts with 3 bile ducts, 2 neighboring ducts were sutured together, other bile duct anastomosed separately. In remaining graft with three bile ducts, 3 bile ducts were sutured together. In last graft with 4 bile ducts, 2 neighboring ducts were sutured together, remaining 2 bile ducts were anastomosed separately. Two biliary leakages and 1 biliary stenosis occurred in this series, which were treated with interventional radiological approach, successfully. In the mean follow-up 7.3 ± 4.1 months (range, 1 to 15 months), 1 patient died 3 months after liver transplant due to pulmonary emboli, remaining 17 patients (94.4%) are alive with normal liver functioning. In conclusion, although our follow-up period was short, the presences of more than one bile duct in the graft do not appear to increase biliary complications after liver transplant in our series.

Abstract# P-76

LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA: ONE CENTER'S EXPERIENCE IN THE NORTHEAST OF BRAZIL.

Jose H. Garcia, Katia F. Vasconcelos, Marcos A. Barros, Joao B. Vasconcelos, Jose T. Valenca, Jr., Douglas H. Filho, Paulo E. Costa, Ivelise R. Brasil, Gleydson C. Borges, Cinthya F. Viana, Tarciso D. Rocha, Denissa F. Mesquita, Dirk Sherenkenn, Gustavo R. Coelho. *Department of Surgery, Federal University of Ceara, Fortaleza, CE, Brazil*

Hepatocellular carcinoma (HCC) is the fifth most common cancer in the world and the third leading cause of cancer-related death, being responsible for as many as 500,000 deaths annually. Curative treatments for HCC include

surgical resection and liver transplantation (LT). Between May 2002 and July 2008, 294 LTs were performed at the University Hospital of Federal University of Ceara, Brazil. In 45 patients (15.3%), HCC was confirmed by histological exam. HCC was diagnosed pretransplant using alpha-fetoprotein levels, abdominal ultrasonography, computed tomography scanning, or magnetic resonance imaging. In 17 patients (37.7%) HCC was a solitary nodule; 10 patients (22.2%) had 2 nodules; 9 patients (20%) had 3 nodules; and 9 (20%) more than 3 nodules. The maximal diameter of the largest tumor was 3 cm or less in 26 patients (57.7%), between 3 and 5 cm in 13 (28.9%) and exceeded 5 cm in 6 patients (13.3%). Histologically, 10 tumors were well differentiated; 32 were moderately differentiated and the remaining 3 tumors were poorly differentiated. In terms of vascular invasion, 34 patients had no sign of vascular involvement whereas the other 11 patients had microscopic vascular invasion. There have been 4 tumor recurrences which occurred at 22, 10, 14 and 7 months after OLT, respectively. Three patients died from HCC recurrence and 1 are alive, one with lung metastasis and the other with adrenal gland metastasis. Liver transplantation is an effective option for patients with HCC corresponding to the Milan Criteria: solitary tumor <5 cm or up to three nodules <3cm. This has confirmed early HCC as a clear indication for liver transplantation in conventional clinical practice. However, a lot of liver transplantation teams in the world had suggest to expanded beyond the Milan Criteria, so we have similar result with tumor bigger than, but we have poor result with tumor with microscopic vascular invasion and poor differentiation. We had 4 tumor recurrences which occurred at 22, 10, 14 and 7 months after OLT, respectively. Three patient had microscopic vascular invasion and another patient had AFP >1000 ng/mL. We have suggested that tumor size and number of tumors are not absolute indicators of a bad prognosis.

Abstract# P-77

IS HCC RECURRENCE DIFFERENT FOLLOWING PARTIAL GRAFT VS FULL SIZE GRAFT LIVER TRANSPLANTATION?

Lakhbir Sandhu, Markus Selzner, Arash Kafshi, Derek Dubai, Nazia Selzner, Paul Greig, Mark S. Catral, Gary A. Levy, Les Lilly, George Therapondos, Lesley E. Adcock, Ian D. McGilvray, Eberhard L. Renner, David R. Grant. *Multiorgan Transplant Program, Toronto General Hospital, Toronto, ON, Canada*

The short waiting time for living donor liver transplantation (LDLT) makes it an attractive option for patients with hepatocellular carcinoma (HCC). However, transplantation of a right hemiliver induces growth factors resulting in liver regeneration and in animal models this has been shown to promote tumor growth. **Aim:** To determine risk factors for HCC recurrence and disease free survival following full size deceased vs right hemiliver transplantation. **Methods:** 348 patients with HCC received a liver transplantation at our institution between 01/1996 and 08/2008. 277 patients received a full size deceased organ, while in 71 patients a right hemiliver was transplanted. Uni- and multivariate regression analyses were performed using disease free survival as endpoint. **Results:** Although the partial vs full size grafts liver grafts had a significantly shorter waiting time (6 ± 8 months vs 10 ± 11 months, $p=0.02$), the two groups had at the time of transplant similar tumor characteristics regarding tumor number (2 ± 2 vs 2 ± 2 , $p=0.8$), largest tumor diameter (3.2 ± 3 cm vs 2.8 ± 2 cm, $p=0.14$), presence of bilobar disease (34% vs 36%, $p=0.4$), and AJCC tumor stage (1.7 ± 0.7 vs 1.8 ± 0.8 , $p=0.3$). Univariate analysis of all 348 patients revealed tumor size, number of lesions, bilobar disease, macrovascular invasion, previous liver resection, history of TACE and AFP>400 as risk factors for disease recurrence. In contrast, receiving a partial vs full size graft, waiting time, and failing Milan or UCSF criteria were not associated with earlier disease recurrence. Multivariate analysis of the full size deceased donor subgroup revealed tumor size (HR:1.3, CI:1.1-1.6) and macrovascular invasion (HR:7.7, CI:3.3-20) as independent risk factors for tumor recurrence, while number of lesions (HR:1.3, CI:1.1-1.8) and AFP>400 (HR:45, CI:4.1-85) were independent risk factors for early recurrence in the partial graft group. Disease free survival did not significantly differ between full graft and right hemiliver graft recipients at 1-year (92% vs 93%), 3-years (86% vs 85%), and 5-years (82% vs 78%) ($p=0.5$, log rank). **Conclusion:** HCC recurrence is not different following partial vs full graft liver transplantation.

Abstract# P-78

OUTCOME AFTER LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA: A COMPARISON BETWEEN MILAN AND UCSF CRITERIA BASED ON PATHOLOGY SPECIMENS. Guillermo Kiss, Maria Lucia Zanotelli, Cantisani P. C. Guido, Claudio A. Marroni, Ajácio B. M. Brandão, Eduardo S. Schlindwein, Ian Leipnitz, Mario H. M. M. Meine, Marcos Mucenic, Marcus V. Osório. *Grupo de Transplante Hepático, Santa Casa - Porto Alegre, Porto Alegre, RS, Brazil*

Background: Tumor recurrence after liver transplantation (LT) has an ominous prognosis, and strict candidate selection criteria are widely adopted by transplant organizations to minimize its incidence, being the so-called Milan criteria (MC) the most popular. While some authors argue that these criteria are very restrictive, its expansion remains controversial. **Purpose:** Compare the recurrence and survival in patients fulfilling MC and patients beyond MC but meeting University of California, San Francisco criteria (UCSF), based on pathology specimens. **Patients and methods:** Data from 59 cirrhotic patients who underwent LT with pathological confirmation of HCC between 2001 and 2006 were analyzed. Forty (67.8%) were men, the mean age was 57.39±7.76, and HCV infection was the most prevalent etiology of cirrhosis (83%).

Pathological Characteristics of Tumors

	MC	UCSF	
Microscopic capsular invasion	2	0	0.99
Nuclear Grade (NG)			
NG 1	5	1	
NG 2	37	3	
NG 3	8	3	0.019
NG 1 & 2 vs NG 3			0.019
Capsule	19	0	0.046
Satellite Nodule	7	1	0.99
Bilobarity	7	5	0.012
Number of nodules			
1	37	2	
2	10	2	
3	3	2	
4	0	3	0.0003
Size of the largest nodule			
<2 cm	18	3	
2-5 cm	32	4	
>5 cm	0	2	0.032
≤5 cm vs >5 cm	50/0	7/2	0.021

Results: Mean follow-up was 40.7±20.2 months (range: 6 to 76 months). The overall and recurrence-free survival after LT at 1, 3 and 5 years was 89.3%, 74.9%, 72.4% and 84.8%, 69.6, 69.6% respectively. The recurrence rate was 22% (18% MC vs. 44.4% UCSF; $p=0.97$). The survival and recurrence-free survival at 5 years between MC and UCSF was 75.4% vs. 55.6% ($p=0.105$) and 73.9% vs. 44.4% ($p=0.031$) respectively. **Conclusion:** Patients classified on UCSF criteria had no significant difference on recurrence or survival compared to Milan criteria patients, although our data suggest that long-term survival is inferior and recurrence rate is higher in UCSF group, and the recurrence-free survival was significantly better on the MC group.

Abstract# P-79

EFFICACY OF PRE-TRANSPLANT TRANS-ARTERIAL CHEMO-EMBOLIZATION IN PATIENTS WITH HEPATOCELLULAR CARCINOMA. Vincent Peyregne, Ahmed Fahmy, Devon John, Thomas Diflo, Glyn Morgan, Lewis Teperman. *New York University Langone Medical Center, New York, USA*

Introduction: owing to the drop-out on the wait-list due to Hepatocellular Carcinoma (HCC) progression, different approaches have been considered to treat HCCs prior to Liver Transplantation (OLT). Our study assessed the efficacy of Trans-Arterial Chemo-Embolization (TACE) and its influence on recurrence and survival.

Material and methods: from 2002 to 2007, 85 patients with HCC were identified, 59 with TACE and 26 controls. Characteristics related to the patients and tumors were retrospectively recorded, including Magnetic Resonance Imaging (MRI) before TACE and before OLT to assess changes in size and Milan criteria status, pathology reports and outcome. Fischer exact test, Pearson χ^2 test and Student t-test were used when appropriate.

Results: groups were comparable for age, sex ratio, indication for OLT and type of graft. Main findings are summarized in Table 1.

Comparison of TACE and no TACE groups

Variable	TACE	No TACE	p value
Beyond Milan criteria on iMRI	22%	0%	0.000†
Diameter* - iMRI (cm)	3.8±2.2	1.6±1.4	0.000Φ
Tumor number - iMRI	1.7±1.1	±0.7	0.001Φ
Necrosis - last MRI	49%	10%	0.013†
Decrease in diameter* on MRI	62%	25%	0.008§
Milan "downstaging" on MRI	20%	0%	0.095§
Diameter* on explant (cm)	4.7±3.5	2.9±2.9	0.024Φ
Tumor number on explant	2.8±2.5	1.8±1.5	0.023Φ
Necrosis on explant	87%	16%	0.000†
Tumor differentiation (poor/moderate/well)	26/50/24%	12/36/52%	0.010†

iMRI: initial MRI; TACE: Trans-Arterial Chemo-Embolization; * total tumor diameter; † Pearson's χ^2 test; § Fischer's exact test; Φ Student t-test

Incidence of recurrence, recurrence-free and patient survivals were comparable in the 2 groups at 6 months, 1, 3 and 5 years.

Conclusions: TACE elicited an objective decrease in tumor size. A trend toward downstaging was noted when initially beyond Milan criteria. Recurrence and survivals were not different, even though there were significantly more patients beyond Milan criteria in the TACE group, with more tumors, larger and less differentiated tumors. TACE should be considered for tumors beyond Milan criteria to improve access to OLT, once patients are made eligible for exception points, secondarily to treatment-induced "downstaging".

Abstract# P-80

LIVER TRANSPLANT (LTx) IN PATIENT WITH HISTORY OF NON-HEPATIC MALIGNANCY. Ashokkumar B. Jain¹, Omer Faiz², Rajeev Sharma², Saman Safadjou², Baber Sheikh¹, Leah Bryan², Pam Batzold², Randeep Kashyap², Mark Orloff². *¹Surgery, Division of Solid Organ Transplant, Temple University, Philadelphia, PA, USA; ²Surgery, Division of Solid Organ Transplant & Hepatobiliary Surgery, University of Rochester Medical Center, Rochester, NY, USA*

After LTx, recurrence of hepatic cancer, de novo cancer and donor transmitted cancers have been described. However, patients with prior history of non-hepatic malignancy and its recurrence post-LTx has not been reported that often.

Aim of the present study is to examine the post LTx patients who had history of non hepatic malignancy prior to LTx.

Patients and Method: Between March 1996 and July 2006, 1,127 patients underwent LTx at our institution. Thirty patients (2.7), male 15, female 15, mean age 56.9 ± 12.8 years) had documented non-hepatic malignancy. There were 7 colorectal, 3 prostatic, 3 cervical, 3 bladder, 6 breast and another 6 miscellaneous cancers (one patient had two cancers). Four patients had hepatoma (within Milan criterion) at the time of LTx. All patients were followed until 2008. Mean follow-up 34.1 ± 35.3 months.

Results: One patient with laryngeal cancer (case #21) who was recurrence free pre LTx for 77.3, developed recurrence 36 months later and subsequently died 11 months post recurrence. Another patient (case # 6) with cervical cancer 98.8 months pre-LTx developed de novo renal cell carcinoma, 46.6 months post-LTx. An additional patient (case #26) had breast cancer 37 years prior to LTx died of de novo metastatic adenocarcinoma of unknown origin.

Three out of four patients with hepatoma died from recurrent hepatoma.

Summary: One patient (3.3) developed recurrence of non-hepatic malignancy in mean follow-up period of about three years. However, two patients (6.6%) developed de novo malignancy and three out of four patients with hepatoma (75%) died of recurrence.

Conclusion: Although careful case selection has kept recurrence of non-hepatic malignancy to about 3% but the rate of development of de novo malignancies was 6%. However, 75% rate of recurrence of hepatic malignancies within 12 to 40 months needs further consideration. Also there is a need to develop a guide line for recurrence free survival period for non hepatic malignancies before LTx based on the type of and stage of cancer.

Abstract# P-81

PREDICTORS OF TUMOR RECURRENCE IN LIVER TRANSPLANTATION FOR HCC. Ivaylo Mitsiev, Ahmed Fahmy, Vincent Peyregne, Devon John, Thomas Diflo, Glyn Morgan, Lewis Teperman. *Organ Transplantation Center, NYU Medical Center, New York, NY, USA*

BACKGROUND: The preferred treatment for hepatocellular carcinoma (HCC) in cirrhosis is liver transplantation. Since the introduction of the

MELD system and inclusion of Milan criteria, many efforts have been made to evaluate the prognostic criteria affecting outcome. The aim of this study is to assess the preoperative factors that might impact tumor recurrence and patient survival.

METHOD: From February 2003 to November 2008, 143 patients underwent liver transplantation for HCC in our center. The following clinical pre-transplant variables were compared to tumor recurrence rate and patient outcome: tumor number and size, TNM staging, Milan criteria, pre-operative level of alpha-fetoprotein (AFP), MELD score and recipient age. The data was evaluated using ANOVA univariate analysis.

RESULTS: The recurrence rate was 10% after a median follow up of 20.2 months. The preoperative AFP level and tumor number were found to correlate significantly with patient survival ($p=0.001$). The Milan ($p=0.002$) and TNM-Stage ($p=0.003$) showed a statistically significant correlation with outcome. The Milan criteria ($p<0.001$) and the TNM-Stage ($p=0.002$) were the most powerful predictors of tumor recurrence. Tumor volume ($p=0.006$) and tumor number ($p=0.015$) also showed a significant correlation. AFP ($p=0.503$) did not have a significant impact on tumor recurrence. Patient age and MELD score were not found to be statistically significant in predicting outcome or recurrence.

CONCLUSION: The TNM-Stage and Milan criteria are reliable predictors of patient survival after liver transplantation for HCC. All preoperative radiologic findings demonstrated significant correlation with rate of tumor recurrence. MELD score, serum AFP and recipient age could not be used to predict tumor recurrence. Further study will be necessary to evaluate other parameters that may predict patient survival and tumor recurrence.

Abstract# P-82

LIVER RESECTION VERSUS TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA WITHIN THE MILAN CRITERIA: AN INTENTION-TO-TREAT ANALYSIS. Yang Won Nah¹, Chang Woo Nam¹, Jung Woo Shin², Neung Hwa Park².

¹Department of Surgery, Ulsan University Hospital, Ulsan, Korea; ²Department of Internal Medicine, Ulsan University Hospital, Ulsan, Korea

[Aims] In Korea deceased donor liver transplantation (DDLT) has been performed for less than 6% of all candidates on waitlist. This extremely low DDLT rate may make waitlist dropout rate too high to set DDLT as a meaningful therapeutic option for HCC. The authors investigated the postoperative as well as intention-to-treat outcomes of DDLT for patients with HCC within Milan criteria and compared them to those of liver resection, to select the optimal therapeutic option for these patients. **[Materials and Methods]** During the period from Jan 2001 to Sep 2008, 1,364 patients with HCC were diagnosed at Ulsan University Hospital, Ulsan, Korea. As the option for treating HCC, liver resection was chosen in 127 patients. Among these patients, 58 patients had HCC within Milan criteria which meet the requirement for DDLT candidacy under the current liver allocation system in Korea (LRX group). Forty-nine patients chose DDLT as their treatment modality (TPX group). Only the patients who registered for DDLT, not living donor liver transplantation, were included in TPX group. Child class B or C patients constituted 5% in LRX group and 78% in TPX group ($p=0.000$). **[Results]** Among 49 registrants in TPX group, 13 patients underwent DDLT at a mean waiting time of 274 days (LTX group). 12 patients were dropped out from the waitlist due to death or disease progression at a median time of 230 days after registration. There was 1 operative mortality in LTX group 14 days after DDLT due to primary nonfunction. Postoperative complications developed in 7% in LRX group and 23% in LTX group ($p=0.077$). One- and 3-year overall survival rates were 91.6% and 84.2% in LRX group and 74.6% and 74.6% in LTX group, respectively ($P=0.106$). 3-year recurrence-free survival rates were 57.8% in LRX group and 90% in LTX group ($p=0.196$). These results show that postoperative outcomes were comparable between the two groups. On the other hand, LRX group showed a significantly better intention-to-treat outcome than TPX group. When the survival rates according to intention-to-treat were compared, 3-year survival rates were 84.2% for LRX group and 52.0% for TPX group ($p=0.001$). **[Conclusion]** For HCC patients within Milan criteria, liver resection should be considered as their primary option of treatment in Korea, where DDLT rate is below 6%.

Abstract# P-83

INDICATION OF LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA-RISK FACTOR OF RECURRENCE FROM OUR EXPERIENCE. Masatoshi Ishigami¹, Yoshiaki Katano¹, Hideya Kamei², Taro Nakamura², Tetsuya Kiuchi², Hidemi Goto¹.

¹Department of Gastroenterology, Nagoya University Graduate School of Medicine, Nagoya, Japan; ²Department of Transplant Surgery, Nagoya University Graduate School of Medicine, Nagoya, Japan

[Backgrounds] Liver transplantation for hepatocellular carcinoma (HCC) has poorer prognosis compared with non-HCC cases because of recurrence. Milan criteria is now a gold standard for the indication of transplantation for HCC, though extended criteria is still arguing how far the indication can be extended in the case without Milan criteria. In this study, we try to reevaluate the significance of Milan criteria from our cases, and whether the other factors can be added for the indication.

[Patients and Methods] Cases were transplanted for HCC in our institute between 2003 and 2008, 7 cases were excluded because of death unrelated to HCC recurrence. In remaining 23 cases, factor analysis was done about recipients' age, sex, origin of liver disease, preoperative MELD, maximum size of tumor, number, Milan criteria, levels of AFP, L3, PIVKA-II, number of sessions and length of period for pretransplant treatment. And we also investigated the same parameters in 7 patients without Milan criteria. We then investigated the difference of recurrence rate by Log-rank test about the factors selected in the former analysis. $p<0.05$ was considered as statistically significant.

[Results] Without Milan criteria ($p=0.0311$), levels of AFP ($p=0.0303$), Dxs index, which was calculated as multiplication of number of sessions and length of period of pretransplanted treatment ($p=0.0071$). Recurrence rate was quite different between within (12.5%) and without Milan criteria (46.4%), but this difference did not reach statistical significance ($p=0.1758$). In Dxs index, more than 100 have significantly higher recurrence rate compared with less than 100 ($p=0.0206$). In 7 cases without Milan criteria, more than 5% in AFP-L3 have have significantly higher recurrence rate compared with cases less than 5% ($p=0.0472$).

[Conclusions] Milan criteria is a relatively good marker for predicting HCC recurrence after liver transplantation though not statistically significant in this study. Number of sessions and length of period for pretransplant treatment could be important risk factors regardless of Milan criteria. In cases without Milan criteria, AFP-L3 less than 5% could be a lower risk for the recurrence after liver transplantation.

Abstract# P-84

LONG-TERM SURVIVAL ANALYSIS OF LIVING DONOR LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA ACROSS MILAN CRITERIA. Kelvin K. Ng, Chung-Mau Lo, Sheung-Tat Fan.

Department of Surgery, The University of Hong Kong, Hong Kong, Hong Kong

Background: Due to the shortage of deceased liver donor, living donor liver transplantation (LDLT) is the main viable option of transplantation for hepatocellular carcinoma (HCC) in the East. There is limited data in the literature on the long-term survival outcome of LDLT for HCC across Milan criteria.

Aim of study: To investigate the long-term survival outcome of LDLT for HCC across Milan criteria in a single center

Patients and methods: A total of 83 patients who underwent LDLT for HCC were retrospectively analyzed. Patients with extrahepatic metastases, major vascular tumor invasion and diffuse HCC were excluded. Recurrence-free survival results were analyzed. Significant prognostic factors were identified using univariate and multivariate analyses.

Results: Thirty-three patients (39.8%) had HCC with pathological features exceeding Milan criteria. The median follow-up period was 46 months (22 months – 120 months). The perioperative outcomes were comparable between patients with tumors within and outside Milan criteria. The 1-year, 3-year and 5-year recurrence-free survival rates for patients within Milan criteria were 93%, 78% and 72%, whereas those for patients beyond Milan criteria were 90%, 70% and 60%. There was no statistically significant difference between two groups. Microvascular tumor invasion was the independent poor prognostic factor for recurrence-free survival, whereas liver tumor status beyond Milan criteria posed no influence on patients' survival.

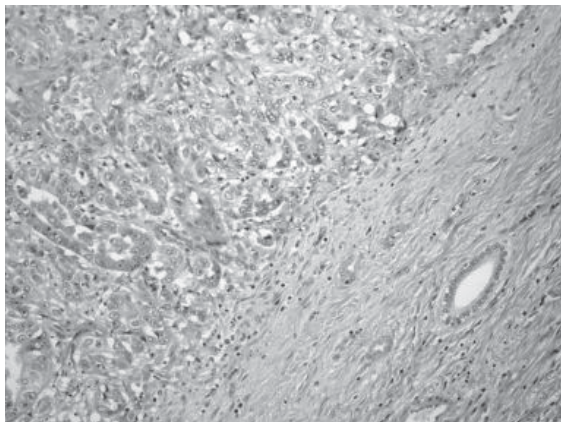
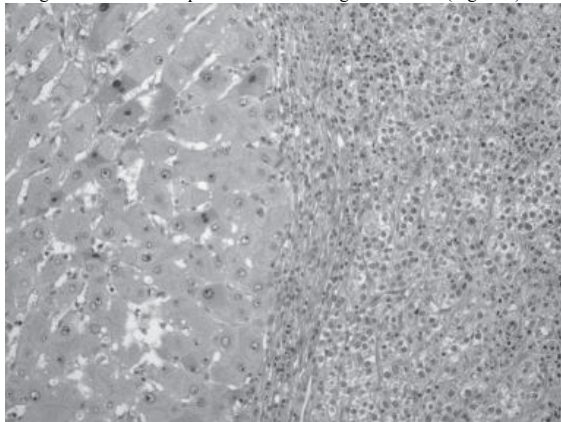
Conclusion: LDLT for HCC exceeding Milan criteria is associated with acceptable overall and recurrence-free survival rates. More clinical prospective data is necessary to justify the expansion of selection criteria beyond Milan criteria of LDLT for HCC.

Abstract# P-85

COINCIDENTAL OCCURRENCE OF BOTH HEPATOCELLULAR CARCINOMA AND CHOLANGIOCARCINOMA AFTER LIVER TRANSPLANTATION "COLLISION TUMORS": CASE REPORT. Hatem Khalaf, Yasser Kamel, Hazem Mohamed, Walid Al-Hamoudi, Ayman Abdo, Mohammed Al-Sofayan, Mohammed Al-Sebayel. *Department of Liver Transplantation & Hepatobiliary-Pancreatic Surgery, King Faisal Specialist Hospital and Research Center, Riyadh, Saudi Arabia*

Background: Coincidental occurrence of separate Hepatocellular Carcinoma (HCC) and Cholangiocarcinoma (CC) within a cirrhotic liver is rare. Herein, we report a case of Liver transplantation for such collision tumors.

Case Report: We report a 56 yr old lady who was known to have hepatitis C virus cirrhosis in addition to two hepatic focal lesions in liver segments 7 and 5, measuring 1.5 and 3 cm respectively. The lesion in seg 7 showed typical radiological characteristics of HCC, however, the other lesion in segment 5 showed atypical enhancements and was closely related to the IVC. Serum AFP was normal and serum CA19-9 was slightly elevated (63 U/ml); extrahepatic spread was aggressively ruled-out; and the patient underwent uneventful cadaveric LT. Histopathological examination of the explant confirmed that seg 7 lesion was Hepatocellular Carcinoma (Figure 1), but unexpectedly the lesion in segment 5 tumor was proven to be Cholangiocarcinoma (Figure 2).



Six months post-LT her CA19-9 was markedly elevated (255 U/ml) and the patient started to develop abdominal pain; CT scan showed enhancing hilar and paraaortic lymph nodes worrisome of metastases; US-guided biopsy confirmed tumor (CC) recurrence. Unfortunately the patient died tumor recurrence 8 month post-LT.

Conclusions: Collision HCC and CC in a cirrhotic liver is rare and has negative impact on the outcome after LT. Atypical enhancement and elevated serum CA19-9 is worrisome of such tumors, and should warrant a targeted biopsy to rule out the coincidental occurrence of Cholangiocarcinoma.

Abstract# P-86

INCREASED RISK OF EARLY DE NOVO CANCER IN LIVER GRAFT RECIPIENTS TRANSPLANTED IN MORE RECENT YEARS. Angela S. W. Tjon¹, Jerome Sint Nicolaas¹, Jaap Kwekkeboom¹, Hugo W. Tilanus², Geert Kazemier², Rob A. de Man¹, Luc J. van der Laan², Bettina E. Hansen¹, Thanya Thain^{1,2}, Herold J. Metselaar¹. ¹*Hepatogastroenterology, Erasmus MC, Rotterdam, Netherlands*; ²*Surgery, Erasmus MC, Rotterdam, Netherlands*

De novo malignancy after liver transplantation (LTx) is mainly related to the chronic use of immunosuppressants and its incidence is reported to be between 3 and 26%. The objectives of our retrospective study were to determine the incidence of *de novo* malignancy after LTx in the Rotterdam liver transplant cohort, to identify the risk factors and to explore the effect of *de novo* cancer on patient survival.

From 1986 till 2008, 393 liver transplant recipients with at least 3 months follow-up post-LTx were retrospectively reviewed for age at time of LTx, gender, LTx indication, type of immunosuppressive drugs, type of cancer and interval from LTx to cancer, rejection or death. Kaplan Meier and multivariate analyses were performed and the observed cancer risk was compared with the expected cancer risk in the Dutch population, matched with age and gender.

In 49 (12.5%) recipients *de novo* malignancy developed. The cumulative incidences at 1, 5, 10 and 15 years after LTx were 1.4%, 6.8%, 18.5% and 44.6% respectively. The relative risk of cancer in liver transplant patients in comparison with the general population was 2.7 (95% CI: 1.95-3.47). Most common cancer types were skin cancer (49%), post transplant lymphoproliferative disease (PTLD) (21%) and lung cancer (8%). Strikingly, patients transplanted in the period 2002-2006 had 4.9-times higher risk to develop early cancer as compared to the period 1997-2001 adjusted for age, gender and LTx indication (p=0.013). We found no differences in rejection episodes between both time periods. However, the use of cyclosporine based on C2 monitoring is associated with a borderline significant higher risk (p=0.07). Twelve of 49 patients (25%) died due to *de novo* cancer. After excluding PTLD and skin cancer, *de novo* cancer patients had a significant lower survival rate as compared to recipients who remained cancer-free. Overall, in this 21-year follow-up study, we showed a higher risk of *de novo* cancer after LTx. Interestingly, patients transplanted in more recent years experienced a 5-times higher risk to develop early cancer as compared to earlier time period. This raised the question whether changes in recent immunosuppressive regimen may cause over-immune suppression and attribute to an increased risk for cancer.

Abstract# P-87

LONG TERM RESULTS OF EXTENDED BILE DUCT RESECTION FOLLOWED BY LIVER TRANSPLANTATION FOR HILAR CHOLANGIOCARCINOMA. Daniel Seechofer¹, Armin Thelen¹, Ulf P. Neumann¹, Carsten Kamphues¹, Winfried Veltke-Schlieker², Sven Jonas¹, Peter Neuhaus¹. ¹*General, Visceral and Transplantation Surgery, Charité Campus Virchow, Berlin, Germany*; ²*Gastroenterology and Hepatology, Charité Campus Virchow, Berlin, Germany*

Liver resection is the treatment of choice for patients with hilar cholangiocarcinoma. In case of irresectability, liver transplantation (LT) has been proposed and is currently reassessed, due to promising data using neoadjuvant radiochemotherapy. For an increased surgical radicality, a combined hepatectomy plus pancreatic head resection ("extended bile duct resection") has been performed during our initial experience in patients with irresectable hilar cholangiocarcinoma. The long term results (>10 y) of this cohort are analyzed to clarify the value of this procedure.

Patients: 16 patients underwent hepatectomy plus Whipple's procedure followed by LT between 1992 and 1998. All patients had hilar cholangiocarcinoma in the absence of PSC. No neoadjuvant or adjuvant treatment was performed. UICC stages were I (n=6), IIA (5), IIB (3) and IV (2). Preoperative CA 19-9 levels were available in 10 patients with a mean of 1748 ± 808 U/ml.

Results: Overall 1, 5 and 10 yr patient survival rates were 63, 38 and 38 % respectively. 12 patients died during the follow up period, 2 due to postoperative complications, 8 due to tumor recurrence and 2 more than 10 years after transplantation (urothel carcinoma, aortic aneurysm). From the 6 patients with UICC stage I tumors only 1 patient with a preoperative CA 19-9 of 8249 U/ml developed tumor recurrence, but two died due to postoperative complications. Therefore 5 and 10 year survival was 50 % in stage I patients

and not significantly higher than in UICC stage IIA (40 %) and in stage II B (33 %). The following factors showed a trend towards inferior survival: positive lymph nodes, distant metastases, high CA 19-9 levels and preoperative PTCd. Considering all lymph node negative patients after exclusion of perioperative deaths, the 10 year survival was 56 %.

Conclusion: The overall long term survival was low in the reported inhomogeneous patient collective. However, using a thorough patient selection, acceptable long term results and a chance of cure could be achieved even without neoadjuvant radiochemotherapy. Owing to the increased perioperative morbidity and mortality, extended bile duct resection can not be recommended as standard procedure for irresectable hilar cholangiocarcinoma instead of LT alone.

Abstract# P-88

SURVIVAL AFTER LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA EXCEEDING MILAN CRITERIA IS BETTER WITH PRETRANSPLANT RADIOFREQUENCY ABLATION THAN WITH CHEMOEMBOLIZATION OR NO NEOADJUVANT TREATMENT. Nicholas Onaca, Gary L. Davis, Linda W. Jennings, Robert M. Goldstein, Goran B. Klintmalm. *Transplant Services, Baylor University Medical Center, Dallas, TX, USA*

Neoadjuvant treatments are used as a bridge to liver transplantation (LTX) for hepatocellular carcinoma (HCC). Their impact on posttransplant survival is controversial. We analyzed data from a large registry of patients with HCC known prior to LTX transplanted between 1998-2007 and had pathology, neoadjuvant treatment, and follow-up data available. 143 patients underwent chemoembolization (TACE), 92 had radiofrequency ablation (RFA) and 52 did not have neoadjuvant treatment (NT). Posttransplant survival was analyzed using the Kaplan Meier method. 5-year survival was similar between the 3 groups, 67.3-78.8% (p=0.3213). Both TACE (p=0.6438) and RFA (p=0.4547) did not have an advantage over no treatment. Within Milan HCC tumor inclusion criteria, 5-year survival was similar for TACE, RFA, and NT groups in general as well as divided in groups for single tumors <2 cm, 2.1-5 cm, and 2-3 tumors < 3cm. 93 patients exceeded Milan criteria - 52 underwent TACE, 31 underwent RFA, and 10 had NT, with a 5-year patient survival of 56.1%, 86%, and 30%, respectively (p=0.0123). RFA was significantly superior in terms of posttransplant survival to NT (p=0.0017) but TACE was not (p=0.0889). Among all patients who underwent RFA, 5-year survival was similar regardless of tumor size and number of nodules (p=0.9342). 5-year survival of patients exceeding Milan criteria was worse by 18.2% in patients who underwent TACE (p=0.159) and by 40% in the NT group (p=0.0024).

Conclusion: Neoadjuvant RFA treatment is associated with significantly higher 5-year patient survival after liver transplantation for HCC in patients exceeding Milan criteria. This supports the validity of tumor downsizing before LTX and the use of RFA as a bridge to transplantation if the HCC tumor inclusion criteria for LTX are expanded.

Abstract# P-89

PREDICTING RECURRENCE AFTER LIVER TRANSPLANTATION IN PATIENTS WITH HEPATOCELLULAR CARCINOMA EXCEEDING THE UP-TO-SEVEN CRITERIA. Francesco D'Amico^{1,2}, Myron Schwartz², Alessandro Vitale³, Parissa Tabrizian², Sasan Roayaie², Swan Thung², Maria Guido⁴, Juan del Rio Martin², Thomas Schiano², Umberto Cillo¹. ¹Unità di Chirurgia Epatobiliare e Trapianto Epatico, Padova, Italy; ²Recanati-Miller Transplantation Institute, Mount Sinai School of Medicine, New York, USA; ³Istituto Oncologico Veneto, IRCCS, Padova, Italy; ⁴Anatomia Patologica, Università di Padova, Padova, Italy

Background/aim. The first step in prognostic modeling for patients with hepatocellular carcinoma (HCC) undergoing to liver transplantation (LT) is to identify significant predictors of post-LT recurrence among pathologic variables. The aim of this study is to test the ability in predicting recurrence of available pathologic staging systems (Milan vs. UCSF, vs. Up-to-7) and pathologic tumor characteristics (tumors number, size of the largest nodule, sum of tumor diameters, macroscopic and microscopic vascular invasion, grading).

Methods. A study population of 479 HCC transplanted patients was identified from prospectively-collected databases at Mount Sinai Medical Center (New York, NY) and the University of Padua (Padua, Italy). The best pathologic

staging system was identified by using the proportion of separation (PSEP) and Cox analyses and it was then used to stratify the population in 2 prognostic groups (within and beyond the criteria). Pathologic tumor characteristics were then tested by uni- and multivariate Cox analyses in the overall study group and in the subgroups within and beyond the calculated criteria.

Results. The best pathologic staging system was the Up-to-7 criteria being the calculated 1, 3, 5-year recurrence probabilities 4%, 8%, 14% within (n = 355) and 22%, 45%, 51% beyond (n = 124) the criteria (p<.0001), and the calculate PSEP = 0.27 (95% CI= 0.23-0.31).

At multivariate analysis, microscopic vascular invasion (hazard ratio = 2.19, 95% CI = 1.38-3.99) was the sole significant recurrence predictors within the Up-to-7 criteria, whereas microscopic vascular invasion (hazard ratio = 1.87, 95% CI = 1.14-3.47) and tumor grade (hazard ratio = 1.47, 95% CI = 1.04-2.02), significantly predicted recurrence beyond Up-to-7 criteria.

Conclusions. HCC patients within pathologic Up-to-7 criteria were associated to a very low risk of recurrence after LT. Beyond these criteria, however, a significant proportion of patients with a good HCC biological profile in terms of vascular invasion and/or tumor grade had an acceptable risk of recurrence.

Abstract# P-90

THE IMPORTANCE OF PATHOLOGICAL CONFIRMATION OF CHOLANGIOCARCINOMA PRIOR TO NEOADJUVANT THERAPY AND LIVER TRANSPLANTATION. Justin M. Burns, Charles B. Rosen, Julie K. Heimbach, Scott L. Nyberg, Gregory J. Gores. *William J von Liebig Transplant Center, Mayo Clinic, Rochester, MN, USA*

We have achieved excellent results (greater than 70% five year survival) with neoadjuvant therapy and liver transplantation for patients with early stage unresectable hilar cholangiocarcinoma (CCA). Pathological confirmation of CCA is notoriously difficult, and we have treated patients without confirmation provided they had a malignant appearing stricture and met at least one of the following criteria: 1) CA-19.9 > 100 U/ml; 2) polysomy by fluorescent in-situ hybridization; or 3) a mass on cross-sectional imaging. **AIMS:** We reviewed our experience to determine the importance of pathological confirmation. Our specific aims were to determine whether pathological confirmation was associated with operative staging outcome, explant pathology, and recurrence after transplantation. **METHODS:** We reviewed records for patients treated with neoadjuvant therapy between 1993 and 2008. All patients underwent operative staging prior to transplantation. Intraluminal biopsy and brushing results were classified as: Yes (diagnostic histopathology or cytopathology), No (non-diagnostic findings), or Suspicious (cytology). The "No" and "Suspicious" groups were combined to compare with the "Yes" group with the Chi-square test.

RESULTS: 149 patients underwent operative staging:

Pathological Confirmation	N	Staging Results Precluding Transplantation
No	45	6 (9%)
Suspicious	23	0 (0%)
Yes	81	23 (28%)

p<0.003

115 patients underwent liver transplantation and 56 (49%) had residual CCA in the explanted liver:

Pathological Confirmation	N	Residual CCA in Explant*	Recurrence after Transplantation**
No	37	15 (41%)	7 (19%)
Suspicious	22	10 (45%)	1 (5%)
Yes	56	31 (55%)	7 (13%)

*p=0.17 **p=0.53

13 of 15 recurrences developed in patients with residual CCA in their explants.

CONCLUSIONS: Patients with pathological confirmation of CCA prior to neoadjuvant therapy were more likely to fall out at operative staging, but not more likely to have residual CCA in the explant or develop recurrence after transplantation. Approximately half of the patients without pathological confirmation of CCA eventually had pathological proof at staging, transplantation, or with development of recurrent disease. Pathological confirmation in addition to the aforementioned strict diagnostic criteria should not be a requirement for treatment.

Abstract# P-91

IMPACT OF SUCCESSFUL RADIOFREQUENCY ABLATION ON PATIENTS AWAITING LIVER TRANSPLANTATION.

Robert M. Eisele, Guido Schumacher, Ulf Neumann, Johann Pratschke, Peter Neuhaus. *General, Visceral & Transplantation Surgery, Charité Virchow-Clinic, Berlin, Germany*

Introduction: Radiofrequency ablation (RFA) is an accepted tool for the treatment of hepatocellular cancer (HCC) as a bridging therapy prior to liver transplantation (LT). Although success in terms of local control cannot be achieved in all patients, some turn out to be tumor-free during the waiting time or at the date of LT. Those findings may have an impact on the urgency of LT and further treatment.

Patients and methods: We pretreated 11 candidates for LT by means of RFA. In three patients, RFA remained the sole treatment. One patient turned out to be free of tumor recurrence at date of the availability of a donor organ and refused to be transplanted, another one underwent open surgical exploration in order to transplant him, but turned out to bear extrahepatic tumor burden, and LT was not performed. One patient is still waiting for LT; six have been transplanted so far. Two (15%) serious complications occurred: a case of gastrointestinal perforation, and a hilar thermal left hepatic biliary duct stricture, none of which preventing subsequent LT.

Results: Out of the six transplanted patients, five had further, previously undetected intrahepatic HCC foci. One patient with total local tumor control remained to have the pretreated localisation, and the histopathological examination revealed absence of viable tumor cells. Local recurrence rate on a per-tumor-basis was 33 %. Two patients (16.6%) turned out to be successfully treated by RFA so that there was no need for a specific tumor-directed treatment such as chemotherapy or antiproliferative immunosuppressive drugs.

Conclusion: RFA in LT candidates significantly alters the patients' histories and physicians' decisions. Beneficial impacts have to be balanced regarding possible complications. Occasionally, successful RFA can result in a tumor-free condition, but more often, remote tumor spread is the limiting factor for the outcome of LT or the prognosis of the patient.

Abstract# P-92

EXTENSION OF THE CONCEPT OF SALVAGE LIVER TRANSPLANTATION FOR PATIENTS WITH HEPATOCELLULAR CARCINOMA.

Alessandro Vitale¹, Enrico Gringeri², Francesco D'Amico², Michele Valmasoni², Amedeo Carraro², Pasquale Bonsignore², Domenico Bassi², Francesco E. D'Amico², Marina Polacco², Martina Gambato³, Patrizia Burra³, Daniele Neri², Umberto Cillo². ¹*Istituto Oncologico Veneto, IRCCS, Padova, Italy;* ²*Unità di Chirurgia Epatobiliare e Trapianto Epatico, Padova, Italy;* ³*Divisione di Gastroenterologia, Università di Padova, Padova, Italy*

Background-Aim. The concept of salvage liver transplantation (LT) has been limited only to patients with hepatocellular carcinoma (HCC) having tumor recurrence or worsening of liver function after hepatic resection. The aim of this study is to show the effectiveness of a strategy based on the adoption of all therapeutic weapons (resection, ablation, and/or chemoembolization) with curative intent, using LT only as salvage procedure in the case of tumor recurrence or worsening of liver function without therapeutic alternatives.

METHODS. Study period: 2000-2008. Study group: consecutive HCC patients enrolled in the waiting list. LT exclusion criteria: macroscopic vascular invasion, metastases, and poorly differentiated grade at biopsy. A specific multimodal therapeutic algorithm has been adopted to treat HCC before enlisting. The study group was divided in 2 subgroups: patients undergoing to curative treatments before listing (salvage group); patients with first line LT indication (no salvage group).

RESULTS. In the study period, we enrolled 80 patients in the salvage group and 96 in the no salvage group. At the moment of listing, the salvage group had more advanced tumor characteristics in terms of size of the largest nodule (3.3 vs. 2.7 cm, $p < 0.01$) and of tumors beyond the Milan criteria (48% vs. 31%, $p = 0.01$). On the contrary, the no salvage group had a more compromised liver function in terms of MELD score (14 vs. 12, $p = 0.03$), Child-Pugh score (8 vs 7, $p < 0.01$) and presence of clinically relevant portal hypertension (75% vs. 56%, $p = 0.01$). The 1 year dropout probability of the salvage group resulted similar to that of the no salvage group: 15% vs. 10% ($p > 0.05$). Similarly, the intention-to-treat survival curves of the 2 groups were overlapping (75% and 69%, $p > 0.05$). The risk of recurrence was also similar in the 2 groups: 6% in the salvage group and 4% in the no salvage group.

CONCLUSION. This study supports the extension of the concept of salvage LT as second line therapeutic option to all patients undergoing surgical and non surgical potentially radical therapies.

Abstract# P-93

IMMUNOLOGIC FUNCTION IN PATIENTS WITH HEPATOCELLULAR CARCINOMA.

Jiunn-Chang Lin¹, Pei-Ju Chien², Chien-Liang Liu¹, Jee-Jen Lee¹, Tsan-Pai Liu¹, Wen-Ching Ko¹, Chwen-Ming Shih³. ¹*General Surgery, Mackay Memorial Hospital, Taipei, Taiwan;* ²*Graduate Institute of Medical Sciences, Taipei Medical University, Taipei, Taiwan;* ³*Department of Biochemistry, Taipei Medical University, Taipei, Taiwan*

Objective: To compare immunologic phenotypes between hepatocellular carcinoma (HCC) patients and a healthy population. **Methods:** We studied 45 patients with hepatocellular carcinoma patients (HCC) and 46 healthy controls from January 2006 to January 2008. Lymphocyte subsets, natural killer (NK) cell activity, phagocytosis activity, and the cell cycle distribution of peripheral blood mononuclear cells (PBMCs) were analyzed by fluorescent activated cell sorter (FACS) analysis. **Results:** In patients with HCC, higher percentages of NK and NKT cells were noted compared to healthy volunteers. On the other hand, lower percentages of B lymphocytes were also found in peripheral blood of HCC patients than in the healthy population. Most importantly, a higher percentage of B cells was found in patients with advanced HCC than those with early HCC, in terms of TNM stage (II and III vs I, $p = 0.0032$), Japanese Integrated Scoring system (2-3 vs 0-1, $p = 0.0489$), and tumor numbers (more than 2 vs 1, $p = 0.0042$).

Conclusions: Our findings indicated that HCC patients exhibit enhanced innate immunity and reduced adaptive immunity, compared to healthy volunteers. A higher percentage of B cells is found in patients with more-advanced HCC when compared to those with early HCC, and this might serve as an indicator of the severity of HCC. The validity of B lymphocytes as a marker to choose HCC patients for liver transplantation demands further study.

Abstract# P-94

DE NOVO MALIGNANCIES IN LIVER TRANSPLANTED PATIENTS: A LONG-TERM FOLLOW-UP CASE-CONTROL STUDY AND RETROSPECTIVE ANALYSIS.

Enzo Andorno, Giuliano Bottino, Chiara Ferrari, Filippo Piaggio, Gregorio Santori, Arcangelo Nocera, Stefano Di Domenico, Marco Casaccia, Nicola Morelli, Giorgio Gasloli, Enrico Bocci, Maximiliano Gelli, Umberto Valente. *Organ Transplantation, San Martino Hospital, Genoa, Italy*

Liver transplant recipients have a higher risk of de novo malignancies (DNM) related mortality. Aim of this study is to identify potential predictors for DNM. We performed a retrospective recognition of 267 consecutive patients (pts) transplanted in our Center from Dec 96 to Jan 06. The pts were enrolled on the following criteria: liver procurement from cadaveric donors, no drop out, a f-up longer than 3 yrs, no missing data in both pre-transplant pts-related and donor-related variables. UNOS 1 and 2nd LT recipient were not considered. 165 liver recipients whole/split: 126/39 were selected and stratified in a tumor-free control group TFCG, $n = 136$, and in a de novo malignancies group DNMG, $n = 29$. Antirejection treatment was based on steroids and calcineurin inhibitors.

In the DNMG, 31 tumors were identified: hematologic 13% and 27 solid tumors 87%. Seven out of 27 were skin tumors 26%, 9 were gastrointestinal tumors 29% and others. Two pts developed double tumor: mammary ductal carcinoma and Kaposi lower arts, both followed by rhinopharynx carcinoma.

The median f-up was 74 +/- 36 months (range: 1-144; median: 68). The Kaplan-Meier estimator, log-rank test, and Cox regression were used for survival analysis. Logistic regression models LRM were assessed with DNM as dependent variable. Statistical analyses were carried out by using the software R Foundation for Statistical Computing Wien. No differences between TFCG and DNMG were found for donor sex/age, sex mismatch, pts sex, hepatitis virus infections, blood groups, UNOS, MELD, cold ischemia time, LT type, and antirejection treatments. A lower mean age was calculated in the TFCG 51.07 +/- 8.37 vs. DNMG 55.9 +/- 6.84 $P = 0.003874$. The presence/absence of pre-transplant HCC for TFCGs.DNMG was 92/44 vs. 12/17 $P = 0.01074$. The overall patient survival at 1 and 3 yrs was 95.75 and 89.09%, respectively. A higher 3yrs survival occurred in TFCGs.DNMG 92% vs. 76%; $P = 0.0128$. The presence of DNM was a significant predictor for survival in a univariate Cox model $P = 0.00029$. In univariate LRM, patient age $P = 0.00561$ and HCC $P = 0.00959$ were found as independent predictor for DNM.

Recipient age and pre-transplant HCC were potential predictors for DNM occurrence after LT. Long term specific F-up is required.

Abstract# P-95

PREGNANCY IN PRIMARY SCLEROSING CHOLANGITIS.

Bjoern E. Wellge^{1,2}, Martina Sterneck¹, Christian Rust⁴, Peter Galle³, Ansgar W. Lohse², Christoph Schramm². ¹Department of Hepatobiliary Surgery and Solid Organ Transplantation, University Medical Center Hamburg-Eppendorf, Hamburg, Germany; ²Department of Medicine I, University Medical Center Hamburg-Eppendorf, Hamburg, Germany; ³Department of Medicine I, Johannes Gutenberg-University Mainz, Mainz, Germany; ⁴Department of Medicine II - Großhadern, Ludwig Maximilian University, Munich, Germany

OBJECTIVE:

Counseling of woman with primary sclerosing cholangitis (PSC) in childbearing age is difficult, since little is known on the impact of PSC on the outcome of pregnancy and of pregnancy on the course of disease. This retrospective study aimed at investigating the outcome of pregnancy as well as the disease course in patients with PSC and pregnancy.

PATIENTS & METHODS:

Patients with known PSC and at least one pregnancy or who received a diagnosis of PSC within 6 month after delivery were identified at four liver units. The patients' records were reviewed and data obtained by detailed questionnaires sent to the patients. Results are shown as median and range.

RESULTS:

24 pregnancies in 17 PSC patients with a median age at conception of 30 years (22-37) were included into the study. 14/17 patients had coexisting inflammatory bowel disease and 2 patients were diagnosed with liver cirrhosis. An increase in alkaline phosphatase serum levels was documented during 4 pregnancies and in 8 cases post partum. The 24 pregnancies resulted in 20 live births at a median of 39 weeks (31-41) of gestation with a birth weight of 3200g (1694-4075) and a length of 50 cm (46-55). All live births presented with a normal perinatal (APGAR-Index: 10 (7-10)) and postnatal development over a median observation time of 50 months (3-132 mo). 2 pregnancies were delivered pre-term (31 wk; 34 wk) due to intrahepatic cholestasis of pregnancy and pre-term ruptured membranes. 4 fetal losses occurred early in pregnancy (<12 wk), two after having stopped UDCA/azathioprine treatment. Continuation of treatment with azathioprine (3/20) or UDCA (12/20) had no negative affect on pregnancy outcome.

CONCLUSIONS:

Patients with PSC are able to deliver healthy children without an apparent increase in risk for mother or child. Close monitoring during pregnancy and post partum seems advisable due to possible flares of disease activity.

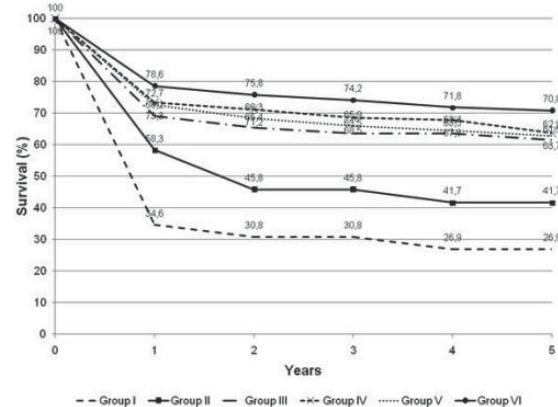
Abstract# P-96

SINGLE-CENTER "LEARNING CURVES" IN LIVER TRANSPLANTATION: FROM 1985 TO 2007.

Leonardo Weissmann, Carlos E. S. Baía, Marília I. Leonardi, Thomson M. Palma, Rafael Pecora, Ana Suely C. N. Zan, Leonardo J. R. Ferraz, Osvaldo I. Pereira, Ana Olga N. G. F. Mies, Eloiza H. D. Quintela, Margaret P. Lalle, Fabricio G. Souza, Maira S. C. dos Santos, Edna A. F. S. Pedro, Marcio M. Paredes, Sergio Mies. *Liver Unit, Instituto Dante Pazzanese de Cardiologia, Sao Paulo, SP, Brazil*
INTRODUCTION: The Liver Unit performed the first successful liver transplant in Latin America, in Sao Paulo-Brazil in September 1st 1985. The aim of this study is to describe the long-term results of the liver transplantation program, according to several periods.

PATIENTS AND METHODS: The 890 files of liver transplant patients performed from September 1985 to July 2007 were retrospectively reviewed. The follow-up is 97.5% after 22 years. Survival rates of the patients were divided in six groups, Group I – from September 1985 to December 1991 (n=26) Group II – from January 1992 to December 1993 (n=24) Group III – from January 1994 to December 1995 (n=52) Group IV – from January 1996 to December 1998 (n=146) Group V – from January 1999 to December 2001 (n=205) Group VI – from January 2002 to July 2007 (n=416)

RESULTS: Survival rates divided by periods are summarized in the figure.



CONCLUSION: Progress in immunosuppression and organ preservation, the development of operative techniques, and the overall knowledge of pre-, intra- and post-operative potential problems and solutions resulted in a progressive improvement in survival rates. The survival rate in our group is similar to most of the centers in Europe and the United States.

Abstract# P-97

BILIARY-LESION-FREE-SURVIVAL AFTER LIVER TRANSPLANTATION FOR PRIMARY SCLEROSING CHOLANGITIS.

Olaf Guckelberger¹, Kathrin Albert¹, Martina T. Mogl¹, Thomas Rösch², Andreas Pascher¹, Peter Neuhaus¹. ¹Campus Virchow-Klinikum, Dept. of Surgery, Charité - Universitätsmedizin Berlin, Berlin, Germany; ²Campus Virchow-Klinikum, Dept. of Internal Medicine, Charité - Universitätsmedizin Berlin, Berlin, Germany

The incidence as well as diagnostic criteria of recurrent primary sclerosing cholangitis (rPSC) after liver transplantation (LT) have been discussed controversially, and valid risk factors for rPSC have not yet been established. For description of the patient's clinical status, we define and apply the biliary-lesion-free-survival function for risk factor identification.

Methods: All 83 patients, who received their first LT for end-stage PSC from 12/1988 to 12/2003 have been reviewed. 3 patients with pre-LT evidence for cholangiocarcinoma and 3 patients who have been lost to follow-up were excluded from the analysis. The 10-year patient or organ survival figures were 79% and 68%, respectively. Additionally, 6 patients who required an early reLT (90 days) have been excluded from subsequent analysis. Patient death, late retransplantation or biliary intervention for other causes than anastomotic stricture qualified for an event in the biliary-lesion-free-survival function.

Results: 49 male and 22 female patients received LT for PSC at a median age of 40 years (14-69). The 10-year biliary-lesion-free-survival rate equals 59%. Male recipients had a significantly higher event rate (63%), than female patients (27%, p=0.005). Also male donor organs demonstrated a trend to shorter event free periods (3.7 years) when compared with female donor livers (8 years, p=0.063), irrespective of the recipient's gender. In addition, patients suffering organ loss or biliary events demonstrated a trend to a shorter duration of PSC prior to LT (7 years) than patients without such events (10 years, p=0.074). Other parameters such as recipient or donor age, ischemic time, preservation injury, biliary anastomosis, immunosuppression, acute rejection, colectomy or antibody detection did not differ in-between patients with or without events.

Conclusion: The figures of patient death (21%), organ loss (11%) and an additional 9% of biliary events within 10 years match with previously published survival figures and rates for rPSC. The biliary-lesion-free-survival function nicely describes the patient's morbidity, with no demand for debated diagnostic criteria for rPSC. So far, no relevant risk factor for rPSC besides donor and recipient gender has been identified in this cohort.

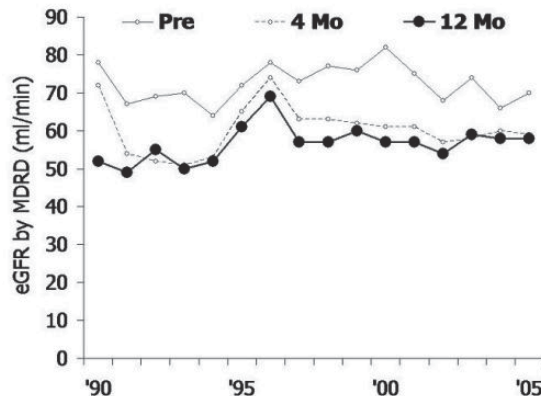
Abstract# P-98

PERSISTENT INCIDENCE OF RENAL INSUFFICIENCY FOLLOWING LIVER TRANSPLANTATION. W. Ray Kim¹, Michael D. Leise¹, Rachel A. Pedersen², Terry M. Therneau², Charles B. Rosen¹, Julie K. Heimbach¹. ¹William J. von Leibig Transplant Center, Mayo Clinic College of Medicine, Rochester, MN, USA; ²Division of Biostatistics, Mayo Clinic College of Medicine, Rochester, MN, USA

Background/Aim: Chronic renal insufficiency (CRI) is an important source of morbidity and mortality in longterm liver transplant (LTx) recipients. Aware of this risk, clinicians increasingly have made conscious efforts to preserve renal function in patients at risk. To investigate whether the incidence of CRI has decreased as a result of these efforts, we examined longitudinal trends in renal function after LTx.

Methods: Laboratory data in patients undergoing primary LTx between 1990 and 2005 were extracted at pre-LTx and 4 and 12 months post-LTx. The timeframe was chosen because most decline in renal function occurs in the first few months post-LTx. Time trends in glomerular filtration rate (eGFR, estimated by the Modification of Diet in Renal Disease equation) were examined by the linear regression analysis. CRI was defined as eGFR < 60 ml/min.

Results: A total of 1118 LTx recipients met the study criteria and were included in the analysis. At LTx, the mean age was 51±10 years and eGFR 73±33 ml/min. Following LTx, the mean eGFR decreased to 60±24 at 4 months and to 57±21 at 12 months. In the figure, eGFR at 12 months gradually improved from a mean of 52 ml/min in 1990 to 58 ml/min in 2005. Trends for eGFR at pre-LTx and 4 month post-LTx were less obvious.



The prevalence of CRI was 39% at pre-LTx, 61% at 4 months and 69% at 12 months post-LTx for 1990-1995, which decreased to 35%, 58% and 60%, respectively, for 2001-2005. In regression analyses, eGFR at 12 months post-LTx increased by 0.30 ml/min per year (p=0.03) and the prevalence of CRI at 12 months decreased by 18% per 5 year interval (p=0.01). No significant trend was found for eGFR at pre-LTx (p=0.41) or 4 months post-LTx (p=0.71).

Conclusions: There was a statistically significant improvement in renal function at 1 year post-LTx over the study period. While the trend is encouraging, the improvement was modest and a substantial proportion of LTx recipients continue to develop CRI.

Abstract# P-99

EVOLUTION AND RESULTS OF LIVER RETRANSPLANTATION IN A 20 YEAR PERIOD. Bilbao Itxarone¹, Dopazo Cristina¹, Lazaro Jose¹, Castells Luis², Sapisochin Gonzalo¹, Caralt Mireia¹, Blanco Laia¹, Charco Ramón¹. ¹Surgery Department, Hospital Vall d'Hebron, Barcelona, Spain; ²Hepatology Department, Hospital Vall d'Hebron, Barcelona, Spain

AIM: To analyse the incidence and results of liver retransplantation (re-LT) along a 20 year period and establish the current indications.

MATERIAL. From October-88 to May-08, 757 patients have been submitted to liver transplantation in our center. Out of them, 53 patients (7%) were retransplanted. Half of the patients (53%) were HCV (+). The incidence, causes and results of re-LT have been analysed in three periods: 1988-96, 97-02, 03-08, specially focusing in HCV patients.

RESULTS. Incidence of re-LT has been decreasing along the three periods, globally considering (10,3%, 8,4% y 3,1%), or considering by causes of re-LT : primary dysfunction 1,6%-3,7%-0,5% ; technical 4%-3,7%-0,8% ;

immunological 2,8%-0%-1,4%; and HCV recurrence 1,6%-0,9%-0,3%. Patient survival at 1-5-15 years was 50%-50%-0% in primary dysfunction, 57%-43%-14% in technical, 83%-42%-0% in immunological, and 83%-67%-33% in HCV recurrence. The incidence of re-LT according to the time between 1st-2nd LT (<1month, 1-6 m, > 6 m) was: 2,4%-2%-5,7% from 1988-96 ; 5,1%-1,9%-1,4% from 97-02 ; and 0,8%-1,1%-1,1% from 2003-08. Patient survival at 1-5-15 y was 29%-14%-0% in reLT < 1m ; 50%-50%-0% in reLT 1-6 m; and 92%-75%-25% in re-LT > 6 m (p=0.04). Among HCV patients, 57% are alive, 13% died for HCV recurrence, 28%, died for other causes and 2% (6) were retransplanted for HCV recurrence, being 3 dead. Indication for re-LT in HCV recurrence were : young recipients, not affected by DM, young donors, late re-LT, and good renal and liver function at 1 year post-LT.

CONCLUSION. Cumulative experience over the years and the donor scarcity, prompt us to severe restrictions in the global indication for re-LT, specially in HCV patients. Contrary to published experience, our experience in re-LT for HCV recurrence has good survival, probably due to strict selective criteria.

Abstract# P-100

LONG TERM SURVIVAL AFTER LIVER TRANSPLANTATION IN PATIENTS WITH NEUROENDOCRINE LIVER METASTASES: GERMAN SINGLE CENTER EXPERIENCE. Kia Homayounfar¹, Armin Goralczyk¹, Heinz Becker¹, Giuliano Ramadori², Thomas Lorf³, Aiman Obed¹. ¹Department of General and Visceral Surgery, University Medical Center, Goettingen, Germany; ²Department of Gastroenterology and Hepatology, University Medical Center, Goettingen, Germany

Purpose:

Liver transplantation (Ltx) for neuroendocrine liver metastases (NLM) remains controversial as many reports showed poor recurrence free and overall survival rates. Accordingly, neither UNOS nor Eurotransplant allocation policy provide priority allocation for NLM to date. The aim of the present study was to evaluate probability of transplantation based on labMELD score as well as long term recurrence free and overall survival post Ltx for NLM.

Methods:

7 patients with NLM confined to the liver were transplanted between 01/1997 and 12/2001. Indications for Ltx were tumoral masses and therapy-refractory hormonal syndrome. None of the patients had a medical history of cirrhotic liver disease. LabMELD was re-calculated on laboratory findings at the day of admittance for Ltx. The median follow-up was 93 months.

Results:

Age	Primary Tumour	labMELD at Ltx	Type of Ltx	RFS\$	OS\$	Status
36	Jejunum	6	Split	1	1	DOO
62	Cecum	6	FG	107	107	Alive
51	Duodenum	7	FG	128	128	Alive
39	Liver	6	LD	84	84	Alive
57	Ileum	7	LD	1	1	DOO
47	Pancreas	6	FG	10	97	DOT
42	Pancreas	6	FG	14	93	DOT

\$month; FG full graft; LD living donor; RFS recurrence free survival; OS overall survival; DOO died of other; DOT died of tumour

In the MELD era, none of the patients would have been selected for Ltx based on labMELD. 2 patients died in the postoperative course due to multi-organ failure (n=1) and heart failure (n=1). Despite experiencing tumor recurrence within 10 and 14 month post Ltx, the 2 patients with pancreatic NLM survived 93 and 97 months, respectively. The overall 5-year-survival rate was 71%.

Conclusions:

- An encouraging long term survival was achieved emphasizing, that patients with NLM may benefit from Ltx.
- The overall survival rate was comparable to patients transplanted for hepatocellular carcinoma within Milano criteria.
- As patients with NLM normally have sufficient liver and renal function, labMELD is not appropriate as an allocation basis.
- We recommend nationwide analysis of transplant registry data and pathological data as basis for re-evaluation of allocation policy with definition of priority allocation criteria for patients with NLM, especially for those with non-pancreatic origin and failure of conventional treatment.

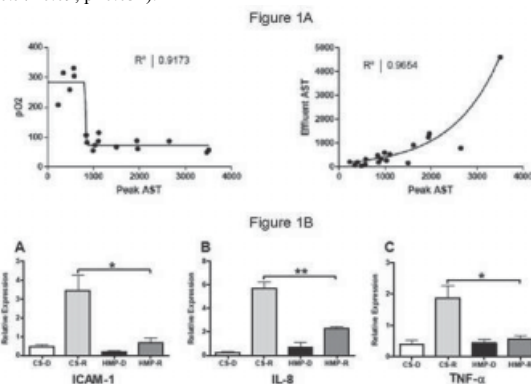
Abstract# P-101

PRESERVATION/REPERFUSION INJURY IS ATTENUATED BY HYPOTHERMIC MACHINE PERFUSION IN HUMAN LIVER TRANSPLANTATION. Scot D. Henry¹, Sean W. C. Chen², H. Thomas Lee², Jean C. Emond¹, James V. Guarrera¹.

¹Center for Liver Disease and Transplantation, Department of Surgery, Columbia University Medical Center, New York, NY, USA;

²Department of Anesthesiology, Columbia University Medical Center, New York, NY, USA

Hypothermic machine perfusion (HMP) is in its infancy in liver transplantation (LTx). HMP may diminish preservation injury (PI) and improve early function. **Methods:** This study analyzed liver tissue, effluent, and serum assays collected during our trial of liver HMP which has been reported. We compared 20 HMP patients to 20 cold stored (CS) controls matched for donor, recipient age, MELD and CIT. **Results:** All HMP grafts functioned immediately with bile production. No grafts were lost due to preservation related complications. Serum chemistries were significantly lower in the HMP group (TBili; $p<0.05$, Creat; $p<0.005$, BUN, $p<0.05$, AST, $p<0.001$, ALT; $p<0.05$) indicating less severe PI. 2hr effluent chemistries (AST, LDH, pO_2) were analyzed as viability assays. 2hr effluent AST and LDH were significantly correlated to peak AST post LTx (AST; $p<0.0001$, $r^2=0.97$, LDH; $p<0.0001$, $r^2=0.92$) (Fig 1A). Interestingly, pO_2 values correlated significantly to peak AST and ALT levels as well, in a plateau-one phase decay manner (AST; $p=0.0006$, $r^2=0.92$, ALT; $p=0.005$, $r^2=0.98$), indicating that higher pO_2 levels (200-300 mmHg) in the perfusate may protect from PI damage, but this effect falls out if pO_2 levels drop below 100 mmHg. RT-PCR of 60-90 minute reperfusion biopsy samples (R) in the CS group showed significant upregulation of ICAM-1, IL-8 and TNF- α compared to donor biopsy (D). This upregulation was significantly attenuated when HMP was used (Fig 1B) (ICAM-1; CS 3.45 ± 0.81 , HMP 0.67 ± 0.28 ; $p=0.032$) (IL-8; CS 5.72 ± 0.51 , HMP 2.28 ± 0.16 ; $p=0.031$) (TNF- α ; CS 1.87 ± 0.39 , HMP 0.57 ± 0.09 ; $p=0.032$).



Conclusions: HMP of liver grafts provides excellent clinical preservation. Effluent markers may be predictive of the severity of PI. Maintenance of perfusate $pO_2>200$ mmHg may optimize benefits of HMP. HMP significantly improved a variety of functional and molecular markers of PI when compared to CS controls.

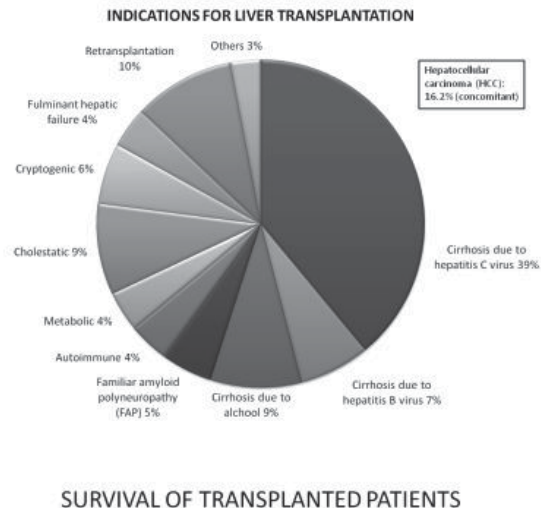
Abstract# P-102

LIVER TRANSPLANTATION AT A SINGLE BRAZILIAN CENTER: 22 YEARS FOLLOW-UP. Leonardo Weissmann, Carlos E. S. Baia, Marilia I. Leonardi, Thomson M. Palma, Rafael Pecora, Ana Suely C. N. Zan, Leonardo J. R. Ferraz, Osvaldo I. Pereira, Ana Olga N. G. F. Mies, Eloiza H. D. Quintela, Margareth P. Lalle, Fabricio G. Souza, Maira S. C. Santos, Edna A. F. S. Pedro, Marcio M. Paredes, Sergio Mies. Liver Unit, Instituto Dante Pazzanese de Cardiologia, Sao Paulo, SP, Brazil

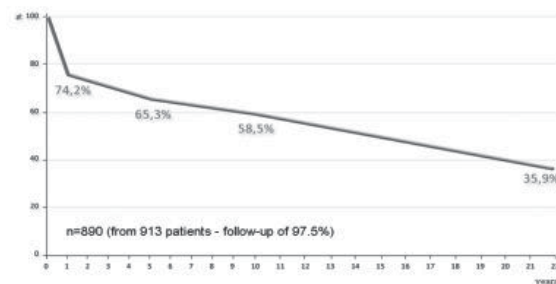
INTRODUCTION: The Liver Unit is the first team to run a liver transplantation program in Latin America. The first procedure was performed in September 1st, 1985, in Sao Paulo, Brazil. The aim of this study is to describe the overall survival of the transplanted patients.

METHOD AND RESULTS: Until June 30th 2008, we performed 1030 transplants in 913 patients. The source of the donors was deceased in 828 transplants and living donors in 202. The living donors were "domino" in 36 cases (all but one were Familial Amyloidotic Polyneuropathy). 565

were male, and 13 patients were younger than 14 years old at the time of transplantation. The indications for transplantation and the overall survival are summarized in figures 1 and 2.



SURVIVAL OF TRANSPLANTED PATIENTS



CONCLUSION: There are few reports in literature with casuistic of more than 1000 liver transplantations performed by a single center. The main indications of liver transplantation are similar to that described by other Western countries. The overall survival rate may be useful for comparison with other centers.

Abstract# P-103

ALLOIMMUNIZATION TO RED BLOOD CELL ANTIGENS IN LIVER TRANSPLANT PATIENTS IN STATE UNIVERSITY OF CAMPINAS. Fabricio B. Pereira¹, Ângela C. M. Luzo¹, Rosana C. de Oliveira¹, Patricia R. Azevedo¹, Regiane D. Cunha¹, Marilia I. Leonardi², Luiz S. Leonardi², Ilka F. S. F. Boim². ¹Hemocentro, UNICAMP - State University of Campinas, Campinas, Sao Paulo, Brazil; ²Gastrocentro, UNICAMP - State University of Campinas, Campinas, Sao Paulo, Brazil

Transfusion support is an important part of liver transplantation. Liver transplant recipients have a greater incidence of RBC alloantibody, more than 14% in current literature.

We present the frequency and of alloimmunization and their specificity to RBC antigens in 302 patients undergoing liver transplantation in State University of Campinas performed from 1997 to 2008.

We performed a screen for unexpected antibodies, and a direct antiglobulin test (DAT). A positive antibody screen was investigated with an antibody identification panel using commercial RBC reagent cells. A positive DAT was followed up with elution and antibody identification.

A total of 74 RBC alloantibodies were identified in 70 patients (23%), and 10 patients (3,3%) had an unspecific antibody identified. We identified autoantibodies in 51 patients; 47% auto anti-I and 45,2% IgM without specificity. DAT was performed in 227 patients with positivity of 34%, only 3 elutions were positives, all with specificity against Rh sistem.

The most common RBC alloantibodies were directed against Rh system antigens with 31 (41,9%) directed against the E antigen; 8 (10,8%) anti-c; 5 (6,7%) against anti-D, anti-C and anti-C^w respectively; 4 (5,4%) anti-Jk^a

and anti-M each one and only 3 (4%) against K antigen, 9(12%) of patients developed other alloantibodies like anti-e anti-Fy^a, anti-Lu^a, anti-Di^a, anti P₁ and anti-Le^a.

Specificity and Frequency of RBC Alloantibodies

Antibody	No. alloantibodies	Patients with alloantibody (%)
Anti-E	31	41.9
Anti-c	8	10.8
Anti-D	5	6.7
Anti-C	5	6.7
Anti-Cw	5	6.7
Anti-e	2	2.7
Anti-K	3	4
Anti-Jka	4	5.4
Anti-M	4	5.4
Anti-Lea	2	2.7
Anti-Fya	1	1.4
Anti-Fyb	1	1.4
Anti-Dia	1	1.4
Anti-P1	1	1.4
Anti-Lua	1	1.4

We identified a high number of patients with clinically significance alloantibodies(23%). 75% of the antibodies were directed against Rh system antigens with 31 (41.9%) directed against the E antigen. Despite the heterogeneity of our population we have a low incidence of anti-K(4%), usually found in African-American patients.

This finding represents a special challenge in providing safe blood during transplantation showing that screening for the presence of RBC alloantibodies is an important part of pretransplant evaluation.

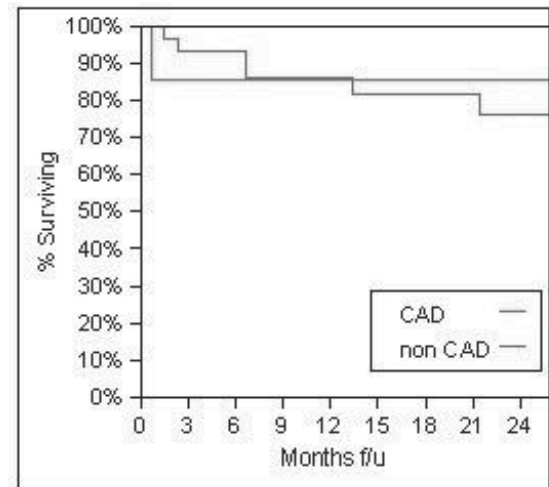
Abstract# P-104

LEFT HEART CATHETERIZATION PROVEN CORONARY ARTERY DISEASE IN OLT PATIENTS: MID-TERM POST-TRANSPLANT SURVIVAL. Christopher Wray¹, Cecilia Canales¹, Antoine Hage², Jennifer Lau⁴, Ronald Busuttil³, Randolph Steadman¹. ¹Anesthesiology, David Geffen School of Medicine, UCLA, Los Angeles, CA, USA; ²Internal Medicine, Division of Cardiology, David Geffen School of Medicine, UCLA, Los Angeles, USA; ³Surgery, David Geffen School of Medicine, UCLA, Los Angeles, USA; ⁴David Geffen School of Medicine, UCLA, Los Angeles, USA

Earlier studies have reported increased mortality in coronary artery disease (CAD) patients undergoing orthotopic liver transplantation (OLT)¹. We recently demonstrated that OLT patients with left heart catheterization (LHC) proven CAD who underwent CAD treatment had similar six month and one year survival outcomes when compared to OLT patients who were LHC negative for CAD.² We hypothesized that current CAD treatment strategies allow CAD patients to undergo OLT with minimal increase in risk. We undertook a follow up study to determine 2 year survival in a subgroup of patients in our study.

A retrospective review of all adult patients who underwent OLT at the University of California Los Angeles between January 2004 and December 2006 revealed 36 patients who had LHC prior to OLT. Catheterization results were categorized as positive (>50% stenosis of any coronary artery) or negative (<50% stenosis) for CAD.

7 of the 36 (19%) LHC patients were positive for CAD and 29 (81%) were negative. There were no differences between the CAD and no-CAD groups in age, gender, MELD score, donor age, warm and cold ischemia times, retransplantation rate, or CAD risk factors. 2 year post-transplant survival was not different (p = 0.75) between the groups: CAD group; 1 death (86% survival), no-CAD group; 6 deaths (80% survival).



Our study demonstrated no difference in 2 year post-OLT survival in patients with and without LHC proven CAD. Our results differ from earlier data that reported significantly higher mortality in patients with CAD undergoing OLT¹. Further studies are necessary to determine if this survival benefit persists in larger cohorts of patients.

References

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Abstract# P-105

PRIMARY BILIARY CIRRHOSIS IS A MORE COMMON INDICATION FOR ORTHOTOPIC LIVER TRANSPLANTATION AMONG WOMEN THAN MEN.

Alastair D. Smith, Judith W. Gentile. Duke University, Durham, NC, USA

Introduction: Primary biliary cirrhosis (PBC) is an incurable, cholestatic liver disease of unknown etiology. Its course is characterized by disease progression, hepatic insufficiency and consideration of liver transplantation (LT). The prevalence of PBC is much greater in women than men (9:1), but it is unclear whether the clinical course is different for female patients, e.g. more rapid disease progression. One means of assessing this potential difference is to compare the proportions of female and male patients undergoing LT for PBC. **Aim:** To determine whether the proportion of female patients undergoing LT for PBC versus all indications is significantly different from the proportion of male patients undergoing LT for PBC versus all indications. **Methods:** The Duke University liver transplant database was reviewed between 11/1984 and 11/2008 inclusive for all adult patients (18 – 80 years) who underwent LT. Patients who underwent re-transplantation or LT as part of multi-visceral transplantation were excluded. The proportions of female and male patients undergoing OLT for PBC and for other indications were calculated. Outcomes between the two groups were compared. **Results:** 596 patients underwent LT (352 male [59%]; median age 50 years [range 18 – 73]). Median follow up was 114 months (range 0 – 279). Sixty-five patients (11%) were transplanted for PBC: sixty (92%) were female (median age 53 years [range 26 – 64]) and five (8%) male (median age 55 years [range 45 – 57]). The proportion of women undergoing LT for PBC compared with all other indications was 24.6%, whereas the proportion of men transplanted for PBC compared with all other indications was 1.4%. Twenty three women (38.3%) and three men (60%) died during follow up (median: 52 [range 0 – 210] and 107 months [range 1 – 209] respectively). Thirty seven women (61.7%) and two men (40%) were alive at end study (median: 175 [range 12 – 279] and 94 months [range 83 – 105] respectively). Primary immunosuppressive therapy was similar for all patients.

Conclusions: Even allowing for disparate PBC prevalence rates between women and men, a significantly greater proportion of female patients underwent LT for PBC. This suggests that PBC may follow a more aggressive course in female patients. However, it should be recalled that at least 50% of female patients who underwent LT did so before ursodeoxycholic acid therapy was standard. Outcomes following LT appear better for women than men, although numbers are small.

Abstract# P-106

CHRONIC BUDD-CHIARI SYNDROME AS A RARE COMPLICATION OF CROHN'S DISEASE: CASE REPORT.

Davor Radic¹, Marko Brinar¹, Irena Hrstic¹, Silvija Cukovic Cavka¹, Silva Zupancic-Salek², Ognjan Deban³, Mate Skegro³, Rajko Ostojic¹. ¹*Division of Gastroenterology, University Hospital Zagreb, Zagreb, Croatia;* ²*Division of Hematology, University Hospital Zagreb, Zagreb, Croatia;* ³*Department of Abdominal Surgery, University Hospital Zagreb, Zagreb, Croatia*

Background: Budd-Chiari syndrome (BCS) is an uncommon disorder characterized by obstruction of hepatic venous outflow. We present a rare case of a young woman with active Crohn's disease and methylentetrahydrofolate reductase (MTHFR) mutation that developed BCS successfully treated with liver transplantation.

Case Report: 19 y/o female with steroid-dependent CD was referred to our Unit in April 2003 due to ascites and peripheral edema. Laboratory showed coagulopathy, severe hypoproteinemia with hypoalbuminemia, elevated liver enzymes, mildly elevated bilirubin and alkaline phosphatase. Initial color Doppler ultrasound (CD US) and multislice computed tomography (MSCT) angiography were negative for BCS and portal vein thrombosis. At that time findings were attributed to malabsorption and sepsis. She clinically recovered after short course of antibiotics and steroids. Five months later she developed hepatomegaly and during additional 6 months her condition aggravated due to progressive ascites accumulation. At that time no signs of active CD were present. Laboratory findings revealed persistent anemia, hypoproteinemia, hypoalbuminemia, hyperbilirubinemia and normal liver enzymes. Imaging methods confirmed left hepatic vein thrombosis and compressed intrahepatic portion of inferior vena cava, leading to diagnosis of chronic BCS. Further examination excluded common causes of BCS but she was found to be homozygous for MTHFR C677T mutation. Low molecular weight heparin was introduced with later switch to oral warfarin. Two months later CD US showed partial recanalisation of the hepatic veins with no improvement in physical status and orthotopic liver transplantation was performed. Up to now regular check-ups have not revealed any signs of recurrent liver disease despite no anticoagulant treatment.

Conclusion: We report the second case in the literature of BCS in patient with CD. Chronic inflammatory disease and MTHFR gene mutation are associated with procoagulative activities and thus carry an increased incidence of thromboembolic events. After OLT patient is doing well taking tacrolimus and azathioprine for immunosuppression and as a maintenance therapy for CD.

Abstract# P-107

DELAYED ONSET OF HUMORAL REJECTION AFTER LIVER TRANSPLANTATION.

Marek J. Pacholczyk¹, Beata Lagiewska¹, Tomasz Cieciora², Wojciech Lisik¹, Leszek Adadynski¹, Agnieszka Perkowska-Ptasinska², Andrzej Chmura¹. ¹*General and Transplantation Surgery, Warsaw Medical University, Warsaw, Poland;* ²*Nephrology and Transplantation Medicine, Warsaw Medical University, Warsaw, Poland*

Humoral rejection (HR) in liver transplant (OLTx) recipient belongs to the category of difficult diagnosis and poorest prognosis of the survival and late graft function. Despite all efforts to develop the effective treatment and active use of all kinds of immunosuppressive drugs as well as plasmapheresis and immunoglobulin the overall outcome is still very poor. Originally HR was described as very early complication developing immediately after reperfusion or in the first hours after OLTx. The main blood groups mismatch in donor/recipient combination as well as positive cross match reaction is the prognostic factor. Our current experience may suggest that HR diagnosis could be the case also in blood group compatible cases and with onset "far" from day of Tx. Some data may also suggest that the negative cross match test on the day of transplantation do not exclude the HR late episode. We have looked retrospectively on our material in respect of possible late onset cases of humoral rejection and the outcome of these cases. Among 242 OLTx performed between July 2000 and December 2008 we have identified 3 cases of possible delayed onset humoral rejection. The primary diagnosis of liver disease in these cases was HCV – 2, PBC – 1. In 2 cases we found the blood group mismatch (Donor "O" /Recipient "AB" -1, Donor "O" /Recipient "B" – 1); in the remaining case identical combination was registered. The time from Tx to first symptoms and diagnosis vary from day 11 to day 175. The diagnosis was based on routine biochemistry, liver biopsy microscopy with specific immuno-histo-chemical staining for C4d deposition in liver tissue, drop of platelets count and Doppler us scan and/or vascular CT study. The

treatment consisted of methylprednisolone pulses, MMF, plasmapheresis, high doses of polyvalent immunoglobulin as well as Rytuksymab (Mab Thera). All cases did respond to the treatment with obvious improvement in graft function. All 3 patients were discharged home with stable relatively good liver function but 2 had recurrent deterioration 3 months (acute cellular rejection) and 6 months later (recurrent HCV hepatitis). The HCV patient is actually listed for re-Oltx.

Supported by Ministry of Science and Higher Education study grant 2P05C07226.

Abstract# P-108

SINGLE CENTER OUTCOME OF LEFT LATERAL SEGMENT LIVER TRANSPLANTATION WITH A MINIMUM OF 10-YEARS FOLLOW-UP.

Walid G. Faraj, Adam Bartlett, Faisal Dar, Hector Vilca Melendez, Gabriele Marangoni, Georgina Mieli-Vergani, Alistair Baker, Anil Dhawan, Mohamed Rela, Nigel D. Heaton. *Institute of Liver Studies, King's College Hospital, London, United Kingdom*

Introduction

The aim of this study is to review the long-term outcome for all children who underwent LT with a LLS graft at Kings College Hospital that have a minimum of 10 years follow-up. The success of pediatric liver transplantation (LT) over the last 20 years has led to a dramatic increase in the number of children being considered for LT. The development of the left lateral segment (LLS) graft opened up the donor pools to allow these children to be transplanted.

Methods

From February 1988 to January 2008, 343 LLS liver transplants were performed in children (<16 years of age). Of these, 123 were performed in 117 children prior to 1998 and form the basis of this study. Of the 117 children, 53 were female and 64 were male with a median age of 2 years (range: 1 months-16 years). Indications for transplantation included chronic liver disease (70), acute liver failure (31) and re-LT (22). Livers were procured from cadaveric (107) and living (16) donors. Of the cadaveric grafts; 58 were reduced, 41 were split and 8 auxiliary grafts.

Results

Overall patient and graft survival at 5, 10 and 15 years was 75.6, 72.4, 70.2% and 73.0, 68.1, 63.3%, respectively. There were 36 (30%) deaths at a median of 1.6 months (1 days-144 months) post LT. Children with chronic liver disease (CLD) had significantly better survival compared to those with acute liver failure (ALF) or re-transplant. The overall survival rate was 89.7% and 86.8% for CLD, 72.7% and 60.6% for ALF, 58.8% and 58.8% for re-transplant at 5 and 10 years respectively. There was a trend towards worse survival in those receiving reduced compared to split grafts with increasing recipient age (p>0.05). Surgical complications included hepatic artery thrombosis in 10 (8%); portal vein thrombosis in 6 (5%), caval stenosis in 4 (3%) and 17 (14%) had biliary complications. There were 19 re-transplants at a median of 9 months (range 1 day-151 months).

Conclusion

We have demonstrated satisfactory long-term outcomes in children receiving a LLS graft in a single centre. Over this era liver reduction was initially utilized and then replaced by split liver grafting.

Abstract# P-109

OUTCOMES OF LIVER TRANSPLANTATION FOR SARCOIDOSIS: RETROSPECTIVE ANALYSIS OF THE UNOS DATA.

Jason M. Vanatta, Amanda Dean, Luis Campos, Nosratollah Nezakatgoo, Satheesh Nair, Sharad Sharma, Rakesh Rai, James D. Eason. *Transplantation, University of Tennessee, Methodist Transplant Institute, Memphis, TN, USA*

Purpose: Sarcoidosis is a rare indication for liver transplantation. The purpose was to evaluate patient and graft survivals following liver transplantation for sarcoidosis in a multi-institutional cohort. **Methods:** Using the UNOS database of 87,392 liver transplants between October 1987 and July 2007, we identified 103 patients with a diagnosis of sarcoidosis undergoing 108 liver transplants. Patient and allograft survivals were calculated by Kaplan-Meier analysis. Potential prognostic value of clinical variables was assessed. **Results:** At a median of 630 days (range 0-5,042 days), 1- and 5-year patient survivals were 79 and 62%, respectively. Posttransplant allograft survivals were 75 and 58% at 1 and 5 years, respectively. Whole deceased donor allografts were transplanted in 103 patients, and 5 patients received living donor allografts. Three patients were retransplanted with 2 of those patients requiring a third allograft. Indications were vascular and

biliary complications within the first year. There were 34 deaths including 6 patients who died within 30 days of transplantation. Three deaths were from recurrent hepatic sarcoidosis, and one death resulted from cardiac sarcoidosis. Other causes of death included sepsis, infection, cardiac events, multisystem organ failure, rejection, intracranial hemorrhage, respiratory failure, graft versus host disease, bile duct complication, renal failure, gastrointestinal hemorrhage, posttransplant lymphoproliferative disease, splenic artery aneurysm rupture, and unknown causes. Significant study variables that predict worse survival included need for retransplantation ($p=0.016$), male gender ($p=0.018$), ICU admission prior to transplantation ($p=0.026$), and elevated serum alanine transferase ($p=0.027$). Age, race, blood type, Status 1 listing, body mass index, previous abdominal surgery, allograft type, serum creatinine, albumin, serum bilirubin, and simultaneous kidney transplantation had no impact. **Conclusion:** Analysis of UNOS data shows patient and graft survivals following liver transplantation for sarcoidosis have favorable long-term results. Disease recurrence rates are low and a rare cause of graft loss or patient death. Important prognostic variables include need for retransplantation, male gender, ICU admission at transplantation, and elevated serum alanine transferase.

Abstract# P-110

IMPACT OF TRANSPLANT ROTATION ON SURGICAL RESIDENTS TRAINING. Naveed Ahmed, Cristiano Quintini, Koji Hashimoto, Bijan Eghtesad. *Transplant, Cleveland Clinic*

Introduction:

Advances in minimally invasive surgery (MIS) has had a tremendous impact on common open operations performed and in such has changed the very nature of surgery. As MIS comes of age, the surgical trainee's access to open surgery has become significantly decreased. This is a dangerous trend and creates a void in surgical training which may have drastic consequences on the competence of graduating surgeons. When an attempted MIS procedure fails, requisite conversion to an open approach ensue and inexperience with the open approach which may be disastrous in an urgent setting. Options to remedy this decreasing experience in open surgical procedures are few, simulators although promising lack the tactical or the hormonal feed back of case going dangerously array. An organized rotation to a multiple organ transplantation units may provide valuable open experience. We propose a model that considers complex operation as a collection of smaller operations, participation in the components rather than the entire procedure will increase exposure to more than one trainee and if allowed by the residency review committee, residents may log these component procedures as independent operators.

Methods:

We attempted to study nationally available data for changes in resident experience, specifically for deficiencies in open operation and impact of a rotation in a busy transplant unit. The ACGME data bank was used to characterize resident experience in logged open surgical procedures. Data from June 1999 to July 2007 was collected with particular attention to changes in resident experience. UNOS data, specifically the number of multi-organ procurements and abdominal transplants performed nationwide, during the same time period was collected. Cases in UNOS data base in excess to those done by residents on ACGME web site review may theoretically be utilized by surgical residents to increase their open experience.

Results:

Number of graduating residents has not changed significantly but their participation in open biliary, thoracic, genitourinary, retroperitoneal and vascular/ trauma has decreased (Table 1&2). Total number of procurements' and transplants has increased significantly; resident participation in these procedures has not, except for kidney transplantation there a significant reduction (Table 3&4). Of 6,493 liver transplants done residents participated in 907 and of 14,402 multiple organ procurements residents participated in 237.

Conclusion:

We show that, experience in many open surgical procedures has been compromised among general surgery residents. Furthermore, based on UNOS database numbers, the number of multi-organ procurements and abdominal transplants indicate that participation in these procedures by surgical trainees would significantly increase the numbers of open operations performed. Thus, these data clearly demonstrate that implementing multi-organ transplantation service rotations in the training of general surgery residents would improve the necessary experience in open surgical procedures in the currently overwhelming environment of increased minimal invasiveness.

Table 1 (ACGME- National Resident Report- graduating chief residents)			
Reporting period	1999-2000	2006-2007	
Total residents	969	1004	
Total programs	252	248	

Table 2 (Common operations that may be impacted by cross training in an organized transplant rotation- National Resident Report, Surgeon total)			
Reporting period	1999-2000	2006-2007	
Trauma			
Spleen	4.7±3	3.1±3	
Ex lap trauma-open	13.9±10	5.2±5	
Ex lap Thoracotomy-open	2.5±3	0.7±1	
Cardiac injury/pericardiotomy	2.5±7	0.1±0	
Rep genitourinary injury	0.4±1	0.3±1	
Rep thor aorta, innominate, subclavian	0.4±1	0.9±1	
Rep abdominal aorta, vena cava	0.0±0	0.0±0	
Abdominal			
Cholecystectomy	99.5±44	103.1±38	
Choleenteric anastomosis	3±2	1.3±2	
Vascular			
Repair intra-renal aorta- emergent	1.4±2	0.8±1	
Repair intra-renal aorta- elective	7.4±5	3.2±2	
Endovascular aortic	None	2.9±4	
Celiac mesenteric bypass	0.4±1	0.3±1	
Portocaval/hepocaval shunt	0.1±0	0.1±0	
Retro peritoneal exposure			
Adrenalectomy	1.4±1	1.4±2	
Lymphadenectomy retroperitoneal-open	0.8±1	0.6±2 (603)	

Table 3 (Participation in Multi-organ procurements and abdominal transplant- National Resident Report, Surgeon total)			
Reporting period	1999-2000	2006-2007	
Reporting period			
Liver (total)	1± 2 (972)	0.9± 2 (907)	
Renal	5.7± 54(5,631)	6± 7 (5,069)	
Pancreas	0.3± 9 (287)	0.4 ± 41(397)	
Renal-pancreas	0.0± 0 (49)	0.0± 0 (0)	
Multi organ procurement	0.3± 1 (273)	0.0± 0 (237)	

Table 4 (UNOS Data)			
Reporting period	1999-2000	2006-2007	
Number of abdominal transplant	17,969	23,663	
Liver	4,751	6,493	
Renal	12,760	16,628	
Pancreas	359	459	
Small bowel	73	99	
Number of procurements	10,861	14,402	
Deceased donor	5418	8089	
Living donor	3794	6313	

Abstract# P-111

OUTCOME OF PATIENTS WITH ISCHEMIC-LIKE CHOLANGIOPATHY WITH SECONDARY SCLEROSING CHOLANGITIS (IN CRITICALLY ILL PATIENTS, SC-CIP) AFTER LIVER TRANSPLANTATION. Marcus N. Scherer¹, Gabi I. Kirchner², Aiman Obed¹, Petra Ruehmele³, Reiner Wiest², Matthias Froh², Martin Loss¹, Andreas A. Schnitzbauer¹, Hans Jürgen Schlitt¹, Jürgen Schoelmerich², Cornelia M. Gelbmann².

¹Dept. of Surgery and Transplantation, University Hospital of Regensburg, Regensburg, Germany; ²Dept. of Internal Medicine I, University Hospital of Regensburg, Regensburg, Germany; ³Institute of Pathology, University Hospital of Regensburg, Regensburg, Germany

BACKGROUND: Sclerosing cholangitis in critically ill patients (SC-CIP) is a newly described cholestatic liver disease with stricture formation, complete obliteration of bile ducts, formation of biliary casts and subsequent ongoing biliary infection due to bacterial inflammation resulting in rapid progression to liver cirrhosis. Liver transplantation (LTx) is the only curative therapy option, while little is known about outcome after LTx in patients with SC-CIP induced cirrhosis.

METHODS, RESULTS: 11 patients (46±12 yrs; MELD score: 27±7) with SC-CIP underwent LTx at our institution (prospective study, 2004-2008). 6 patients had polytrauma (multiple bone fractures, sepsis, ARDS). SC-CIP was diagnosed within 3±1 months post trauma. 5 non-traumatic patients (internal diseases) acquired SC-CIP during long-term intensive-care-unit stays with sepsis and ARDS. SC-CIP was diagnosed by ERCP and approved in the explanted liver. Biliary casts were removed after endoscopic sphincterotomy. After LTx, all patients received ursodeoxycholic acid. Immunosuppression: anti-IL2-antibody, ciclosporin, prednisolone and/or mycophenolate mofetil. The 3 main isolated bacteria in the bile were: enterococcus (n=4), candida albicans (n=3), multi-resistance E. coli (ESBL) (n=2). The mean follow-up after LTx was 16±14.0 months. 11 of 11 patients survived the post-operative course and were discharged. 3 (non-traumatic) patients died from sepsis (1, 4, 8 months post LTx) and 1 (traumatic) patient died due to rupture of a hepatic artery aneurysm (2 months post LTx). Up to date, 7 of 11 patients (5 of 6 with polytrauma, 2 of 5 non-traumatic) have a good quality of life with excellent liver function.

CONCLUSION: Our data shows that LTx is a curative therapy in SC-CIP-patients. SC-CIP-polytrauma-Patients have a significant superior outcome than non-traumatic-SC-CIP-Patients. Sepsis was the main cause of death after LTx. The exact mechanism for (recurrent/de-novo) sepsis after LTx need to be determined to improve outcome in these (non-traumatic) patients.

Abstract# P-112

IMPACT OF ILOPROST ON EARLY GRAFT VIABILITY AFTER LIVER TRANSPLANTATION: A PILOT STUDY. Erik Bärthel, Falk Rauchfuß, Olaf Habrecht, Alexander Koch, Michael Heise, Utz Settmacher. *General, Visceral and Vascular Surgery, Friedrich-Schiller-University Jena, Jena, Germany*

Background:

Ischemia/reperfusion injury (IR) after liver transplantation (LT) may be associated with primary dysfunction or non function of the graft. Prostacyclines were demonstrated to be beneficial in reducing IR by improving liver perfusion and by protecting endothelial cells in vitro. The aim of this study was to analyze the effect of a systemically administered prostacyclin analogue on allograft function after LT.

Patients and methods:

We randomly assigned 80 recipients in this prospective open label controlled clinical trial. Patients of the treatment group received iloprost (Iloprost®, BayerVital AG, Berlin; 1ng/kgKG/min), systemically administered for 7 days post-LT, in contrast to the control population. The primary end point was the primary graft dysfunction. Also peak levels of liver enzymes, factor V, quick's value, bile production and the arterial resistance index (RI) as parameter of liver perfusion were determined continuously. For statistics Mann-Wilcoxon U-Test and Fisher's Exact Test, respectively were used, a p-value below 0,05 was considered to be significant.

Results:

A total of 75 patients were analyzed. There was a drop out of 5 patients (8%) mainly because of protocol violation. Both groups were balanced with respect to demographics, donor and recipient characteristics. In the treatment group (n=38) we noticed a significant improvement of allograft synthetical capabilities especially on POD 1 (factor V: Iloprost: $61,3\% \pm 28,2$; control (n=37): $42,5\% \pm 17,4$; $p=0,008$) or POD 3 (quick's value: Iloprost: $76,3\% \pm 22,8$; control: $64,3\% \pm 20,2$; $p=0,02$). In addition under Iloprost bile production was higher (POD 1: $p=0,003$) and the arterial RI decreased significantly on POD 2 ($p=0,004$). Liver enzymes were comparable between both cohorts. There were 12 cases of primary graft dysfunction, nine in the control group (24%), and three under Iloprost (8%); $p=0,057$. Three of them (control group) underwent retransplantation for initial graft non function. There were no significant drug-induced adverse effects.

Conclusion:

Our results are very encouraging. We assume iloprost to be beneficial for early post-transplant liver function. If the rate of primary graft dysfunction can be significantly reduced with this treatment concept it should be analyzed with a higher number of patients. Therefore we have proposed a multicenter double-blinded controlled trial.

Abstract# P-113

PROPHYLAXIS AND TREATMENT EFFICACY FOR TUBERCULOSIS IN PATIENTS SUBMITTED TO LIVER TRANSPLANTATION. Luciana Agoglia¹, Lúcio Filgueiras-Pacheco¹, José Manoel Martinho^{1,2}, Elizabeth Balbi¹, Márcia Halpern¹, Ana Carolina Gonzales¹, Joyce Roma¹, Luciana Cairús¹, Cassia Guedes¹. ¹Liver Transplant Unit, Hospital Geral de Bonsucesso, Rio de Janeiro, Brazil; ²FAPERJ, Rio de Janeiro, Brazil

Objective: To evaluate, in adult patients submitted to liver transplantation (LT), the security and efficacy of tuberculosis (TB) prophylaxis and standard treatment after LT. To evaluate, secondarily, the efficacy of tuberculin test (TT) in cirrhotic patients.

Methods: Retrospective analysis of medical data from adult patients submitted to LT from 2001 to 2008.

Results: In a group of 176 cirrhotic patients, 108 (61%) performed TT; 3 were excluded because of death before hospital discharge (n=105). From these 105 patients, 5 (4,7%) had TT<5mm and 65 were anergic to TT (61%). In the anergic group, one patient was diagnosed for pulmonary TB. Thirty-five patients (33%) had TT>5mm and in 12 of this group it was possible to use Isoniazid as TB prophylaxis. None of these 12 patients developed TB, 8 (66%) had elevated liver enzymes and in 2 patients (16%) it was necessary to discontinue the drug. No patient developed jaundice.

In the 23 patients with TT>5mm, without prophylaxis, one patient had pulmonary TB (4,3%).

The incidence of TB in the group was 2,3%.

The four patients with confirmed TB (3 with pulmonary and one with intestinal form) were initially treated with standard treatment (Rifampin, Isoniazid and Pyrazinamide) and 3 of these patients switched to an alternative treatment regimen (Ethambutol, Streptomycin and Ofloxacin).

Conclusions:

1) The incidence of TB in the liver transplant scenario was similar to that found in the literature (0,9-2,3%).

2) The great prevalence of anergic patients reflects the poor immune response in cirrhotic patients. One of these patients, however, developed pulmonary TB.

3) Any patient submitted to prophylaxis with Isoniazid had TB. The drug was effective but not always safe.

4) The tolerability of standard treatment in LT patients is poor.

Abstract# P-114

PREVALENCE OF CLOSTRIDIUM DIFFICILE-ASSOCIATED DIARRHEA AFTER LIVER TRANSPLANTATION AND RISK FACTORS FOR DEVELOPMENT: A SINGLE CENTRE CASE CONTROL STUDY. Iona Coltart, Nicole Stoesser, Amit Gera, Anita Verma, Elizabeth Sizer, Georg Auzinger, William Bernal, Julia Wendon. *Institute of Liver Studies, King's College Hospital, London, United Kingdom*

Background: Clostridium difficile associated diarrhoea (CDAD) is the leading cause of nosocomial diarrhoea, and its incidence is rising in hospitals worldwide. Liver transplant recipients are high risk candidates for CDAD. Rates of CDAD after liver transplantation are quoted between 3.5% – 8%, in previous studies.

Methods: We retrospectively identified all cases of CDAD in patients who received a liver transplant between January 2006 and April 2007 at a transplant centre in the UK. CDAD was diagnosed on the basis of clinical symptoms and a positive stool Clostridium difficile toxin assay. We reviewed data for all patients who developed CDAD in the first 90 days post-operatively. Detailed demographic, physiological, laboratory and microbiological data were collected. Additionally we reviewed donor characteristics, and operation details. This data was compared to a cohort of 31 patients, transplanted between 2005 and 2007, matched for age, sex and aetiology of liver disease.

Results: 191 adult patients underwent liver transplantation during the study period and 16% (31/191) developed CDAD. 90% (28/31) developed CDAD in the first 90 days post-transplant. Median age was 50.2 years (IQR= 40.8 – 56.7), and 17 (59%) were female. Most were transplanted for chronic liver disease, however 6 (21%) had acute liver failure. Median MELD score prior to transplant was 16.8 (IQR 14.2 – 30.0). Median number of days post transplant until diagnosis of CDAD was 15.5 days (IQR 7.3 – 31.0). Risk factors for the development of CDAD included longer stay in hospital prior to transplantation: (4.0 days vs. 0.0 days $p=0.017$), longer total length of stay in hospital (60.0 days vs. 23.0 days $p<0.001$), steatotic graft (50% vs 23% $p=0.028$), and high donor body mass index (26.8 kg/m² vs. 24.7 kg/m² $p=0.005$). There was no difference in number antibiotic courses post-transplantation, type of immunosuppression, use of proton pump inhibitors or rate of complications (bleeding, bile leak, episode of acute cellular rejection), nor pre-transplant MELD score. No patient had clinical evidence of megacolon, required surgery or died as a direct consequence of their CDAD.

Conclusions: CDAD is common after liver transplantation. Risk factors for its development in the first 90 days relate to time in hospital and graft steatosis.

Abstract# P-115

EFFECT OF LIVER TRANSPLANT ON PULMONARY FUNCTIONS IN ADULT PATIENTS WITH ALPHA 1 ANTITRYPSIN (A1A) DEFICIENCY. Ashokkumar B. Jain¹, Vishali Patel², Michael Apostolakis², Baber Sheikh¹, Randeep Kashyap², Mark Orloff². ¹Dept of Surgery, Division of Abdominal Organ Transplant, Temple University, Philadelphia, PA, USA; ²Dept of Surgery, Division of Solid Organ Transplant & Hepatobiliary Surgery, University of Rochester, New York, Rochester, USA

A1A is a 52 kD protein that is mainly synthesized in the liver. It is the major

protease inhibitor and promotes degradation of serine proteases, mainly neutrophil elastase thereby limiting the damage to normal tissue after an inflammatory response.

A1A deficiency also leads to liver failure in some adult patients requiring liver transplant (LTx). A1A deficiency is corrected post LTx, however the changes in pulmonary functions post LTx have not been studied before.

Aim: To observe the changes in the pulmonary functions of the patients who underwent LTx for A1A deficiency.

Patient and Methods: 9 patients underwent LTx for A1A deficiency. Out of 9 patients, 6 patients (5 males, 1 female, mean age 54.7 ± 6.7) had their Pulmonary Function Tests (PFTs) available pre and post LTx for comparison.

Results: Mean pre-transplant FEV1 was 2.78 ± 0.82 L (obtained 1 to 10 months pre LTx) which was 2.91 ± 0.93 L 6 to 48 months post LTx. Other PFTs parameters are shown below in the table.

No	Age	Gender	PreTx FVC PreTx		PreTx FVC PostTx		PreTx FEV1		PreTx FEV1		PreTx FEV1 %		PreTx FEV1 %		PreTx FEV1 %	
			FVC	%	FVC	%	FEV1	FEV1	FEV1 %	FEV1 %	FEV1 %	FEV1 %	FEV1 %	FEV1 %		
1	61.6	F	2.21	71	1.11	116	1.71	1.58	73	63	77					
2	57.8	m	5.63	537	111	116	3.9	3.86	108	103	72	72				
3	54.6	m	3.9	336	74	64	2.14	2.15	51	52	55	64.1				
4	42.3	m	3.77	5.6	78	115	2.67	3.84	70	99	71	69%				
5	53.5	m	3.96	4.37	73	82	2.73	2.7	63	62	69	62				
6	56.2	m	5.11	4.77	88	83	3.54	3.32	85	80	89	89				
Mean	54.7		4.06	4.69	82.50	92.00	2.78	2.91	75.00	76.50	68.03	63.96				
SD	6.7		1.14	0.89	15.22	22.75	0.82	0.93	19.69	21.64	7.39	29.62				
Median	56.2		3.95	4.77	78.00	82.00	2.73	3.81	71.90	71.69	70.00	64.35				

Based on registry data of over 1129 patients, FEV1 declined from 54/ml/year to 84/ml/year when measured separately per year. Based on the information, a loss of 162 to 252 ml over mean of 3 years would be expected.

Conclusion: It appears that LTx probably prevented the progression of the pulmonary disease but failed to reverse it. However further study and close post LTx follow is warranted to support our initial findings.

Abstract# P-116

INDICATIONS OF LIVER TRANSPLANTATION FOR POLYCYSTIC LIVER DISEASE: ABOUT 16 CASES AT A SINGLE INSTITUTION. G. Pascal, D. Azoulay, R. Adam, D. Samuel, D. Castaing. *Centre Hepato-Biliaire, AP-HP Hopital Paul Brousse, Villejuif, France*

The management of Polycystic Liver Disease (PLD) ranging from observation to Liver transplantation (LT) is still debated. The aim of the present study was to evaluate the respective indications of deroofting and LT for the treatment of PLD.

Patients and methods: Between 1975 and 2006, 59 consecutive patients with PLD were managed at Paul Brousse Hospital : 50 females (85%), mean age : 52 years. Thirty one patients (52%) had an associated Polycystic Kidney Disease. Operative mortality, morbidity and long-term results were analysed.

Results: Surgery was performed in 54 patients (92%) with highly symptomatic PLD : laparoscopic deroofting in 18 patients (33%), open deroofting in 17 (31%), Liver resection in 3 (6%), LT in 16 (30%), combined with kidney transplantation in 11 patients (63%). There was no mortality. After laparoscopic deroofting, there was no conversion and no morbidity. After open deroofting, a complication occurred in 10/17 patients (59%), mainly ascites (6 cases). Long-term results after deroofting was good in 26 patients (74%), poor in the remaining 9 patients who had small cysts for all of them. After Liver transplantation, morbidity was 70% : 6 patients (38%) had a surgical complication, requiring a reintervention for 5 of them. The 5-years survival is 96% (one patient died 5 years after LT of pneumocystosis). All patients recovered an excellent quality of life.

Conclusion: Laparoscopic deroofting must be the gold standard of PLD with large symptomatic cysts. Liver transplantation should be considered as a safe option when the cysts are highly symptomatic, small and extensive.

Abstract# P-117

ADVANCED DONOR AGE IS ASSOCIATED WITH INCREASED BILIARY COMPLICATIONS IN LIVER TRANSPLANT PATIENTS RECEIVING ORGANS DONATED AFTER CARDIAC DEATH. Vikesh K. Singh¹, Ranjan C. Mascarenhas¹, Devi M. Krishnamurthy¹, Zoe Stewart², Andrew L. Singer², Andrew M. Cameron², Ahmet Gurakar¹. ¹Medicine, Division of Gastroenterology & Hepatology, Johns Hopkins Hospital, Baltimore, MD, USA; ²Surgery, Division of Transplant Surgery, Johns Hopkins Hospital, Baltimore, MD, USA

BACKGROUND: Biliary complications are a major source of morbidity among liver transplant recipients. While 5-15% of patients who receive a cadaveric liver transplant develop a biliary complication, a previous report from our institution found that approximately 60% of patients who receive a liver donated after cardiac death develop biliary complications. The risk factors for biliary complications among this group of recipients are not well understood.

AIM: To evaluate risk factors for biliary complications among liver transplant patients receiving organs donated after cardiac death.

METHODS: We evaluated age, gender, donor age, cold ischemia time, and warm ischemia time among patients with and without biliary complications who underwent liver transplantation using an organ donated after cardiac death at Johns Hopkins, between 1997 and 2008. Biliary complications were defined as an anastomotic and/or intrahepatic biliary stricture(s). Bile duct leaks were excluded as they may occur as a result of technical factors. Analysis was performed using t-testing and Chi-square for continuous and categorical variables, respectively. The Kruskal Wallis test was used for the evaluation of nonparametric medians.

RESULTS: A total of 32 patients who received a liver donated after cardiac death were identified. Fourteen patients (44%) had biliary complication(s). Of these, 7 (50%) had anastomotic strictures, 3 (21%) had nonanastomotic strictures, and 4 (29%) had both. The mean donor age was higher among recipients with biliary complications versus those without biliary complications, 39.6 ± 12.9 vs. 29.1 ± 10.8 ($p=0.02$), respectively. Donor age range was 18-57 years. There were no statistically significant differences between the groups with regards to recipient age, gender, warm and cold ischemia times, and mortality. Among patients with biliary complications, the time to a diagnostic and/or therapeutic ERCP was similar in all groups.

CONCLUSIONS: 1) Livers donated after cardiac death have higher rates of biliary complications than cadaveric donations. 2) Advanced donor age further increases the rate of biliary complications seen in grafts procured from donors after cardiac death.

Abstract# P-118

PRETRANSPLANTATION RENAL FUNCTION AFFECTS SURVIVAL AFTER LIVER TRANSPLANTATION. Vasilis Papanikolaou, Georgios Tsoulfas, George Imvrios, Dimitris Giakoustidis, Nikolaos Antoniadis, Ioannis Fouzas, Evangelos Akriavidis, Ioannis Goulis, Themistokles Vasiliadis, Eleni Katsika, Andreas Papagiannis, Dionysis Vrochides, Nikolaos Ouzounidis, Achilleas Ntinis, Sofia Iosifidou, Polyxeni Agorastou, Alexandros Giakoustidis, Dimitrios Takoudas. *Transplantation Surgery, Ippokrateio General Hospital, Thessaloniki, Greece*

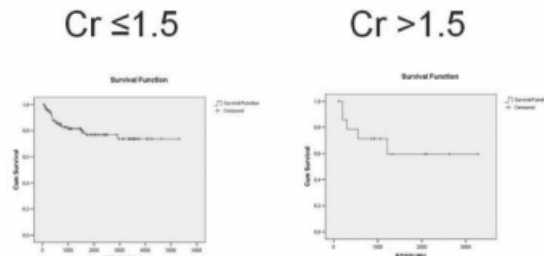
Background: One of the goals of the MELD system has been to give priority to patients with pre-transplantation renal insufficiency.

Aim: To evaluate the effect of recipient renal function on survival following liver transplantation.

Methods: This is a retrospective study of 138 patients that underwent OLT at a University Transplant Center in Greece during a period of 15 years. The demographic and clinical data of donors and recipients were analyzed. The renal function, pre- and post-transplantation, and survival were compared between the following two groups: group A (123 patients with pretransplant Cr ≤ 1.5) and group B (15 patients with pretransplant Cr > 1.5).

Results: The mean pretransplant Cr value for group A was 0.9, whereas for group B it was 1.8. There were no statistically significant differences between the two groups regarding donor and recipient age, quality of donor based on the DRI and cold ischemia time. One and five year patient survivals were 80% and 78% for group A, whereas they were respectively 70% and 60% for group B (statistically significant differences). There was also a statistically significant difference in the one-year post transplantation Cr level, which was higher in group B at 2.1, versus 1.2 in group A.

Conclusions: The presence of renal dysfunction or renal insufficiency pre-transplantation can affect survival in a negative manner following orthotopic liver transplantation. This raises the question of whether these patients should be considered for combined liver-kidney transplantation.



Abstract# P-119

PERIOPERATIVE MANAGEMENT OF COMBINED HEART LIVER TRANSPLANTATION. Daniel Eyraud^{1,3}, Jean Christophe Vaillant¹, Pascal Lebray², Pierre Coriat³, Alain Pavie⁴, Laurent Hannoun¹. ¹Chirurgie Hépatique et Transplantation, GHPS-APHP, Paris, France; ²Hépatogastro-Entérologie, GHPS-APHP, Paris, France; ³Département d'Anesthésie Réanimation, GHPS-APHP, Paris, France; ⁴Chirurgie Cardiaque, GHPS-APHP, Paris, France

Combined Heart and Liver transplantation (CHLT) is an uncommon procedure, with only 47 procedures reported in the United States. Poor exact description of the intra and postoperative procedure and outcomes was reported.

Methods. Three patients received successfully liver/heart transplantation. Results. All patients had proved cirrhosis with evidence of portal hypertension, one with renal insufficiency, another with pulmonary hypertension, and clinical signs of cardiomyopathy with reduced ejection fraction. The cardiac transplantation was performed first. After closure of sternum, laparotomy was performed and liver transplantation was performed with total liver exclusion and venovenous bypass.

Three patients received successfully CHLT. Mean cold ischemia for heart and liver was 2H46 min and 12H47 min respectively. All three patients received anti R-112 antibodies at day 1 and 4 and calcineurin's inhibitors were started as renal function was beginning to restore. Protocol endomyocardial biopsies in all three patients revealed no evidence of rejection. Mean hospital length was 39 days.

Main Postoperative Data

Patient Number	Cardiac Complication	Renal Complication	Postoperative peak of ASAT/ALAT	Postoperative RBCs	ICU LOS (days)	Follow-up (months)
1	No	No	2695/2031	2	9	35
2	No	Yes	1505/1050	0	18	24
3	Yes	Yes	1702/1200	0	20	10

POD: Post operative day LOS: length of stay

In all 3 patients, renal function was better one month after CHLT than before.

CHLT could be performed by consecutive independent operative time. Each surgical team proceeds exactly as he used to. Early chest closure, no early nephrotoxic immunosuppressive treatment, quality of medical and surgical hemostasis and systematically venovenous bypass during liver removing were important management choices.

Abstract# P-120

IMPACT OF MELD ALLOCATION SYSTEM ON THE OUTCOME OF CADAVERIC ADULT LIVER TRANSPLANTATION IN A SOUTHERN STATE OF BRAZIL.

Mauro R. Igreja, Julio C. Wiederkehr, Marcelo S. Nogara, Nelson D. Souza. Liver Transplantation, Hospital Santa Isabel, Blumenau, Santa Catarina, Brazil

Allocation of livers for transplant based on the MELD score of the recipient was adopted in Brazil after 2006. The present study analyzes the impact of the new allocation system in patients submitted to cadaveric liver transplant at Hospital Santa Isabel, Blumenau, Brazil. From August 2002 through December 2007, 163 patients received primary cadaveric liver transplantation. The patients were divided in two groups, before and after MELD based allocation system. MELD score was calculated at the time of inclusion on the

list in both groups. Operative time, number of days in the ICU, time of assisted ventilation required, total time of hospitalization, blood products transfusion, hemodialysis, and survival were compared in both groups.

	Before	After	p value
n	78	85	
HCV	38	42	0.97
HCC	4	14	0.04
Operative time (min)	319	301	.13
ICU time (days)	5.25	4.74	0.48
Ventilation (days)	2.31	2.52	0.70
RBC	10.44	9.21	0.36
Platelets	11.53	11.59	0.97
Cryoprecipitate	3.68	1.79	0.05
FFP	12.06	9.1	0.03

The survival in the group before implementation of MELD system was 89%, and after was 81% (p=0.28). Of the variables analyzed, the presence of HCC as indication for liver transplantation (p=0.04), cryoprecipitate (p=0.05), and fresh frozen plasma (p=0.03) were statistically significantly before and after MELD score system implementation. No impact on the survival after liver transplantation was observed with implementation of MELD score system for allocation of cadaveric livers.

Abstract# P-121

300 LIVER TRANSPLANTATION AT A UNIVERSITY HOSPITAL OF THE NORTHEAST OF BRAZIL. Jose H. Garcia, Gustavo R. Coelho, Douglas H. Filho, Katia F. Vasconcelos, Marcos A. Barros, Paulo E. Costa, Ivelise R. Brasil, Gleydson C. Borges, Tarciso D. Rocha, Cinthya F. Viana, Denissa F. Mesquita, Dirk Sherenken, Joao B. Vasconcelos. Surgery, Federal University of Ceara, Fortaleza, Ceara, Brazil

Liver transplantation is a lifesaving procedure for patients who have chronic end-stage liver disease and acute liver failure when there are no alternative treatment options. The purpose of the present study was to present the series operated by a Liver Transplantation Group of the University Hospital of Ceara, Brazil. From May 2002 to August 2008, 300 liver transplantations from cadaveric donors were performed by our center. There were 225 men and 75 women with a mean age of 48.1 years (range from 9 to 70 years). The main indication of transplant was post-hepatitis C cirrhosis (25%), followed by alcoholic cirrhosis (20%). Forty one patients had a liver transplantation for cancer. Thirty nine patients were Child A (13%), 153 were Child B (51%) and 108 were Child C (36%). The MELD scores ranged from 6 to 31 (median 18.8). Twenty two patients (7.3%) required retransplantation, most of them due to hepatic artery thrombosis. Biliary complications occurred in 54 patients (18%) and vascular complications were found in 32 patients (10.6%). The 1- and 3-year actuarial survival rate was 76% and 67% respectively. The present results show levels of postoperative mortality and survival rates similar to those reported by several other centers in the world.

Abstract# P-122

GASTROINTESTINAL COMPLICATIONS ASSOCIATED WITH POST-TRANSPLANTATION LYMPHOPROLIFERATIVE DISORDERS IN LIVER TRANSPLANT PATIENTS. Ruy Cruz, Vivek Sharma, Michael DeVera, Eisaburo Sasatomi, Roberto Lopez, Paulo Fontes, Wallis Marsh. Starzl Transplantation Institute, University of Pittsburgh, Pittsburgh, PA, USA

Post-transplantation lymphoproliferative disorder (PTLD) is a well-recognized complication of immunosuppression in liver transplant recipients, occurring in approximately 4% of patients. The involvement of the gastrointestinal (GI) tract takes place in 25% of all cases of PTLD. Fortunately, surgical intervention is seldom required. We herein report our experience in the treatment of patients with GI complications associated with PTLD after liver transplant requiring emergency surgical intervention.

Study design: A retrospective analysis of 5000 patients who underwent liver transplantation between 1980 and 2007 was conducted. **Results:** Eight patients (0.16%) presented with GI complications associated with PTLD. The patients assessed had an age range from 23 to 78 years at the time of diagnosis of PTLD (median, 49 years). The average time from liver transplantation to emergency GI surgery was 7±2.4 years (range, 4 months to 17 years). Indications for surgical intervention were: perforation (4 cases), small bowel obstruction (3 cases), and GI bleeding (1 case). The GI PTLD presentation sites were: small bowel (4 cases), terminal ileum and right colon (3 cases), and gastroduodenostomy (1 case). Seven of eight patients were EBV PCR positive at the time of surgery (range, 20 to 16,000). Six patients had

monomorphic PTLD. In addition to the surgical intervention, treatment of PTLD consisted of reduction and/or discontinuation of immunosuppression and chemotherapy. Overall mortality was 62.5% (5/8). Four of the deaths occurred in a period ranging from 2 to 15 months post-GI surgery while one patient died from chronic rejection and renal failure 9 years after small bowel resection. **Conclusion:** Our report shows that GI complications of PTLD after liver transplantation requiring surgical intervention is an extremely rare condition with high early mortality rates.

Abstract# P-123

STEATOSIS OF THE HEPATIC GRAFT AS A RISK FACTOR FOR POST-TRANSPLANT BILIARY COMPLICATIONS. Gian Luigi Adani, Dario Lorenzin, Claudio Avellini, Miriam Isola, Anna Rossetto, Pierluigi Toniutto, Vittorio Bresadola, Andrea Risaliti, Umberto Baccarani. *Transplantation, University, Udine, Italy*

Despite recent advances in organ preservation, immunosuppression, and surgical techniques the biliary tree is still considered the Achilles' heel of liver transplantation. The aim of this study is to identify risk factors that might predispose to the development of biliary problems. Methods: from 2004 to 2007, 117 deceased liver transplantations were retrospectively analyzed for biliary complications. Sex, age of recipient and donor, bilirubin, MELD, Child; viral or alcoholic etiology, PBC or PSC, cold and warm ischemia, time between portal and arterial reperfusion, full size or split, T tube or not, duct to duct or hepaticojejunostomy, preservation fluid, amine support in the donor, units of blood transfused, macrovascular steatosis of the graft, determined by tru-cut biopsy at procurement, HAT and acute rejection were analyzed. Patients were divided into group 1 with biliary complications (n=43), and group 2 without biliary complications (n=74). Median follow-up was 23 months (range 1-49 months). Results: overall biliary complication rate was 36.8% (leakage 6% and stricture 30.8%). Univariate analysis indicated as significant predictors of biliary complications the time between portal and arterial reperfusion (p=0.037) and macrovascular steatosis > 25% (p=0.004). Stepwise logistic regression model, demonstrated that a macrosteatosis of the graft > 25% (OR = 5.21 I.C.95% [1.79 – 15.15] p=0.002), was the only independent risk factor predicting biliary complications after liver transplantation. Early or late death occurred in 8 patients (18.6%) in group 1 and 8 patients (10.8%) in group 2 (p=0.23); although not statistically significant there was a trend toward an higher incidence of sepsis as a cause of death in the patients with biliary complications (75% vs 37%, p=0.052). Retransplantation was required in 3 cases (2.6%), 1 HAT and 1 ITBD in group 1, and 1 HCV recurrence in group 2. No differences in patient's and graft's survival were noted between the two groups; for patient's survival 1 and 3 years respectively of 90% and 77% in group 1 and 90% and 86% in group 2 (p=0.42); for graft survival 1 and 3 years respectively of 90%, and 77%, in group 1 and 92% and 87% in group 2 (p=0.17). Conclusion: according to our experience transplanting a liver with > 25% of steatosis is a risk factor for the development of biliary complication.

Abstract# P-124

POST-TRANSPLANT HEMODIALYSIS DRASTICALLY REDUCES ONE-YEAR SURVIVAL IN PATIENTS ENTERING LIVER TRANSPLANTATION WITHOUT RENAL DYSFUNCTION. Michael Ma¹, Todd Brennan¹, Isabel Reyes¹, Manjula Tamura², Sandy Feng¹. *¹Surgery, UCSF, San Francisco, CA, USA; ²Medicine, Stanford U, Palo Alto, CA, USA*

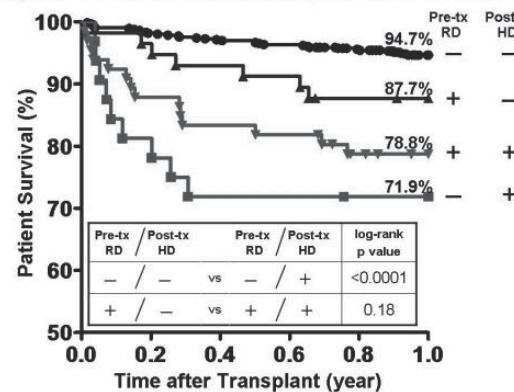
BACKGROUND: Both pre-transplant (tx) renal dysfunction (RD) and post-tx hemodialysis (HD) have been strongly associated with early post-tx death. The relative impact of post-tx HD on patients entering tx with or w/o RD is not well described.

METHODS: 809 adult, primary, solitary liver txs for chronic liver disease (1998-2007) at a single center were studied. Pre-tx RD was defined by 6-variable MDRD GFR 30 ml/min/1.73m² and/or HD at time of tx. Post-tx HD was defined as HD within one wk of tx. Kaplan-Meier analyses and univariate/multivariate Cox models identified risk factors for 1-yr mortality.

RESULTS: 686 (84.8%) patients entered tx w/o RD, of which 31 (4.5%) required post-tx HD. 123 (15.2%) entered tx with RD, of which 66 (53.7%) required post-tx HD. Pre-tx RD duration ranged from 2-389 days while post-tx HD duration ranged from 1-400 days. Overall 1-yr K-M survival was 92.0%. Post-tx HD was more potent than pre-tx RD as a predictor of death (HR 4.15; 95% CI 2.5-7.0; p<.0001 vs. HR 2.9; 95% CI 1.7-4.8; p<.0001). Post-tx HD drastically reduced survival for patients w/o pre-tx RD (94.7 to 71.9%; p<.0001) (Figure). Univariate Cox models showed a differential

impact of post-tx HD on death risk: for patients w/o and with pre-tx RD, HRs (95% CIs; p values) were 6.8 (3.1-15.4; <.0001) vs. 1.5 (.63-3.6; .36), respectively. Our final multivariate Cox model confirmed post-tx HD to be a strong and independent predictor of post-tx death in patients w/o pre-tx RD (HR 9.1; 95% CI 4.0-21.0; p<.0001). Other independent predictors were HCV (HR 2.6; 95% CI 1.3-5.5; p=.009) and pre-MELD tx year (HR 2.0; 95% CI 1.1-3.7; p=.02).

Figure: One-Year Patient Survival by Pre-Tx RD and Post-tx HD



CONCLUSION: Post-tx HD better prognosticates 1-yr post-tx mortality than pre-tx RD. While the negative impact of post-tx HD on survival was modest for those with pre-tx RD, it was dramatic for those w/o RD. Post-tx HD reflects an ongoing problem in the former, but signals new, severe, and often, life-threatening complications (such as hemorrhage, hemodynamic derangement, poor graft function, sepsis) in the latter.

Abstract# P-125

IS IT POSSIBLE TO CURE A PATIENT FROM HAEMOPHILIA TYPE A WITH OLT? CASE REPORT.

Janina Andrzejewska, Konrad Jarosz, Maria Czuprynska, Michal Wasilewicz, Agata Andrzejewska, Maciej Wójcicki. *Maria-Curie Hospital, Szczecin, Poland*

53 years old patient, qualified to the OLT due to HCV cirrhosis with history of haemophilia type A. The reason for qualification to OLT was oesophageal varices haemorrhage which occurred twice. Cirrhosis was confirmed with biopsy with unequivocal biochemistry exponents of active liver cirrhosis. On Child-Pugh score was A-6 and MELD score was 9.

Due to the history of haemophilia type A following protocol was used:

1. To mark level of factor VIII immediately after admitting the patient to the surgical ward before the transplantation.
2. To supplement the deficiency of factor VIII to the level of 80-100% of the norm.
3. To monitor the level of factor VIII during the transplantation and to keep it at the level of over 80% of the norm.
4. To administer recombinant factor VIIa (Novo-Seven®) in case of haemorrhage (with the level of factor VIII over 80% of the norm).
5. To keep the level of factor VIII between 80-100% of the norm during first 2-3 days after the transplantation and then between 60-80% of the norm until 14 days after the OLT.

After admitting the patient to the hospital, level of factor VIII was marked and deficiency was supplemented to the 100% of the norm, by admitting 2500 i.u. factor VIII (Imunate®). Level of factor VIII was marked every two hours during the OLT. During the surgery the patient required two factor VIII supplementations altogether. The patient had not required any blood transfusion during the transplantation. Only 12 units of FFP were given.

After the transplantation factor VIII (Imunate®) was given twice – 1500 i.u. and 1000 i.u. during first 24 hours after OLT. Since the second day after the surgery, level of factor VIII was over 80% of the norm. Patient had not required any further supplementation. No haemorrhage or clotting episode was noticed in postoperative period.

Conclusion: After working out a detailed procedure protocol, precise monitoring and supplementing of factor VIII, liver transplantation was done to the patient with haemophilia type A without blood transfusion. Since second day after OLT, level of factor VIII was at the level of over 80% of the norm, what meant that the liver was working properly and started the production of its own coagulation factors. 13 days after the liver transplantation the patient was discharged from the surgical ward with factor VIII level of 87.3% of the norm. Thanks to the liver transplantation this patient was cured from haemophilia type A.

Abstract# P-126

ANALYSE OF PREDICTIVE FACTORS OF MORTALITY OF HIV/HCV INFECTED PATIENTS ON THE WAITING LIST OF LIVER TRANSPLANTATION. D. Carmona^{1,2,3}, V. Delvart¹, T. M. Antonini¹, R. Sobesky^{1,2,3}, B. Roche^{1,2,3}, E. Teicher^{1,2,3}, D. Vittecoq⁴, R. Adam^{1,2,3}, D. Azoulay¹, D. Castaing^{1,2,3}, D. Samuel^{1,2,3}, J. C. Duclos-Vallee^{1,2,3}. ¹Centre Hepato-Biliaire, AP-HP Hopital Paul Brousse, Villejuif, France; ²U 785, INSERM, Villejuif, France; ³UMR-S 785, Univ Paris-Sud, Villejuif, France; ⁴Dept Maladies Infectieuses, AP-HP Hopital Paul Brousse, Villejuif, France

Liver transplantation (LT) is the only therapeutic approach in HIV/HCV infected patients with end stage liver disease. However specific prognostic criteria defining the optimal time for LT are lacking for this subgroup of patients. The aim of this study was to identify predictive factors of death in a cohort of HIV/HCV co-infected patients on the waiting list in a single centre.

Patients and methods: 78 HIV/HCV co-infected patients (64 males, 14 females, mean age 42.8 ± 5 yrs) with an indication of LT were retrospectively studied from March 1999 to December 2007. Child-Pugh, MELD, MELD-Na and ASA scores were analyzed. The different prognostic variables were studied by univariate and multivariate analysis according to a logistic regression model.

Results: 16 patients (20.5%) died, 52 patients (66.7%) have been transplanted and 10 patients (12.8%) were alive during the studying time. At the time of inscription, by univariate analysis, a significative difference concerning MELD and MELD-Na scores between the deceased patients group and the transplanted patients group was observed with mean values of 22.3, 25.7 and 18.8, 21.6, $p=0.04$, respectively. By multivariate analysis, presence of antiretroviral therapy at the time of the first referral ($p=0.04$), ASA ($p=0.04$) and Child-Pugh ($p=0.02$) scores at the time of inscription were significantly associated with mortality.

Conclusions: Child-Pugh rather than MELD score should be used to predict mortality in HIV/HCV co-infected patients. Global scores as ASA score could be applied in this subgroup of patients.

Abstract# P-127

“RESCUE ALLOCATION OFFERS” IN LIVER TRANSPLANTATION: IS THERE ANY REASON TO REJECT “UNWANTED” ORGANS? Axel Doenecke¹, Marcus N. Scherer¹, Andreas A. Schnitzbauer¹, Ayman Obed², Hans-Jürgen Schlitt¹. ¹Department of Surgery, University of Regensburg Medical Center, Regensburg, Bavaria, Germany; ²Department of Surgery, University of Göttingen Medical Center, Göttingen, Niedersachsen, Germany

To reduce the ever expanding gap between organ demand and supply in liver transplantation, many strategies have been developed during the last several years. Besides split-liver transplantation and living related liver transplantation, using extended liver donor criteria has extended the pool of available organs. To further increase the number of transplanted organs, the Eurotransplant foundation (ET), responsible for organ allocation in 7 european countries, uses a “rescue organ allocation” for organs that had been rejected by transplant centers for medical reasons three times or could not be regularly allocated due to donor instability or logistical reasons. In these cases, the accepting transplant center can freely choose a patient from its waiting list and is not bound to regular recipient allocation criteria.

There is only limited data available on the outcome of transplantations with those organs, especially when compared to regularly allocated livers. Here we report our results of 38 liver rescue allocation (RA) offers, that entered the procedure for medical reasons and were transplanted at the Regensburg University hospital between May 2003 and December 2007. They were compared to a control group of 115 regularly allocated organs within the same time period.

From our data, liver “rescue allocation offers” have the same or even better results with selected patients. 1-year-patient survival in the RA group was 87% vs. 77% in the control group. Sort and frequency of postoperative morbidity (primary non-function, biliary, renal, and pulmonary complications) did not differ significantly between both groups. The analysis of subgroups showed a reduced survival of RA-livers in patients suffering from viral hepatitis or suffering from hepatocellular carcinoma with underlying viral hepatitis. Though absolute patient numbers are small, we conclude from our data, that RA-livers should not be given to these patients. All other patients can be safely transplanted with RA-livers without increased mortality or morbidity.

Abstract# P-128

CLINICAL RISK MANAGEMENT IN EVALUATION OF PATIENTS TO REFER IN WAITING LIST FOR LIVER TRANSPLANTATION. Daniele Neri¹, Piera Poletti², Alessandro Vitale³, Francesco D’Amico¹, Michele Valmasoni¹, Marina Polacco¹, Umberto Cillo¹. ¹Surgical and Gastroenterological Sciences, Hepatobiliary Surgery and Liver Transplantation, Padova, PD, Italy; ²CERF, Padova, PD, Italy; ³ISSR, Istituto Oncologico Veneto, Padova, PD, Italy

Pre transplant evaluation is a complex organisational process that requires new instruments of clinical risk managements. We used two instruments to achieve clinical risk perception and ameliorate quality: the first a questionnaire given to all the staff of the Unit and the second a FMEA (Failure mode and Effective Analysis) with evaluation of hepatopatic patient pre transplant evaluation process till to waiting list of liver transplantation.

Table 1 - Questionnaire about Risk Perception

Questionnaire on Clinical Risk Perception	S	s	NS	n	N	Comments
RISK AND SAFETY						
Risk is a concept that merge the risk with his gravity	S	s	NS	n	N	
Communication are difficult	S	s	NS	n	N	
Errors must identified and punished	S	s	NS	n	N	
TEAM						
Competence is adequate	S	s	NS	n	N	
INSTRUMENTS						
Clinical folder importance	S	s	NS	n	N	
Suggestions						

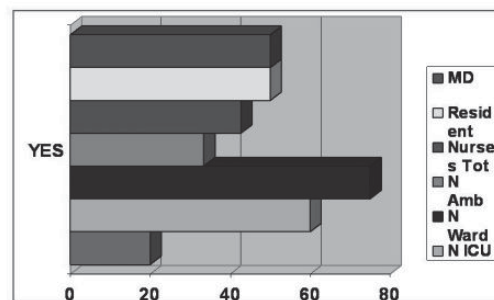
Table is summarized

Figure 1 – FMECA Pre-Transplant phase

PHASE	ACTIVITY	FAILURE MODE	FAILURE MODE CAUSES	EFFECTS OF FAILURE	FILTERS	G	F	R	I	ACTIONS AFTER RISK ANALYSIS	G	F	R	I
1														
2														
3														
4														

For the second instrument was necessary to achieve a team work of specialists and then establish the starting and end point describing all the phases of the process. Were recognized four main phases then analyzed as the FMEA requires. As results we obtained a 75% of answering with focusing of risk on communication, errors perception and their managements and competence.

Fig. 2 - Communication problems



With FMEA were recognised as main problems the compliance between Transplant Center and physicians and trasport of blood samples to Regional referral center. The first solved by creation of a web site dedicate for physicians; the second by a different organisational process. In conclusion Risk Management (RM) helps Liver Transplant Unit to achieve the best quality considering patient's safety.

Abstract# P-129

EFFECT OF THE INTERACTION BETWEEN EXTENDED CRITERIA DONOR VARIABLES AND THE MELD-SCORE ON ISCHEMIA-REPERFUSION INJURY AND PRIMARY GRAFT DYSFUNCTION. Ruben Ciria, Javier Briceño, Juan-Manuel Sanchez-Hidalgo, Antonio Luque, Alvaro Naranjo, Manuel de la Mata, Sebastian Rufian, Pedro Lopez-Cillero. *Liver Transplantation and Hepatobiliary Surgery Unit, University Hospital Reina Sofia, Cordoba, Spain*

To elucidate the influence of recipient's status combined with the accumulation of extended criteria donor (ECD) variables on the appearance of severe I/R-injury and graft-survival in a MELD-based-system, we analyzed the last consecutive liver transplantation (LT) performed in our institution divided in two periods: 400-LT (1992-2002; pre-MELD era); 275-LT (2002-2007; post-MELD era). Donor variables were included in a regression model to assess the probability of primary dysfunction (PPD). Patients were stratified as high-, intermediate- and low-MELD (33rd-67th-MELD-percentiles). Donor age, macrovesicular steatosis >30% and cold ischemia time were associated with allograft dysfunction. Having a higher probability of severe I/R-injury (Psl/R) confers a significant increase of the PPD (AUROC=81.2%; p=0.001). Mean-PPD was 14.8% (ECD=0); 19.2% (ECD=1); 27.5% (ECD=2); and 37.4% (ECD≥3), suggesting a strong correlation between PPD and ECD-variables (p=0.003). Distribution of I/R-injury was different among MELD categories: 72.53%, 24.17% and 3.30% (MELD-group=12-19); 56.52%, 36.96% and 6.5% (MELD-group=20-28); and 23.91%, 54.35% and 21.74% (MELD-group≥29) presented with no-mild, moderate and severe I/R-injury, respectively (p=0.043). The distribution of PD relative to the number of ECD-variables among MELD categories was always worst in MELD≥29 (p=0.026). An increase in the number of ECD-variables was associated with higher development of PD: 18.8% (ECD=0), 18.1% (ECD=1), 28.0% (ECD=2), 35.3% (ECD≥3) (p=0.047). Higher Psl/R-values conditioned higher, intermediate and lower PPD values according to MELD≥29, MELD=20-28, and MELD=12-19, respectively. Graft survival decreased in MELD≥29 recipients with increasing number of ECD-variables. In conclusion, the combination of ≥3 ECD-variables and MELD≥29 is the worst scenario for graft outcome and PD after LT.

Abstract# P-130

DEFINING TRANSPLANTATION SUCCESS – A PROPOSAL FOR A QUALITY PERFORMANCE INDICATOR FOR TRANSPLANT PROGRAMS. Alexander J. C. IJtsma, Christian S. Van der Hilst, Danielle M. Nijkamp, Jan T. Bottema, Maarten J. H. Slooff. *Hepatobiliary Surgery and Liver Transplantation, University Medical Center Groningen, Groningen, Netherlands*

Usual methods of providing survival data on liver transplant patients focus on either waiting list mortality or post-transplantation survival. Since these two concepts are strongly related, combined pre- and post-transplantation survival figures would allow optimal assessment of the quality performance of different liver transplant programs.

This study presents a relatively simple and uniformly applicable view on assessing the outcome of patients listed for liver transplantation, combining pre- and post-transplant survival figures.

All 542 patients having spent any time on the waiting time for liver transplantation in the Netherlands between September 2004 and December 2006 are included in this study.

Of 312 patients removed from the waiting list during the study period, 252 were transplanted, 46 died, 19 were removed due to contra-indications and subsequently died, 12 patients improved and four were lost to follow-up. The death rate per patient year on the waiting list was 10.4% as calculated in concordance with UNOS definitions. Mean waiting time for transplantation was 0.84 years.

The expected value for pre-transplantation mortality, as calculated by multiplying these figures, was $0.84 * 10.4\% = 8.7\%$. One year post-transplantation patient and graft survival were 87.7% and 80.0% respectively.

Therefore, the chance of transplantation success, defined as the chance to survive up to transplantation and one year thereafter, without re-transplantation, was estimated at $91.3\% * 80.0\% = 73.0\%$.

In conclusion, this study presents a combined method of presenting pre- and post-transplantation survival data, allowing for quality assessment of the performance of different liver transplant programs.

Abstract# P-131

NATREMIA AND CHILD-TURCOTTE-PUGH (CTP) MAY IMPROVE THE SELECTION OF CANDIDATES FOR LIVER TRANSPLANTATION (LT) WITH LOW MODEL FOR END-STAGE LIVER DISEASE (MELD). Stefano Gitto¹, Maurizio Biselli¹, Annagiulia Gramenzi¹, Giovanni Vitale¹, Stefania Lorenzini¹, Roberto Di Donato¹, Lucia Brodosi¹, Maria Cristina Morelli², Gian Luca Grazi², Antonio Daniele Pinna², Mauro Bernardi¹, Pietro Andreone¹, Bologna Liver Transplantation Group (BLTG). ¹Department of Clinical Medicine, University of Bologna, Bologna, Italy; ²Department of General Surgery and Organ Transplantation, University of Bologna, Bologna, Italy

Background/Aims: It is well known that the survival benefit of LT depends on candidate disease severity, as measured by MELD that is widely used for the organ allocation. It has been suggested that LT for patients with low MELD should be reconsidered. The aim of this study was to evaluate whether other factors were able to better select the low MELD candidates. **Methods:** The waiting list mortality of 452 cirrhotic patients consecutively listed for LT between January 2003 and October 2008 at the Bologna Transplant Center was evaluated. Univariate survival curves were estimated by the Kaplan-Meier method, and time-dependent Cox regression analysis was used to determine listed patients relative mortality risk. **Results:** In this study cohort, 110 patients (24.3%) died before LT during a 2-year follow-up period. Subdividing patients according to their MELD (<15, 15-17, >17) we observed that candidates with lower MELD had a significantly better 2-year survival (<15: 79.7%, 15-17: 74.1%; >17: 45.6%; p<0.001). Among patients with MELD ≤17, the univariate analysis showed that age >55 years, hyponatremia (sodium <136 mEq/L) and CTP score >9 were significantly associated to a higher 2-year mortality. At Cox regression analysis the independent mortality risk predictors were hyponatremia (130-135 and <130 mEq/L; OR: 2.06, 95% CI: 1.07-3.97, p=0.032; OR: 4.89, 95% CI: 1.83-13.09, p=0.002; respectively) and CTP score >9 (OR: 2.03, 95% CI: 1.09-3.77, p=0.026). When patients with MELD ≤17 were classified according to these predictors, those with normal natremia and CTP score <10 showed a better 2-year survival in respect to subjects with natremia <136 mEq/L and/or CTP score >9 (80.3% vs 49.2%, p<0.001). **Conclusions:** These data suggest that patients with MELD score ≤17, normal natremia and CTP score <10 may not be considered for listing. On the contrary, patients with MELD score ≤17 but with hyponatremia and/or in CTP class C, need to be considered optimal candidates for LT as well as patients with higher MELD score.

Abstract# P-132

LIVER DONATION AND ETHNIC GROUPS. Massimo Asolati¹, Dev Desai², Meely Debroy², Ingemar Davidson², Juan Arenas². ¹Surgery, Dallas VA Medical Center, Dallas, TX, USA; ²Surgery, UT Southwestern Medical Center, Dallas, TX, USA

Background: In the US there are persistent and growing disparities in morbidity, mortality and disability between Caucasians (whites) and other ethnic groups, likely related to socio-economical status and education. These factors affect the sense of trust in health care and government regulated systems. African Americans (AA) seem to represent the ethnic group with a lower sense of trust in health care. Being transplantation a highly regulated system, liver donation may reflect these ethnic disparities. Living donation involves allocation of a private good (liver segment) into a the public system. Living liver donation has been focus of the media which may have affect sense of trust in some ethnic groups.

Material and Methods: We reviewed the OPTN/SRTR data base for deceased and living donor liver transplants (DDL/LDL) and rate of donation between different ethnic groups.

Results: From 1997 to 2006 a total of 58,463 liver transplants (DD 55,497 / LD 2,966) were performed in the US.

White has been the most represented of all ethnic donor groups regardless the increasing presence of other ethnicities. In 2006 for DDL and LDL respectively 67.5% / 81.5% W, 16.1% / 3.8% AA, 13.4% / 11.5% HL, 2.4% / 2.8% AA, 0.6% / 0.7% other ethnicities without significant changes in trend during the entire decade. Of note, by the 2010 census, whites may actually represent a numeric minority.

Even more, whites do not have the most benefit in term of graft survival being the Asians with the best short and long term outcomes. 5 year graft survival for DDL / LDL respectively 67.8% / 68%W, 59.9% / 55.8%AA, 69.5% / 71.9%HL, 69.9% / 76.5%AA, 65% / 88.2 other. Of note in 1998 rate of donation in AA was 15.2% with a drop to 3.8% in 2006. Even if ethnic differences in graft survival may represent a contributing factor, additional

events have likely contributed to a decreased rate of living donation after 2001 in AA. This through the impact of the media on living liver donation, decreased sense of trust in health system, and reluctance to place a private good (liver segment) in the public system.

Conclusions: Ethnic disparities in organ donation have remained approximately the same, over the past decade. Changes in trust of health care system through education may increase rate of liver donation in those ethnic group(s) with a more vulnerable sense of trust in a regulated system.

Abstract# P-133

HEMOLYTIC ANEMIA DUE TO ABO OR Rh ANTIBODIES IN RECIPIENTS OF SOLID ORGAN TRANSPLANTS.

Isabel Ferrer Bradley, Victoria Aguilera Sancho Tello, Ángel Rubín Suarez, Marina Berenguer Haym, Francisco Arriaga, Martín Prieto. *Hepatogastroenterology Unit, Hospital Universitario La Fe, Valencia, Spain; Hepatogastroenterology Unit, Ciberehd, Hospital Universitario La Fe, Valencia, Spain; Hepatogastroenterology Unit, Ciberehd, Hospital Universitario La Fe, Valencia, Spain; Hepatogastroenterology Unit, Ciberehd, Hospital Universitario La Fe, Valencia, Spain; Hematology Unit, Hospital Universitario La Fe, Valencia, Spain; Hepatogastroenterology Unit, Ciberehd, Hospital Universitario La Fe, Valencia, Spain*

BACKGROUND AND OBJECTIVE: Hemolysis due to ABO or Rh unmatched transplants in solid organ recipients owes to the passage of lymphocytes with immunologic information. The development of antibodies and hemolysis is directly related to the amount of lymphocytes of the transplanted organ. We present five cases of hemolytic anaemia, 2 by ABO and 3 by Rh systems. **PATIENTS AND METHOD:** From January 1991 to June 2001, 22 liver transplants ABO-unmatched, 236 renal transplants Rh-unmatched and 240 liver transplants Rh-unmatched were performed in our center. Both in donors and recipients, we performed a hematologic study with determination of indirect antiglobulin test (IAT). When IAT was positive, the antibody was determined through different methods. If hemolysis was suspected after transplantation, direct antiglobulin test (DAT) and antibody specificity were determined. **RESULTS:** Two liver transplants ABO-unmatched and three Rh-unmatched developed hemolysis. It was severe in all them and appeared between the 8th and 40th post-transplant day. Screening for irregular antibodies was negative in all pre-transplant patients. In donors, anti-D was recognized in two cases. Among post-transplant patients, DAT and IAT were positive in all them, anti-A was found in two, anti-D in two and anti-E in one case. All patients were treated with IV steroids. Four required transfusion with compatible packed red blood cells. **CONCLUSION:** Hemolysis in the context of a solid organ transplantation with minor unmatched ABO or Rh must alert us about the possibility of passage of donor lymphocytes.

Abstract# P-134

IMPACT OF THE MODEL OF END-STAGE LIVER DISEASE (MELD) IN THE NETHERLANDS: A SINGLE CENTRE EXPERIENCE.

R. Garritsen¹, H. J. Metselaar², R. A. de Man², H. W. Tilanus¹, G. Kazemier¹. *¹Department of Surgery, Erasmus MC, Rotterdam, Netherlands; ²Department of Gastroenterology and Hepatology, Erasmus MC, Rotterdam, Netherlands*

Background: The Netherlands has 3 liver transplantation (LT) centres. All patients are placed on a national waiting list managed by Eurotransplant. As of December 15th 2006, the MELD score is used for liver allocation and prioritization of patients on this waiting list in The Netherlands.

Objective: To analyze the effect of the implementation of the MELD score to improve prioritization of patients on the LT waiting list in our centre and to assess ways to further improve liver allocation.

Patient and methods: In this single centre study, we compared two patients groups. The first group of patients was listed for LT between December 15 2004 and December 14 2005, more than one year before the implementation of MELD in The Netherlands (the pre-MELD group, N=79). The second group of patients was listed in the first year after implementation of the MELD score (post-MELD group, N=67). MELD scores were calculated for all patients in the pre-MELD group. Survival analysis was done using Kaplan Meier curve. Patients were followed from date of placing on the waiting list until death or end of follow-up. Literature was searched for alternative MELD calculations with additional parameters. C-statistics were used to compare these models with the classical MELD calculation.

Results: Overall one-year patient survival has increased from 80% in the pre-MELD era to 86% in the post-MELD era (P=0.285). Waiting list mortality

was the same in both groups 20% in the pre-MELD era versus 23% in the post-MELD group (P=0.915). Patients in the post-MELD era had a higher change of early transplantation compared to patients in the pre-MELD era, 58% vs. 37% respectively (P=0.018). There was a strong correlation between serum sodium and survival (P<0.0001). Survival curves showed diminished survival for patients with serum sodium <135 mmol/L (P<0.0001). ROC-curves of alternative MELD calculations incorporating serum sodium showed that the predictive value of the iMELD (which includes age and serum sodium) was superior to the classical MELD with a c-statistic of 0.724 and 0.631 respectively.

Conclusion: Implication of the MELD score in our centre did not reduce waiting list mortality although waiting time decreased significantly. Overall survival did not change. The liver allocation system can be further improved by introducing serum sodium into the calculation.

Abstract# P-135

OPTIMIZING DONOR-RECIPIENT MATCHING WITH D-MELD (THE PRODUCT OF DONOR AGE AND RECIPIENT MELD) IMPROVES SURVIVAL, DECREASES COMPLICATIONS AND REDUCES COSTS AFTER LIVER TRANSPLANTATION, A SINGLE CENTER EXPERIENCE.

Jeffrey B. Halldorson¹, Robert Carithers², B. Ramasamy¹, Andre Dick¹, Kay Wicks¹, Renuka Bhattacharya², Paolo Salvalaggio¹, Iris Liou², Jorge Reyes¹, James Perkins¹. *¹Surgery, Transplantation, University of Washington, Seattle, WA, USA; ²Medicine, Hepatology, University of Washington, Seattle, WA, USA*

Objective: Prior work using national data demonstrated D-MELD, the product of donor age and laboratory based MELD score, to be predictive of survival after liver transplantation. Given significant regional differences in donor availability and average MELD score at transplantation, we analyzed the optimal predictive value of D-MELD scoring for our center.

Methods: We retrospectively reviewed 492 liver transplant recipients between the years 2003-2006 from a single center.

Results: A D-MELD score <1200 resulted in improved patient survival at 1 (91.1% vs. 73.6%, p<0.008) and 3 years (86.4% vs. 71.1%, p<0.002). (fig 1.) Patients with D-MELD scores of <1200 had an average LOS of 12.2 days versus 22.8 days (p<0.0001). Initial hospital charges for patients with D-MELD <1200 averaged \$174,042 vs. \$270,247 for D-MELD >1200. (p<0.0001). Analyzing recipients of deceased after cardiac death donors (n=66) revealed a D-MELD score of <1000 to best differentiate patient survival at three years (88% vs. 61%, p<0.037). (fig 2a.) Similarly, analysis of re-transplant recipients (n=33) demonstrated a D-MELD score of <1000 to best differentiate survival at 3 years (74% vs. 25%, p<0.038). (fig 2b.)

D-MELD calculation is a simple, objective, highly predictive tool to estimate outcomes after liver transplantation. Applying D-MELD to donor/recipient

matching decisions could help prevent poor donor/recipient matches improving outcomes and lowering costs.

Figure 1. 3 year Patient Survival by D-MELD 1200 cutoff

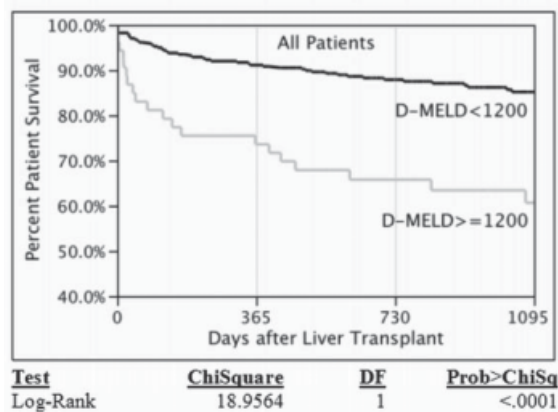


Figure 2a. D-MELD cutoff for improved patient survival for deceased after cardiac death donors

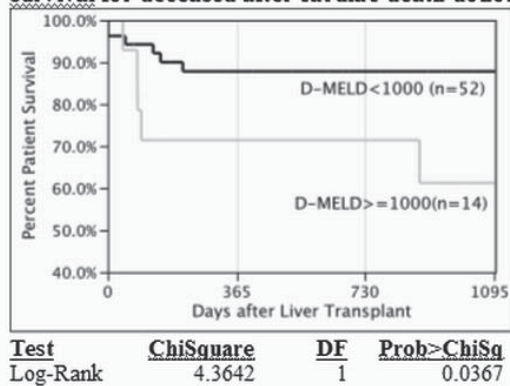
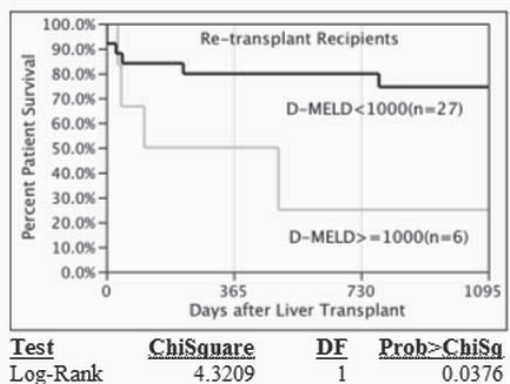


Figure 2b. D-MELD cutoff for improved patient survival for re-transplant recipients



Abstract# P-136

INFECTIONS AFTER LIVING DONOR LIVER TRANSPLANTATION IN CHILDREN.

Kang Won Rhee¹, Jeong Eun Kim^{1,3}, Joo Young Jang¹, Kyung Mo Kim¹, Dae Yun Kim², Young Joo Lee², Sung Gyu Lee². ¹*Pediatrics, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea;* ²*Surgery, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea;* ³*Jung-Gu Community Health Center, Seoul, Korea*
 The aim of this study was to evaluate the epidemiology of infectious diseases after living donor liver transplantation (LDLT) in children. We enrolled 95 children (38 boys and 57 girls) who underwent LDLT from 1994 to 2004 at Asan Medical Center. Their median age was 22 months (range, 6 months to 15 years). We reviewed their medical records retrospectively and investigated the proven episodes of bacterial, viral, and fungal infection after LDLT. We observed 142 infections in 67 of these 95 (70%) patients (1.49 infections per patient); 74 infections in 43 patients were bacterial, 2 in 2 patients were fungal, and 66 in 42 patients were viral. The most common sites of bacterial and fungal infection were the bloodstream (33%) and abdomen (25%). The incidence rates of Gram positive (44%) and Gram negative (55%) bacterial infections were similar. Most of the bacterial infections and all of the fungal infections occurred within the first month after transplantation. Bacterial and fungal infections did not result in any deaths. The most common causes of viral infection were Epstein-Barr virus in 37 patients and cytomegalovirus in 18. Seven of the 14 deaths after LDLT were associated with viral infection. Our findings indicate that infection is an important cause of morbidity and mortality after LDLT. Especially careful monitoring and treatment of viral infections is important for improving the outcome of LDLT in children.

Abstract# P-137

THE RESULTS OF OUR HEPATIC ARTERIAL RECONSTRUCTION TECHNIQUE FOR PEDIATRIC LIVING-DONOR LIVER TRANSPLANTATION.

Mehmet Haberal¹, Sinasi Sevmis¹, Hamdi Karakayali¹, Gokhan Moray¹, Sema Pehlivan¹, Adnan Torgay², Gulnaz Arslan². ¹*General Surgery and Transplantation, Baskent University, Faculty of Medicine, Ankara, Turkey;* ²*Anesthesiology, Baskent University, Faculty of Medicine, Ankara, Turkey*

Purpose: The arterial reconstructions required in Living donor liver transplantation (LDLT) are technically difficult because of the small diameters of the vessels in the partial liver graft. In this study, we present our new hepatic arterial reconstruction technique.

Method: Between September 2001 and August 2008, we performed 190 LDLT at our center. After December 2005, we changed hepatic arterial reconstruction technique. Since this time, we performed 114 LDLT and 60 of them were pediatric recipients whom were analyzed retrospectively. In this technique, native and graft hepatic arteries are spatulated from both the anterior and posterior walls for a wider anastomosis. Twenty-eight of these 60 recipients were small babies (each of whom weighed less than 10 kg or was under the age of 1 year). One of the recipients received a right lobe, 24 received a left lobe, and remaining 35 received left lateral segment grafts, 85% of the donors were recipient's parents. Computed tomography (CT) angiography was used to evaluate both the vascular anatomy and the diameter of graft hepatic arteries. Hepatic arterial reconstruction was performed with microvascular technique using a surgical loop (2.5x) in all recipients by the same surgeon.

Results: Fifteen grafts had 2 hepatic arteries. In 11 grafts with double arteries, the adjacent edges of the hepatic arteries were sutured together to create a single opening, and the recipient common hepatic artery was then anastomosed to that orifice. In 4 grafts with double arteries, 2 separate anastomoses were performed between the graft hepatic arteries and the recipient hepatic artery branches. Mean diameter of the hepatic arteries was 2.3±0.5 mm, and 26 of them were less than 2 mm. The mean recipient follow-up was 16±9 months (range, 1 to 32 months). Six of the 60 recipients died and the remaining 54 (90%) are still alive with good graft functions. HAT was encountered in 2 (3.3%) recipients in this series. All of them were treated with interventional radiologic approaches.

Conclusion: Our new arterial reconstruction technique enabled the reconstruction of smaller arteries, multiple arteries and arteries with caliber differences even for the very small pediatric recipients.

Abstract# P-138

ORTHOTROPIC LIVER TRANSPLANTATION FOR UNRESECTABLE HEPATOCARCINOMA IN CHILDREN – SINGLE CENTER EXPERIENCE. Ruy J. Cruz^{1,2}, George Mazariegos^{1,2}, Kyle Soltys^{1,2}, Geoffrey Bond^{1,2}, Rakesh Sindhi^{1,2}.

¹Starzl Transplantation Institute, University of Pittsburgh, Pittsburgh, USA; ²Children's Hospital, University of Pittsburgh, Pittsburgh, USA

Hepatocarcinoma (HCC) is an extremely rare condition in children. HCC often develops in older pediatric patients in the presence of underlying liver disease. Most small-scale reports depend on complete surgical resection, and/or chemotherapy. However, the prognosis of HCC is poor with a long term survival rate of 20-30%. Liver transplantation (Tx) can be an acceptable treatment for pediatric patients with HCC. The aim of this study was to present a single center's experience of liver transplant for HCC in children. **Study design:** retrospective analysis of 24 patients (14 girls/ 10 boys) with unresectable HCC who were referred for liver transplantation between November 1981 and October 2004. **Results:** the patients assessed had an age range from 7 to 18 years old at time of transplant; median 9.4±4.9 years. All twenty four patients received whole grafts. Underlying liver disease was found in 75% of cases and included: tyrosinemia (5 patients), familial intrahepatic cholestasis (3 patients), HBV-induced cirrhosis (3 patients), autoimmune cirrhosis (2 patients), Wilson's Disease (1 patient), Niemann-Pick (1 patient), HCV-induced cirrhosis (1 patient), cryptogenic cirrhosis (1 patient), and biliary atresia (1 patient). Pre and post-transplant chemotherapy was performed in 30% and 40% of cases, respectively. Three children received intraarterial chemotherapy. Ten patients (42%) were considered stage IV according to TNM classification. The causes of death were: recurrent disease (8 patients), sepsis (2 patients), PTLT (2 patients), with four patients dying of unknown causes. Post-Tx survival rates were 83%, 62.5%, and 54% for 1, 3, and 5 years, respectively. **Conclusion:** Patients with heritable or acquired liver disease should be screened periodically for the development of HCC. Additionally, our data supports that total hepatectomy and liver transplantation is a potentially curative treatment for unresectable hepatocarcinoma with high long-term survival rates.

Abstract# P-139

EVOLUTION OF POST TRANSPLANT LYMPHOPROLIFERATIVE DISORDER MANAGEMENT IN PEDIATRIC LIVER TRANSPLANT RECIPIENTS. A SINGLE CENTRE EXPERIENCE. Anita Verma¹, Zahra Ahmadijad², Dino Hadzic², Alastair Baker², Giorgia Miele-Vergani², Nigel Heaton³, Mohamad Rela³, Mark Zuckerman¹, Sue Height⁴, Anil Dhawan².

¹Department of Medical Microbiology and Virology, King's College Hospital, London, United Kingdom; ²Pediatric Liver Centre, King's College Hospital, London, United Kingdom; ³Department of Transplant Surgery, King's College Hospital, London, United Kingdom; ⁴Department of Haematology, King's College Hospital, London, United Kingdom

Aims: The aims of this study were to review the incidence, clinical presentation, histological patterns, different therapeutic modalities, and outcome of PTLT in the pediatric liver transplant recipients (PLTR) in our institution.

Methods: A retrospective analysis was done for 24 cases of PTLT diagnosed on histology between June 1990 and December 2007 in 658 PLTR.

Results: The incidence of PTLT was 3.7%. The median age at diagnosis of PTLT was 57 months (Range 16-152) with median interval for PTLT presentation from liver transplant was 112.5 weeks (Range 13-404). Clinical manifestations were gastrointestinal in 16 patients, neurological in 2, and neck pain with swelling in 2. Lymph node enlargement was observed in 20 patients, splenomegaly in 17, fever in 15 and hepatomegaly in 13. Primary immunosuppression was cyclosporine in 13 patients and tacrolimus in 9. Histopathologic findings were high-grade lymphoma for 9 patients and polymorphic PTLT for 6. In-situ hybridization for EBV was positive in 18 of 21 cases. Pretransplant EBV serology was negative in 14 patients. Initial therapy for 21 patients was reduction of immunosuppression (RDI). Nine patients received rituximab, but only three responded. Fourteen children underwent chemotherapy of whom 12 responded. Four patients had surgical removal of the lesions. Twelve patients received an acyclovir antiviral agent. One patient died before any intervention. Two patients had improvement with RDI along with surgery. Six (27.3%) patients died during the follow up period with PTLT being the predominant cause in 4.

Conclusion: The treatment of PTLT continues to evolve because of the availability of newer agents. The efficacy of rituximab as sole agent in the treatment of PTLT remains to be proved.

Abstract# P-140

LIVER TRANSPLANTATION FOR UNRESECTABLE LIVER TUMORS IN CHILDREN. Gustavo R. Bianco, Esteban T. Halac, Guillermo L. Cervio, Marcelo F. Dip, Luis D. Rojas, Oscar C. Inventarza. Liver Transplant Unit, Hospital Juan P. Garrahan, Buenos Aires, Argentina

Complete resection of liver tumors after chemotherapy can be achieved in the majority of the cases. Nevertheless the widespread, multifocal or centrally located tumors and/or in contact with the major vessels doubts respect of its complete removal. In these situations liver transplantation(LTX) has demonstrated excellent long-term results. The aim of this study is to present our experience in unresectable liver tumors.

Children with diagnosis of malignant liver tumors were collected retrospectively. We analyzed demographic data, histological type, evolution in waiting-list(WL), type of transplant and the results in terms of recurrence, survival and mortality.

Between 12/1/92 to 12/1/08 were 120 patients with liver tumors, 17(14%) of them were considered candidates for LTX: 8 girls and 9 boys with a mean age of 6,2 years(r:1-15). Nine were Hepatoblastomas(HB) and 8 Hepatocarcinomas(HCC). Two patients died in WL(1HCC and 1recurrent HB), 1 patient(HCC) was withdrawn because of progression of disease and other 2(HB) are still waiting for a LTX. Thirteen LTX were performed in 12 remaining patients: 6 HCC and 6 HB. The applicability of the LTX was 85%. Primary LTX was carried out in 11 patients and only 1 rescue transplant was done. We used 4(30%) cadaveric full-size grafts and 9 reduced-size grafts: 5(38%) left lateral segments(LLS) from living-related donor(LRD), 3 cadaveric LLS(1 Split) and 1 cadaveric extended right lobe(Split). Transplant survival at 6 months, 1 and 3 years was: 83%; 75% and 75% respectively. Whereas the graft survival was: 75%; 66% and 66% due to 1 retransplant for arterial thrombosis in a LRD. Two patients had tumor recurrence: 1HB and 1HCC. Three patients died: 1HB due to graft dysfunction for portal thrombosis and 2HCC: 1 for tumor recurrence and the other one for respiratory failure: 8 and 10 months post-transplant respectively. All living children but two remain disease free(78%). Global survival was 64%: 77% in HB and 57% in HCC. LTX for unresectable liver tumors in children is a valid alternative. Post-transplant and disease free survival in our patients are both similar to previous published series. Hepatoblastoma presented better survival than HCC(83% vs. 66%). We consider of great importance the integration of the international registry (PLUTO) in order to obtain statistically reliable results that will help in establishing guidelines to improve the results obtained up to the present.

Abstract# P-141

HISTOPLASMA CAPSULATUM ARTHRITIS OF THE KNEE AFTER LIVER TRANSPLANTATION IN ADOLESCENT: CASE REPORT. Christiane A. C. Leite¹, Ivana J. N. Souza¹, Roberio D. Leite¹, José H. P. Garcia², Francisco A. C. Rocha².

¹Departamento de Saúde Materno-Infantil, Universidade Federal do Ceará, Fortaleza, Ceará, Brazil; ²Departamento de Cirurgia, Universidade Federal do Ceará, Fortaleza, Ceará, Brazil

Introduction: Opportunistic infections are a major complication after liver transplantation due to immunosuppression and generally represent a life threatening condition. *Histoplasma capsulatum* arthritis is rarely observed among those patients.

Objective: To report a case of arthritis due to *Histoplasma capsulatum* after liver transplantation.

Methods: Patient's hospital record and medical literature review.

Results: MMBC, female, 15 years old, diagnosed as having Wilson's Disease in march/2007. In may/2007 she was listed to liver transplantation (CHILD=C12; MELD=29) because she didn't achieved good response to clinical therapy. In july/2007 she was submitted to liver transplantation and started tacrolimus and prednisone. In april/2008 she complained of arthritis of the left knee without systemic signals. She was submitted to arthroscopy and a synovial biopsy was performed, which revealed nonspecific inflammatory chronic process. We decided to introduce a therapeutic trial for tuberculosis with rifampicin + isoniazid + pyrazinamide, considering tuberculin test before and after-transplantation (4 and 10 mm). *Histoplasma capsulatum* grown in synovial fluid. We initiated itraconazol and stopped tuberculosis treatment. She had gradual improvement and resolution of arthritis.

Conclusion: *Histoplasma capsulatum* should be considered as a cause of opportunistic infection after liver transplantation in endemic areas even without systemic symptoms.

Abstract# P-142

OUTCOME OF LIVER TRANSPLANTATION IN CHILDREN WEIGHTING LESS THAN 10 KILOGRAMS WITH REFERENCE TO VASCULAR COMPLICATIONS: THE LYON EXPERIENCE. Thomas Gelas, Christine Rivet, Gabriella Pittau, Catherine Boucaud, Yves Bouffard, Pierre Sagnard, Alain Lachaux, Olivier Boillot. *Liver Transplant Unit, Edouard Herriot Hospital, Lyon, France*

Liver transplantation (LT) in small children is often more challenging technically because of the small vascular structures compared to older recipients. The aim of this study was to review the results of small children LT focusing on vascular complications.

Patients and methods. Between January 1991 and February 2008, a total of 928 liver transplantations were performed in our institution ; 59 (6.4%) of whom were done in 56 pediatric patients weighing less than 10 kilograms. Mean age and body weight were 13.5 months (2.3- 46.3) and 8 kg (5-10) respectively. The main indication for LT was biliary atresia (74.6%). Types of grafts were 5 whole cadaveric livers, 53 left lateral sections, and 1 monosegment (2). Regarding partial livers, 27 were split liver grafts, 24 were living donor grafts and 2 reduced-size grafts. Median graft-to-recipient weight ratio was 3.4% (1.7-7.5).

Results. Mean follow up was 5.5 years (range 2 months-16 years). One, 5 and 10 patient and graft survival was 85.7%, 80.8% and 80.8% and 79.5%, 76.8% and 76.8% respectively. During the last 5 years (19 LT), patient and graft overall survival was 95%. Three (5.4%) children underwent retransplantation for portal vein thrombosis (n=2) and chronic rejection (n=1). Vascular complications comprised 1 (1.7%) hepatic artery thrombosis, 12 (20%) portal vein thromboses and 3 (5%) portal vein stenoses. None outflow obstruction was encountered. Portal vein thrombosis was significantly more frequent in patients with biliary atresia compared with others pathologies (27% vs 0%). Early and late biliary complications happened in 30 cases (51%). Abdominal bleeding occurred in 12 patients (20%) and bowel perforation in 13 patients (22%). A total of 41 patients (69.5%) required at least one surgical revision.

Conclusions. Despite a higher morbidity rate, small pediatric recipients had comparable survival compared to older recipients. Portal vein thrombosis represented the major vascular complication in children having LT for biliary atresia.

Abstract# P-143

ASSOCIATED FACTORS IN THE POST-TRANSPLANT LYMPHOPROLIFERATIVE DISEASE (PTLD) IN PEDIATRIC LIVER RECIPIENTS AT PEQUENO PRÍNCIPE HOSPITAL IN CURITIBA, BRAZIL. Julio C. Wiedeker^{1,2}, Izabel M. Coelho^{1,2,3}, Sylvio A. Avilla¹, Daniela Ouno¹, Barbara Wiedeker³, Carolina Talini³, Raphael Mourato³, Flavia N. Kingerski³, Giovana Marioto³, Julyanna H. Kaminski³, Mariana Polimeri³, Denise P. Feniman³. *¹Pediatric Liver Transplant, Hospital Pequeno Principe, Curitiba, PR, Brazil; ²Liver Transplant, Santa Casa de Misericórdia, Curitiba, PR, Brazil; ³Surgery, Faculdade Evangelica do PR, Curitiba, PR, Brazil*

Objectives: Identify the incidence of the PTLD in children one year after liver transplant at Pequeno Principe Hospital and verify the associated factors with PTLD outcome. **Methods:** A retrospective review that analyzed information on medical charts of pediatric (under 18-year-old) liver transplant recipients, from September 2000 through December 2007. **Results:** From 105 liver transplants performed, 71 patients were lived one year after to be submitted to a liver transplant and 7 (9.85%) developed PTLD. In this group, 6 children were girls and one boy. The median age at transplant was 35.14 months. Indications that led the children to have their transplants were one case of hemangioendothelioma, one case of autoimmune hepatic cirrhosis, one case of alpha-1-antitrypsin deficiency and four cases of biliary atresia. The most frequent symptoms were splenomegaly, diarrhea and fever. The median time from the first symptoms to the initial treatment was 9.7 days. The standard treatment was the withdrawal of immunosuppression and close observation of FK levels and liver function levels associated to antiviral drugs and use of chemotherapy in 4 cases. Four among seven children died, three children recovered. All three children that recovered seek the transplant center within

5 days of initiation of symptoms (p= 0.0338). **Conclusion:** Despite its rarity, when it occurs, PTLD has a high mortality rate. Therefore, it is necessary to have interdisciplinary work between the medical team that performs the transplant and those promoting familiar medicine in order to suspect the disease at the beginning of the symptoms and treat it effectively.

Abstract# P-144

DUCT TO DUCT BILIARY RECONSTRUCTION IN ORTHOTOPIC LIVER TRANSPLANTATION FOR PRIMARY SCLEROSING CHOLANGITIS PATIENTS: A VIABLE AND SAFE ALTERNATIVE. Osama Damrah, Dinesh Sharma, Brian Davidson, Keith Rolles. *Hepatobiliary Pancreatic and Liver Transplant Unit, Royal Free Hospital, London, United Kingdom*

Introduction Orthotopic liver transplantation is the treatment of choice for primary sclerosing cholangitis patients presenting with end-stage liver disease. Standard teaching has been that biliary reconstruction in these cases should be with a Roux-en-Y loop as it is a disease of the ducts. We have adopted an approach of selective use of duct to duct reconstruction when bile ducts appear free of gross disease. In this report we analyzed our experience with Roux-en-Y and duct to duct biliary reconstruction for primary sclerosing cholangitis patients undergoing orthotopic liver transplantation, with respect to surgical complications, and long term outcome.

Methods Patients were divided into 2 groups; the first group underwent a Roux-en-Y choledochojejunostomy for biliary reconstruction, and the second group had a duct to duct anastomosis. Operative complications and outcome were compared between the two groups and analyzed.

Results Between October 1988 and September 2008, 91 patients underwent liver transplantation for primary sclerosing cholangitis. Overall, patients consisted of 56 male and 35 female aged 43.5±14 years. Sixty-three patients (69%) underwent a duct to duct biliary reconstruction, whereas twenty eight patients (31%) had a Roux-en-Y loop. Eleven (18%) and six (21%) patients with biliary complications were identified in the duct to duct and Roux-en-Y group respectively. Biliary leak complicated a total of 9 patients; 5 patients from the duct to duct group, and 4 from the Roux-en-Y group, whereas 8 patients had biliary strictures; 6(10%) vs. 2(7%) patients from the duct to duct and Roux-en-Y group respectively. There was no statistically detected difference in the rate of biliary complications and graft failure between the 2 groups. The overall mean follow up period was 84 months ±73. Actuarial 1,5 and 10 year survival for duct to duct and Roux-en-Y group was (77%, 52% and 33%) and (79%, 68% and 53%) respectively (P=ns). And the corresponding 1,5 and 10 year graft survival was (69%, 42% and 26%) and (72%, 64% and 56%) respectively (P=ns). No significant difference was seen in disease recurrence rates between the 2 groups.

Conclusion Duct to duct biliary reconstruction in orthotopic liver transplantation for selected primary sclerosing cholangitis patients is both safe and viable when compared to Roux-en-Y biliary reconstruction.

Abstract# P-145

LIVER RESECTION AS DOWNSTAGING TREATMENT FOR HCC BEFORE LIVER TRANSPLANTATION DOES NOT AFFECT TRANSPLANT LONG TERM RESULTS.

Alessandro Giacomoni, Abdallah Slim, Stefano Di Sandro, Andrea Lauterio, Awad Aldumour, Plamen Mihaylov, Luciano De Carlis. *Hepato Biliary Surgery and Liver Transplantation Unit, Niguarda Hospital, Milano, Italy*

Introduction. According to several previous experiences, the hepatocellular carcinoma (HCC) downstaging seems to improve liver transplantation (LTx) long term cumulative and disease free survival. HCC downstaging can be achieved throughout transarterial chemoembolization (TACE), radiofrequency ablation (RF), alcohol injection (PEI), as well as surgical resection. The role of surgical resection as bridging to LTx is not accepted worldwide as some authors reported worse long term transplants results in HCC patients downstaged by liver resection.

Methods. From January 2000 to December 2007 out of 475 LTx performed in our unit 179 (37.6%) patients had HCC on cirrhosis. HCC diagnosis prior to LTx was known in 152 patients (84.9%). Among them, HCC downstaging was performed in 128 (84.2%) cases prior to LT. 102 (79%) patients underwent TACE, 48 (37.5%) RF, 7(5.4%) PEI and 19 (14.8%) liver resection (LR). Fourteen out of 19 resected patients underwent LR associated to previous or subsequent HCC ablative treatment. One patient underwent 2 LR. According to the explanted liver histology 199 (66.4%) recipients where "Milan in" at time of transplantation.

Results. Taking into consideration the group of patients resected versus the one of patients transplanted without any previous LR the 5 year overall survival rate (77.2% vs 71.9%) and disease free survival rate (88.2% vs 87.9%) was not significantly different. Furthermore the operation duration time, the intraoperative blood loss, the intra and post-operative blood transfusion did not show any significant differences.

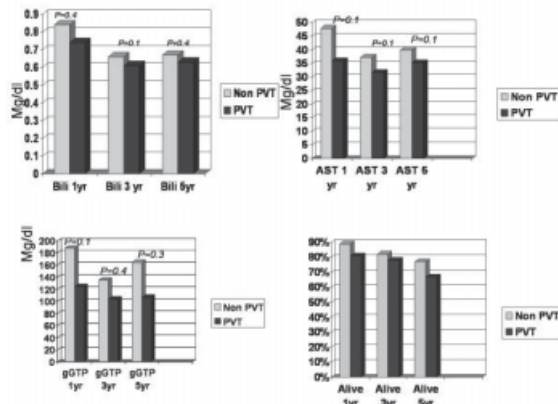
Conclusions. In our experience, liver resection represents a valid HCC downstaging treatment in selected patients as bridging to LTx. Mortality and morbidity does not increase among LTx recipients who underwent previous LR, moreover long term survival and disease free survival rate is similar between resected versus non resected patients. In patients listed for liver transplantation in order to minimize the surgical liver manipulation, liver resection should be taken into consideration and performed at best by the same surgeons who will perform the liver transplantation.

Abstract# P-146

OUTCOME OF ADULT LIVER TRANSPLANT PATIENTS WITH PREEXISTING PORTAL VEIN THROMBOSIS, A SINGLE INSTITUTION EXPERIENCE. George Rofaie, Alan Langnas. *Transplantation Surgery, University of Nebraska Medical Center, Omaha, NE, USA*

Historically, pre-existing portal vein thrombosis (PVT) was a relative contraindication to OLT. Recently, there has been growing evidence supporting the safety and feasibility of transplanting such patients. The purpose of this study was to present a contemporary single institution experience with transplanting patients with preexisting PVT. **Methods:** All adult patients who received whole OLT between 2003 and 2006 were reviewed. Thirty six patients had preexisting PVT at the time of the operation. All patients were followed up with a postoperative vascular ultrasound as well as liver function tests. Median follow up was twenty five months; Two patients were lost to follow up from the non PVT group. End points studied included survival, recurrence of PVT after transplantation, bilirubin and LFT's. Twenty one patients needed thrombectomy, Thirteen anastomosis at a more proximal point on the portal vein (mostly the SMV, splenic Confluence) and two patients bypass form a more proximal portal tributary.

Demographics: The two groups were similar in age, gender, and diagnosis. HCC was a preoperative diagnosis in 7% of the non PVT patients and 11% of the PVT patients. **Results:** There was only one recurrence of PVT in the tested group putting the rate of rethrombosis at 2% compared to 0.4% in the control group. Survival was equivalent in both groups at one, three and five years with a slight trend towards worse outcome in the PVT group. Bilirubin, AST, GTP levels were also equivalent in both groups at all time points.



Discussion: OLT is feasible and comparatively successful in patients with preexisting PVT. The rate of rethrombosis appears low.

Abstract# P-147

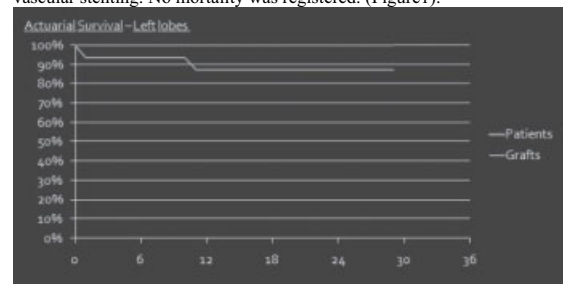
RESULTS OF SPLIT-LIVER TRANSPLANTATION IN SÃO PAULO, BRAZIL – IN THE MELD/PELD ERA. Vincenzo Pugliese^{1,2}, Eduardo Carone^{1,2}, Eduardo A. Fonseca^{1,2}, João Seda-Neto^{1,2}, André L. Godoy^{1,2}, Gilda Porta^{1,2}, Renata S. Pugliese^{1,2}, Irene K. Miura^{1,2}, Vera B. Danesi^{1,2}, Paulo Chapchap^{1,2}. ¹Liver Unit, Hospital Sirio Libanês, São Paulo, Brazil; ²Liver Unit, Hospital do Cancer, São Paulo, Brazil

The shortage of organs obtained from deceased donors is a critical problem in Brazil. The adoption of the MELD/PELD criteria for allocation of liver grafts in July/2006 had only slightly reduced the mortality in the waiting list.

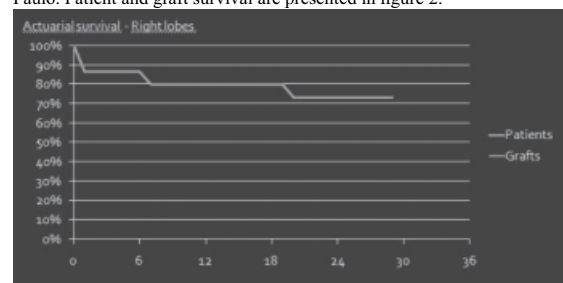
We analyzed 16 consecutive split-liver transplant performed at our centre between August 2006 and January 2009.

The donors were in stable hemodynamic condition, age (range: 14 – 42 years, avg: 28.2) ICU stay (range: 1 – 10 days; avg: 5.4) ALT (range: 15 – 121 U/L; avg: 54.8). In all cases the splitting procedure was carried out *ex situ* during the back-table procedure with ultrasonic dissector, the section of the left biliary duct was guided by cholangiography. In one case the splitting of the liver was at the line of Cantlie, the 15 others were left lateral splitting.

Sixteen liver transplants using the left lobes were performed at our centre. Receptors age (range 5 months - 4 years-old; avg: 17.7). Body weight (range: 5.2 – 15.0 Kg; avg: 9.2). The main indication for liver transplantation was biliary atresia (48%). Results: We observed 2 graft losses (1 for primary non-function and 1 for chronic rejection) both successfully treated by retransplantation. One patient developed portal vein thrombosis that required reoperation and vascular stenting. No mortality was registered. (Figure1).



Fifteen right lobes were used for liver transplantation in other centers in São Paulo. Patient and graft survival are presented in figure 2.



Conclusion: The split-liver technique can increase the number of liver grafts and can be followed by good results with a rigid selection of donors and a refined surgical technique.

Abstract# P-148

SUCCESSFUL EXTRACORPOREAL MEMBRANE OXYGENATION SUPPORT IN LIVER TRANSPLANTATION PATIENTS. Namkyu Choi. *Asan Medical Center, Seoul, Republic of Korea*

(Introduction)The extracorporeal membrane oxygenation (ECMO) has been used in the neonatal and childhood periods with excellent results. The intermediate survival, however, has been promising. We have been using the extracorporeal membrane oxygenation for temporary mechanical circulatory support of adults that present with acute refractory cardiopulmonary failure.

(Case 1)A 58-year-old female end stage liver disease due to hepatitis B virus infection, underwent cadaveric liver transplantation by 45-year old man. She preoperative chest X-ray showed both lung diffuse patchy consolidation,

this finding thought pulmonary edema and pneumonia. This patients were preoperative MELD score 34, UNOS 2a, CTP 14(c) and altered mentality, so liver transplantation was urgency.

Intraoperative SaO₂ showed 80–95% and chest X-ray finding ARDS pattern. We performed chest tube insertion in both lung. We decide immediate postoperative extracorporeal membrane oxygenation(ECMO) support, and then performed canulation between femoral vein and femoral artery. Postoperative 5 days the patients lung sound, chest X-ray and O₂ saturation much improved, so removed ECMO catheter. Patients excellent recovered and discharged no more problem.

(Case 2)A 50-year-old female end stage liver disease due to hepatitis B virus infection , undewent living donor liver transplantation, right lobe 670gm by 25-year old daughter. Preoperative MELD score was twenty six. The patient was admitted to the hospital after discharge 2month because of fever and dyspnea. LFT and liver CT scan was normal finding but, Chest X-ray and CT scan showed severe pulmonary edema and pneumonia, blood pressure dropped and O₂ saturation 70–80% on 100% O₂ in intubation state. This findings were compatible septic shock. we delivered this patient in SICU and decided early ECMO support performed. Patient improved lung and heart condition, she recovered septic shock. we removed ECMO catheter and patient recovered very well.

(Conclusion)

ECMO is a technique for providing life support for patients experiencing both pulmonary and cardiac failure by maintaining oxygenation and perfusion until native organ function is restored. Its usage is more controversial in adults, but select medical centers have reported favorable findings in patients with ARDS and other causes of severe pulmonary failure.

Use of CVVH in ECMO was associated with improved fluid balance and caloric intake and less diuretics than in case-matched ECMO controls.

Abstract# P-149

HEPATIC ARTERY RECONSTRUCTION WITH INFERIOR MESENTERIC ARTERY GRAFT IN LIVING DONOR LIVER TRANSPLANTATION. Hüseyin Astarcioğlu, Tarkan Ünek, Sedat Karademir, Tufan Egeli, Serhan Derici, Çigdem Arslan, İbrahim Astarcioğlu. *Department of Surgery Division of Hepatopancreatobiliary Surgery and Liver Transplantation, Dokuz Eylül University School of Medicine, Izmir, Turkey*

Arterial complications are the most common reason of graft loss in living donor liver transplantation. Many types of vessel grafts may be necessary in case of thrombosis and stenosis of hepatic artery (HA) and intraoperative developing intimal dissection of recipient hepatic arteries.

Between July 2003 and December 2008 158 patients have been performed LDLT in Dokuz Eylül University Hepatopancreatobiliary Surgery Unit. HA reconstruction with inferior mesenteric artery (IMA) graft was performed in 9 patients. In 5 patients intraoperative HA intimal dissection, in 3 patients thrombosis of HA and in 1 patient rupture of HA due to angiographic balloon dilatation after stenosis of HA were reasons causing reconstruction with IMA graft. All of the patients were males at the average age of 45,55 (24-63). HA flow was checked by angiographic computed tomography in early postoperative period and Doppler ultrasound examination in late postoperative period. 3 patients died from unexplained sepsis and 1 patient died from intraabdominal infection due to biliobiliary anastomosis leakage. 1 patient had been performed balloon dilatation for postoperative early developing stenosis of biliodigestive anastomosis following IMA graft replacement after intimal dissection of HA [Table 1].

Table 1. Characteristics of patients

Case Number	Age	Etiology	Follow-up (Months)	Reason of IMA Graft Replacement
1	63	HCV+HCC	Exitus 1	HAT
2	51	Ethilism	Alive 47	HAT
3	24	Budd-Chiari	Exitus 1	HAT (Retransplantation)
4	46	HBV	Exitus 1	Iatrogenic rupture of anastomosis after HAS
5	50	HBV+HDV	Exitus 2	IOID of HA
6	57	HCV	Alive 53	IOID of HA
7	33	Criptogenic	Alive 50	IOID of HA
8	43	HBV	Alive 43	IOID of HA
9	47	HBV	Alive 17	IOID of HA

HAT: Hepatic Artery Thrombosis, HAS: Hepatic Artery Stenosis, HA: Hepatic Artery, IOID: Intraoperative Intimal Dissection

In conclusion, reconstruction using the arterial graft of autologous IMA is a good option for revascularization of HA in liver transplantation and trauma patients (In our clinic IMA graft was performed in 1 patient after HA injury and in 1 patient for thrombosis of HA during cadaveric liver transplantation. Both of the patients are alive and follow-up durations are 52 and 27 months respectively.).

Abstract# P-150

LIVER SURGERY IN LIVER TRANSPLANT RECIPIENTS.

Daniele Sommacale¹, Ganesh Nagarajan¹, Fédérica Dondéro¹, Safi Dokmak¹, Alain Sauvanet¹, Claire Francoz², Francois Durand², Jacques Belghiti¹. ¹HBP Surgery, Beaujon Hospital, Clichy, France; ²Hepatology, Beaujon Hospital, Clichy, France

Background: Liver resections (LR) on liver transplant (LT) recipients are extremely rare. We present the patterns of postoperative outcomes after LR in 6 LT recipients.

Methods: Retrospective analysis of prospective data on LT recipients from 1997 to 2008 was performed. Of 850 liver transplantation recipients, 6 had LR on the transplanted liver. Demographic data, indications of surgery and post operative course were analyzed.

Results: The indication for surgery was in 6 cases: recurrent HCC (n=2); persistent fistula from posterior sectoral duct (n=1) and recurrent cholangitis due to anastomotic stricture of posterior sectoral duct (n=1); hydatid cyst (n=1) and large biliary cyst (n=1). The LR was 5 to 41 months after LT (mean 23 months) including one right hepatectomy, one right posterior hepatectomy; two left lobectomy; one pericystectomy and one biliary fenestration. Morbidity was seen in 4/6 patients (66%) including subphrenic infection in 2 patients treated by percutaneous drainage and systemic infection treated by antibiotics in 2 patients. Two patients experienced renal insufficiency which settled with medical management. There was no postoperative mortality. All the patients are alive till date (2 months to 10 years after LR). Both cases of HCC are disease free 10 and 7 years after LR. The other patients did not have recurrent cholangitis or recurrent cysts.

Conclusion: LR in LT recipients is associated with high rate of specific complications due to immunosuppression including severe infection and renal insufficiency. Therefore we recommend that LR in transplanted patients should be performed in experienced liver units involved in LT.

Abstract# P-151

ANALYSIS OF THE BILIARY COMPLICATIONS OF LIVER TRANSPLANTATION. Karim Muffak Granero, Jesús Villar del Moral, Trinidad Villegas, Daniel Garrote Lara, Jose Antonio Ferron Orihuela, Carmen Navarro Rivera, Antonio Becerra, Ana Garcia Navarro, Ana Garcia Navarro, Maria Jesus Alvarez Martín, Flor Nogueras. *Liver Transplantation Unit, H. U. Virgen de las Nieves, Granada, Spain*

INTRODUCTION. The first liver transplant in our unit was performed on April 10, 2002. Since then, 140 transplants have been carried out. We analyze the incidence, type and consequences of posttransplant biliary complications (PBC).

MATERIAL AND METHODS: Review of the prospective database of liver transplant patients. We have analyzed variables related to epidemiology, surgical techniques and PBC (biliary leakage, stenosis and choledocholithiasis).

Exclusion criteria were intraoperative death and transplants with a follow-up time lesser than 18 months. Between April 1, 2002 and July 1, 2007, 121 cadaveric donor liver transplants were carried out in 117 patients. There were five intraoperative death so, the final series is compounded by 116 transplants. The mean age of recipients was 51.7 years, being a 71 % of them men and a 29%, women.

The biliary reconstruction of choice (carried out in 111 cases) was the end-to-end choledochocholedochostomy (CC), sewn with 6-0 monofilament reabsorbable suture, with T tube in the in the first 18 cases. The choledochojejunostomy (CJ), performed in 5 cases, was reserved to biliary cirrhosis, huge diameter discrepancy between ducts, or in some cases of retransplantation.

RESULTS: The biliary-related postoperative morbidity is displayed in the next table:

biliary morbidity	CJ	CC with T tube	CC without T tube	TOTAL
Percentage of patients with PBC.	20	44.4	25.8	28
Percentage of patients with biliary leakage.	0	33.3	11.8	14
Percentage of patients with biliary stenosis.	20	16.6	11.8	12
Percentage of patients with choledocholithiasis.	0	0	2.1	1.7

CONCLUSIONS: In our experience, the best biliary reconstruction technique in liver transplantation is choledochocholedochostomy without stenting, due to its low rate of leakages and short and long-term stenosis.

Abstract# P-152

IMMUNOSUPPRESSION REGIMENS UTILIZED IN SUCCESSFUL SIMULTANEOUS HEART-LIVER TRANSPLANTS. Thomas A. Aloia¹, Erin Elliott¹, Samir Patel¹, Jerry Estep¹, Joseph Galati¹, Ahmed O. Gaber¹, Leamon Blanton¹, Matthias Loebe¹, R. M. Ghobrial¹, John Goss¹, Guillermo Torre-Amione¹. ¹Department of Surgery, The Methodist Hospital, Houston, TX, USA; ²Department of Surgery, Baylor College of Medicine, Houston, TX, USA

Introduction: Few reports on simultaneous heart-liver transplants (HLT) have elaborated on the methods for immunosuppression. The lack of existing data on this topic led us to evaluate the association between the immunosuppression strategy and our patient and graft outcomes.

Methods: Six consecutive HLTs from 2004-2008 with a median follow-up period of 30 months (range 3-54) were reviewed.

Results: The cohort included 4 men and 2 women, (5 Caucasian, 1 African American) with a mean age of 559 yrs. Heart staging statuses at transplant were 1B (n=5) and 1A (n=1). Median MELD score was 17.5 (6-24). One patient received IL-2 inhibitor induction and no patients received antilymphocyte therapies. All patients received intraoperative methylprednisolone followed by a taper to a mean prednisone dose of 5 mg by POD30. All 6 patients remained on prednisone 5mg/day. Within 48 hours of transplant, tacrolimus (TAC) and mycophenolate mofetil (MMF) were initiated in all 6 patients. After the third month, all patients were continued on TAC but only 3 patients continued on MMF. During followup, there were no liver rejection episodes and there were 2 biopsy proven cardiac rejections $\geq 2A$, occurring at day 47 and 88. Most recent testing indicates excellent allograft function [Mean values: total bilirubin 0.4, alkaline phosphatase 71, ALT 34, AST 35, INR 1.1, and echocardiogram calculated ejection fraction ranges were $>50\%$ in all patients]. Serum creatinine at POD30 and 1 year were 1.40.5 and 1.50.1, respectively. Four medically treatable post-transplant infections occurred. Current patient and dual organ allograft survivals are 100% and 100%, respectively.

Tacrolimus Levels and Mycophenolate Mofetil Dosing

	1 month	3 months	6 months	12 months	24 months
TAC level ng/mL (mean $\pm$ SD) (n=6)	9.5 $\pm$ 4.4	8.4 $\pm$ 4.0	8.6 $\pm$ 2.7	10.6 $\pm$ 3.1	10.6 $\pm$ 3.1
MMF dose gm/day (mean $\pm$ SD) (n=6)	1.8 $\pm$ 0.4	2.3 $\pm$ 0.6	2.3 $\pm$ 1.2	1.7 $\pm$ 0.6	2 (n=1)

Conclusion: Using a TAC-based immunosuppression strategy in combination with MMF and prednisone, we have achieved excellent patient and HLT allograft survivals. These results argue for expanded indications for HLT in the future.

Abstract# P-153

BILIARY RECONSTRUCTION USING A SIDE TO SIDE CHOLEDOCHO-CHOLEDOCHOSTOMY WITH OR WITHOUT T-TUBE IN DECEASED DONOR LIVER TRANSPLANTATION – A RANDOMIZED TRIAL. Sven C. Schmidt, Sascha Weiss, Andreas Pascher, Martin Stockmann, Gero Puhl, Olaf Guckelberger, Ulf Neumann, Peter Neuhaus, Johann Pratschke. Department for General, Visceral and Transplantation Surgery, Charite-Universitätsmedizin Berlin, Virchow Clinic, Berlin, Germany

Objective: The biliary anastomosis is still one of the major causes for morbidity after orthotopic liver transplantation. The optimal method of reconstruction remains controversial. The aim of the study was to assess biliary complications after liver transplantation using a choledocho-choledochostomy with or without a temporary t-tube.

Background data: Several reports have suggested that biliary reconstruction without t-tube is a safer method with a lower rate of biliary complications compared with t-tube insertion.

Methods: 194 recipients of deceased donor liver grafts were randomized. In group 1 the biliary reconstruction was performed by side to side choledocho-choledochostomy with (n=99) and in group 2 (n=95) without a t-tube. The t-tube was removed after 6 weeks. Statistical analysis included Fisher's exact and Chi-square test.

Results: The overall biliary complication rate was increased in group 2. Biliary leaks occurred in 5 patients in group 1 and in 9 patients in group 2 (5.05% vs. 9.47%; P=0.2756 ns). Anastomotic strictures of the bile duct were seen in 7 patients of group 1 and in 8 patients of group 2 (7.07% vs. 8.42%; P=0.7923 ns). Papillary stenosis occurred in 3 patients with t-tube insertion and 3 patients without t-tube insertion (3.03% vs. 3.16%; P=0.9591 ns). 2

of the patients in group 1 and 2 patients in group 2 developed an ischemic type biliary lesion (3.03% vs. 2.11%; P=0.9668 ns). No complications after removal of the t-tube were observed.

Conclusion: This study is a large prospective randomized trial to assess biliary complications after liver transplantation after anastomosing the bile duct with or without t-tubes. An increased rate of biliary complications in the group without t-tube insertion was observed, however not reaching statistical significance. In summary our results indicate that the usage of t-tubes is safe and an excellent tool for the quality control of biliary anastomoses.

Abstract# P-154

BILIARY TRACT COMPLICATIONS FOLLOWING LIVER TRANSPLANTATION – ROMANIAN EXPERIENCE. Bogdan Dorobantu, Mihnea Ionescu, Vlad Brasoveanu, Doina Hrehoret, Emil Matei, Simona Dima, Irinel Popescu. Center of General Surgery and Liver Transplantation, Fundeni Clinical Institute, Bucharest, Romania

BACKGROUND: Despite technical modifications and application of various surgical techniques, biliary tract complications remain a major source of morbidity after orthotopic liver transplantation. We review the incidence and management of biliary complications at a single liver transplant unit.

METHODS: Between April 2000 (when the first successful LT was performed in Romania) and November 2008 170 LTs in 161 recipients (9 retransplantations) were performed as follows: 115 whole cadaveric graft LTs, 6 split LTs, 4 reduced-size LTs, one domino LT, and 44 living-donor LTs in 29 children and 132 adults. Among 116 consecutive whole liver transplants, 47 were female and 69 male patients of median age of 45years (range 11 to 69). 103 duct-to-duct anastomoses (within 15.5% with T-tube) and 13 hepaticojejunostomy were performed. We analyzed the incidence and type of biliary complications, management sequence, and success rate.

RESULTS: Mean follow-up was 872 days (range 1-3174), 1, 3 and 5-year survival rates were 79.3% 74.7% and 72.2%, respectively. Twenty-five patients developed 29 biliary complications, giving an overall incidence of 21.5%. There was a higher incidence of complications among patients in the duct-to-duct technique (22.3%) than the hepaticojejunostomy group (15.38%). Bile leakage occurred in 9 patients, including three successful cases (33.3%) of endoscopic stent insertion/radiological techniques and surgery in six cases (66.6%). Among the 9 patients with initial leaks, three developed a subsequent stricture (33.3%). There were 18 cases of biliary stricture, 88% were surgically managed, and 1 cholangitis that is in clinical observation. Only one death was secondary to a biliary leak, and there was no significant difference in the incidence of biliary complications by type of reconstruction, age, preservation time or associated HA complications (p= 0.973).

CONCLUSION: Biliary complications are common after orthotopic liver transplantation but are rarely an isolated cause of death. Non operative interventions have an increasing role in the treatment of biliary complications; however, tight strictures and major leaks frequently required surgical intervention.

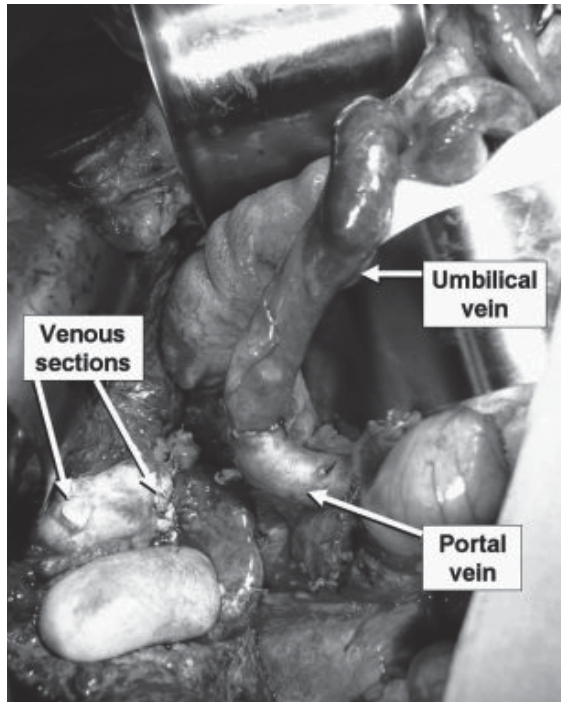
Abstract# P-155

PATENT UMBILICAL VEIN AND BOWEL EDEMA DURING LIVER TRANSPLANTATION. USEFULNESS OF PORTOUMBILICAL SHUNT. Ignacio M. Gonzalez-Pinto¹, Carmen Garcia-Bernardo¹, Lino Vazquez¹, Alberto Miyar¹, Luis Barneo¹, Emilia Cortes², Maria Moreno¹, Pedro Picatto². ¹Surgery, Hospital Universitario Central de Asturias, Oviedo, Spain; ²Anesthesiology, Hospital Universitario Central de Asturias, Oviedo, Spain

Introduction: Bowel edema during liver transplantation is due to the cross-clamping of the portal vein. It is also determined by the markedly increased splanchnic blood flow due to cirrhosis, and decreased by the presence of spontaneous porto-systemic collaterals. Patients with paraumbilical vein patency have a higher portal flow.

Purpose: We intend to demonstrate that the risk of bowel edema in liver transplantation is higher in the presence of a large patent paraumbilical vein, and that the performance of a temporary portoumbilical shunt may be a beneficial technique.

Methods: The development of bowel edema during liver resection, led us to the performance of a temporary porto-systemic shunt in 29 patients. Most of the patients underwent a portocaval shunt, but the last 3 who presented a widely patent paraumbilical vein underwent a portoumbilical anastomosis.



During preparation of the surgical field and dissection of the liver hilum, the vein was preserved. Once the portal vein was isolated, both veins were severed close to the liver parenchyma, and anastomosed end to end. Thereafter, hepatectomy with preservation of vena cava was performed.

Results: Ten (34.5%) of the 29 patients with significant edema—those who were shunted—had a wide recanalized paraumbilical vein as shown in preoperative CT.

Flow of the portotomical shunt was over 1 liter/min. Initial edema appeared after portal cross-clamping, which resolved after shunting.

Conclusions:

- The risk of bowel edema is higher in patients with a wide recanalized paraumbilical vein.
- Portotomical anastomosis is a simple technique to avoid bowel edema during liver transplantation in cases with a large patent paraumbilical vein.

Abstract# P-156

IMMUNOHISTOCHEMICAL DETECTION OF MRP2 AS AN EARLY POSTOPERATIVE MARKER FOR PREDICTION OF PERSISTENT BILIARY STRICTURE AFTER LIVER TRANSPLANTATION. Joohyun Kim¹, Kyung-Suk Suh¹, Taehoon Kim¹, Woo Young Shin¹, Nam-Joon Yi¹, Ja-June Jang², Kuhn Uk Lee¹. ¹Surgery, Seoul National University College of Medicine, Seoul, Republic of Korea; ²Pathology, Seoul National University College of Medicine, Seoul, Republic of Korea

Biliary strictures are the most frequent and serious type of biliary complications, especially in non-heart-beating donor (NHBD) liver transplantation (LT). MRP2 (Multidrug resistance-related protein 2) is a bile salt transporter located in canalicular membrane of hepatocyte, and it is a major determinant of bile flow. The purpose of this study is to identify the value of immunohistochemical detection of MRP2 as a marker predicting persistent and serious biliary strictures after liver transplantations. Thirty-three recipients of deceased donor liver transplantation (including 14 recipients of NHBD LT in China) who underwent liver biopsy between the 2nd and the 8th postoperative week and followed for more than 2 years were included in this study. Among the 14 patients with biliary strictures, 7 patients showed intrahepatic strictures. All intrahepatic strictures were occurred in NHBD LT recipients. Recipients were divided into 2 groups: those who required biliary intervention for more than 2 years (Group A, n=8) and who did not (Group B, n=25). We evaluated paraffin-embedded liver graft tissues with immunohistochemical staining using monoclonal antibodies for MRP2, and MRP2 score was obtained by the product of the staining intensity (1+, 2+ and 3+) and the extent (the percentage of cells staining). MRP2 score was significantly lower in Group A (P=0.022). The area under the receiver

operating characteristic curve to predict persistent biliary stricture was estimated to be 0.768 (95% confidence interval, 0.61-0.93). MRP2 score value with the best combination of sensitivity and specificity was 185 (sensitivity 87.5%, specificity 60.0%). Patients with lower MRP2 score (<185) were more frequently involved in Group A (P=0.039), and the odds ratio for persistent biliary stricture was 10.50 (95% confidential interval, 1.12-98.91). Furthermore, NHBD LT recipients were more frequently involved in the lower MRP2 score group (P=0.049). Two NHBD LT recipients with diffuse necrosis type of intrahepatic biliary stricture showed very low MRP2 score of 60. Our results suggest that there is a potential utility of MRP2 as an early postoperative marker for prediction of persistent biliary stricture after liver transplantation, especially in NHBD LT.

Abstract# P-157

DIAGNOSIS AND TREATMENT OF FUNGAL INFECTIONS IN ORGAN TRANSPLANTATION. Kefeng Dou, Kaishan Tao, Zhenyu Ti, Dayong Cao, Lin Wang, Wei Zhang. *Center of Organ Transplantation, Xijing Hospital, Fourth Military Medical University, Xi'an, Shaanxi Province, China*

[Objective] To summarize the manifestation of fungal infections in organ transplantation and discuss the diagnosis and treatment of it. **[Methods]** A total of 164 organ transplantation cases of our center, including 1 combined heart, liver and kidney transplantation, 1 combined liver, pancreas and kidney transplantation, 1 combined pancreas and kidney transplantation, were analyzed retrospectively, on purpose of investigating the clinical manifestation, diagnosis and treatment of fungal infection. **[Results]** Among the 164 cases, 10 were regarded as fungal infections in organ transplantation (7 regarded as aspergillus infections, 3 regarded as mucoraceae infections), the incidence was 6.1%, 6 were dead and the mortality was 60%. **[Conclusion]** With the use of broad-spectrum antibiotics and immunosuppressive drugs, fungal infections in organ transplantation became much more prevalent, it is important to establish an evaluation system and take a series of measures to prevent and reduce fungal infections, so as to raise the success rate and survival rate of patients undergoing organ transplantation.

Abstract# P-158

POLYCYSTIC LIVER DISEASE AND LIVER TRANSPLANTATION: A SINGLE CENTER EXPERIENCE. Burcin Taner, Darrin L. Willingham, Lena Sibulesky, Hani P. Grewal, Justin H. Nguyen. *Department of Transplantation, Mayo Clinic Florida, Jacksonville, FL, USA*

Adult polycystic liver disease (PLD) can cause massive hepatomegaly leading to pain, caval obstruction, and hemorrhage. In addition to substantial morbidity and mortality, conservative surgery may have limited success or palliation may be temporary. With improved results of liver transplantation, this treatment modality has become a definitive treatment for patients with PLD. We have retrospectively reviewed our experience with PLD patients between 1998-2007. There were 13 patients who underwent liver only or liver-kidney combined transplantation. All cases were performed with preservation of the recipient's IVC and without veno-venous bypass (piggy-back technique). Seven patients had combined liver and kidney transplantation. Three patients had nephrectomy at the time of transplantation. Median age was 55 (range 39-72). Median intra-operative RBC requirement was 15 (range 4-63) units. Median cold ischemic time was 451 minutes (range 273-696). Mean native liver weight was 7791 (range 1790-17770) grams. One patient died intraoperatively from cardiac arrest. One patient died on post-operative day 7 as a result of widespread mesenteric and portal venous thrombosis secondary to lymphoma in the native liver which was diagnosed at the time of OLT. Another patient died on post-operative day 74. For the remaining 10 patients, median post-transplant ICU and hospital stay were 3.5 (range 1-180), and 17.5 (range 5-195) days, respectively. Nine additional surgical procedures were performed in 5 patients for post-transplant complications. Excluding the patients who died in the peri-operative period median graft and patient survival were 23.5 (range 10-59) months. There are 9 patients who are still alive with median graft and patient survival of 24 (range 10-59) months. Mean age of patients who died intra-operatively or in the peri-operative period was 68 years, while that of who survived beyond the peri-operative period was 52. In conclusion, our patients experienced high rate of peri-operative morbidity. However, long-term patient and graft survival were excellent.

Abstract# P-159

POST-TRANSPLANT ALTERATION OF IL-6/STAT3 EXPRESSION AND BILIARY EPITHELIAL CELL PROLIFERATION IN RAT LIVER GRAFTS IN DIFFERENT COLD PRESERVING CONDITIONS. Jiahong Dong, Liping Chen. *Hospital & Institute of Hepatobiliary Surgery, Chinese PLA General Hospital, Beijing, Colombia; Institute of Hepatobiliary Surgery, Southwest, Third Military Medical University Hospital, Chongqing, China*

Background Graft Cholangiopathy remains one of common complications of orthotopic liver transplantation, of which cold preservation and reperfusion injury to biliary epithelial cells (BEC) has been known to be the most dangerous contributing factor. This study focused on IL-6/STAT3 activation and BEC proliferation after rat liver transplantation, shedding a new light on the prevention of Graft Cholangiopathy after liver transplantation.

Materials and methods Wistar rats were randomly divided into four groups, CP-1h, CP-12h group (grafts preserved in UW solution at 4° for 1h and 12h, respectively), RPM group (CP-12h group with rapamycin treatment) and C group (control). Based on the classic "two-cuff" technique for orthotopic liver transplantation in rat, end-to-end anastomosis between the common hepatic arteries of donor and recipient by the modified "Gao stent" was performed to reconstruct hepatic artery. At 1, 3, 7, 14d after operation, BEC proliferation was detected by immunohistochemistry, liver IL-6 mRNA expression was measured by real-time RT-PCR. STAT3 activation was determined using laser confocal scan microscopy.

Results In CP-1h group, expression of IL-6 mRNA was increased at the first day (0.41 ± 0.03 vs. 0.15 ± 0.05), and then fell to the C group level at 7d after operation. STAT3 activation and BEC proliferation following liver transplantation showed a similar trend. Compared with those in CP-1h group, IL-6 mRNA and STAT3 activation rise significantly in CP-12h group. BEC proliferation in CP-12h group was also enhanced significantly. There was a direct correlation between IL-6 mRNA level and STAT3 activation ($r=0.95$, $P<0.05$). RPM remarkably inhibited STAT3 activation and BEC proliferation at all four time points ($P<0.05$) after liver transplantation.

Conclusions Prolonged cold ischemia may activate IL-6/STAT3 pathway which might be involved in the molecular process of BEC proliferation after liver transplantation.

Abstract# P-160

ORTHOTOPIC LIVER TRANSPLANTATION FOR HEPATIC ADENOMA IN A PATIENT WITH COMPLETE PORTAL VEIN AGENESIS. Lena Sibulesky, Burcin C. Taner, Raj Satyanarayana, Justin H. Nguyen. *Transplantation, Mayo Clinic Florida, Jacksonville, FL, USA*

Congenital portal vein agenesis, known as the Abernathy's malformation, is associated with focal nodular hyperplasia and adenomas due abnormal hepatic regeneration secondary to abnormal or absent flow to the liver. We report a case of a 25-year-old Caucasian female with a complicated medical history including idiopathic membranoproliferative glomerulonephritis, hypertension, hyperlipidemia, Sweet's syndrome, acute febrile neutrophilic dermatosis, who incidentally was diagnosed with multiple liver nodules, the largest 14 cm in diameter. She was also noted to have a congenital absence of the portal vein with the splenic vein joining the superior mesenteric vein before emptying into the supraceliac inferior vena cava. There was no evidence of cirrhosis or portal hypertension. A biopsy of the largest mass revealed hepatocellular adenoma. Because of the size, location and multiplicity of the lesions, we elected to proceed with the orthotopic liver transplantation. The patient was granted 22 MELD points and placed on the UNOS waiting list. She subsequently underwent deceased donor liver transplant using a piggyback technique. After completion of the hepatic vein anastomosis the portal vein was stapled off the IVC. Donor and recipient portal veins were anastomosed in the end-to-end fashion. While the anastomosis was being completed, a large parenchymal laceration was noted through the splenic hilum. Repair of the laceration was attempted but was unsuccessful. Patient underwent splenectomy. This complication is very rare. It has been described with clamping of the portal vein for liver resections. It occurs in patients with the normal liver parenchyma without cirrhosis, portal hypertension or collaterals. She did well postoperatively with good liver function and was discharged home on the postoperative day 5.

Abstract# P-161

EARLY BILIARY COMPLICATIONS IN 128 CONSECUTIVE LIVING DONOR LIVER TRANSPLANT RECIPIENTS PERFORMED IN ONE YEAR: A NEW SURGICAL TECHNIQUE. Vedat Kirmlioglu¹, Sezai Yilmaz¹, Mehmet Yilmaz¹, Cuneyt Kayaalp¹, Burak Isik¹, Bulent Unal¹, Hale Kirmlioglu². ¹General Surgery, Inonu University Medical School, Malatya, Turkey; ²Pathology, Inonu University Medical School, Malatya, Turkey

Complications involving the biliary tract after liver transplantation (LTx) which is mainly categorized as bile juice leakage and bile duct stenosis are a common problem. It is reported to be 10 to 15 % after full size LTx and may be as high as 64% after living donor liver transplantation (LDLT). The term early complication defines a time period of 1 to 3 months after LTx. One hundred and fifty-three livers Tx are performed in year 2008 in Medical Centre of which 128 were LDLT (117 right 11 left). Twelve early biliary tract complications 9.3% are seen in 128 consecutive LDLT in a period of 1 to 12 months. Eight surgical and 2 radiological drainage procedures were applied in a period of 3 weeks after LDLT. Three of these patients posed bile duct stricture and underwent ERCP in whom a nasobiliary stent of 11F was placed in all patients after 3 and 4 months. Although the first patient did well, the other 2 did not improve and underwent to permanent access hepatico-jejunostomy PAHJ procedure 3 and 6 months after the LDLT. Other two patients suffered from bile duct stenosis 2 weeks and 2 months after the LTx and recovered after PAHJ procedures.

For the biliary reconstruction, a new surgical technique was applied. First 6-0 Prolene sutures are placed in the anterior wall than the posterior row was completed in a continuous fashion using parachute technique. Finally the anterior row is completed in a fashion adapted by L. Blumgart. Published data about early biliary tract complications give a period of mean 0.7 months after LTx. Our study with follow-up period of 0.5 months to 12 months mean 7 months is actually long enough to conclude a result of an acceptable complication rate of 9.3%.

Abstract# P-162

A NEW CHAPTER IN LIVER TRANSPLANTATION: CONTRAST ENHANCED ULTRASOUND AND HEPATIC ARTERY THROMBOSIS. Umberto Maggi, Roberto Lauro, Gianni Paone, Paolo Bertoli, Giorgio Rossi. *U.O. Chirurgia Generale e Trapianti di Fegato, Fondazione Ospedale Maggiore IRCCS Policlinico, Mangiagalli e Regina Elena, Milano, Italy*

AIMS
1) To understand why some patients with a radiological diagnosis of hepatic artery thrombosis (HAT) after liver transplantation (LT) on CT Scan or/and arteriography, are in good health with normal hepatic biochemical tests 2) To determine if contrast enhanced ultrasound (CEUS) can be useful to follow up this subset of HAT patients (pts) and to identify pts at higher risk of hepatic failure and in need of retransplantation (RETx).

PATIENTS AND METHODS

In 2008 we began to use CEUS after LT as part of the postoperative follow up of arterial and portal patency. At the same time we focused our attention on LT pts with an established diagnostic of HAT but in good health and with normal hepatic tests. These pts were studied with US Doppler and CEUS. Retrieved data were: contrast identification of the hepatic artery (HA) and portal vein, time occurring between contrast injection and visualization of those vessels; doppler evaluation of the resistive index (RI).

From 1997 to 2007, 348 LT were performed in adult recipients in our unit. Twenty-two grafts (6.3%) underwent a HAT. 17 out of the 22 grafts underwent RETx; the remaining 5 patients are in good health and were the object of our study with CEUS.

RESULTS

Two pts showed the presence of a collateral circulation on CT scan and angiography that was clearly confirmed with CEUS, with early visualization of the HA but with quite low RI at Doppler evaluation. CEUS was very useful in the spatial identification of the HA for Doppler evaluation. One pt with the presence of a collateral circulation showed a very late hepatic arterial flow with CEUS. In two pts no exam (CT scan, angiography, doppler nor CEUS) detected an intrahepatic arterial circulation.

DISCUSSION AND CONCLUSION

In HAT after LT, CEUS seems to be able to provide useful informations: 1) the presence of the image of the hepatic artery with CEUS suggests the onset of a collateral arterial circulation: the time from ultrasound contrast injection to arterial visualization, together with RI at Doppler examination

can provide further informations on the efficacy of the collateral arterial circulation 2) The absence of arterial visualization even with CEUS seems to be a high risk condition: arterial insufficiency could precede hepatic failure: a very strict follow-up is mandatory in these patients and RETX should be considered.

Abstract# P-163

THE SIDE-TO-SIDE CAVOCAVOSTOMY TECHNIQUE ELIMINATES HEPATIC VENOUS OUTFLOW STENOSIS IN ORTHOTOPIC LIVER TRANSPLANTATION. Christopher J. Sonnenday, Amit Mathur, Dennis S. Lee, Michael J. Englesbe, David G. Heidt, John C. Magee, Jeffrey D. Punch, Randall S. Sung, Theodore H. Welling, Kenneth J. Woodside, Shawn J. Pelletier. *Department of Surgery, University of Michigan, Ann Arbor, MI, USA*

Background: Vena cava or hepatic venous (HV) stenosis can cause significant morbidity following orthotopic liver transplantation (OLT). In an effort to prevent this complication, we adopted the side-to-side cavocavostomy (SSC) as our preferred method of caval reconstruction in OLT. The present study compares our recent outcomes with the SSC to past experience with the piggyback (PB) and bicaval (BC) techniques.

Methods: Retrospective review of all adult whole organ OLTs (n=152) performed at a single center from 7/1/06 to 7/1/08. BC liver transplants were performed when the primary surgeon determined a retrohepatic dissection was prohibitive (n=33). All other OLTs were performed consecutively by PB (7/06-6/07, n=63) or SSC (7/07-6/08, n=56). Our SSC technique consists of a retrohepatic dissection with division of the HVs using an endovascular stapler. A side-biting clamp is used to partially occlude the recipient vena cava below the level of the HVs. The supra- and infrahepatic donor cavae are stapled closed and a posterior donor cavotomy is sewn to an anterior recipient cavotomy in a continuous fashion. IVC or HV stenosis was defined as hemodynamically significant stenosis by venous manometry, with clinical symptoms, that required an interventional radiology procedure (dilatation +/- stenting).

Results: Recipients who underwent OLT by BC, PB, or SSC did not vary by age, gender, diagnosis, BMI, or MELD at transplant. Warm ischemic time (WIT) was no different between groups (35 min BC, 35 min PB, 37 min SSC, P=NS), though the faster caval anastomosis allowed both the portal vein and hepatic artery to both be completed prior to reperfusion, as compared to the portal alone, in 57% of SSC cases (0% BC, 4% PB, P<0.001). One year graft (84%) and patient survival (87%) did not vary between groups. In the PB group, there were 8 cases (13%) of HV stenosis (all diagnosed in first 1-8 months post OLT), 4 of which required more than 1 procedure to treat. One death occurred in a patient with severe HV stenosis. In the BC group, there were 2 cases of HV stenosis. In patients undergoing SSC, there have been no cases of HV or IVC stenosis.

Conclusion: SSC is a safe and efficient procedure that is associated with the elimination of early HV/IVC stenosis after OLT.

Abstract# P-164

OVERALL RESULTS OF A LIVER TRANSPLANTATION PROGRAM AFTER SIX YEARS OF EXPERIENCE. Karim Muffak Granero, Jesús Villar del Moral, Carmen Navarro Rivera, Trinidad Villegas Herrera, Ana Garcia Navarro, Antonio Becerra, Maria Jesús Alvarez Martin, Daniel Garrote Lara, Jose Antonio Ferron Orihuela. *Liver Transplantation Unit, H. U. Virgen de las Nieves, Granada, Spain*

INTRODUCTION. Outcomes related to standards are of critical significance for a newly created liver transplant unit. Our unit started its activity in April 2002. We pretend to evaluate our results, valuing the effect of the learning curve in these outcomes.

MATERIAL AND METHODS: We have valued several epidemiological and clinical variables of patients transplanted during the time of activity of the unit, analysing its prospective database.

RESULTS: From April 2002 to June 2008, 140 liver transplants have been performed in 135 patients (retransplant rate of 3.5 %). The recipient mean age was 51.4 years, with a male:female ratio of 2:1. The main transplant indication was liver cirrhosis in 70% (alcoholic in 39.1% of the series, virus C related 16.3%, due to virus B 6.3%, criptogenetic 6.3%, other causes of cirrhosis 2%). Other indications were hepatocellular carcinoma in 20%, acute liver failure in 5.1%, retransplant in 3.6%, and one patient with polycystic liver disease. The mean waiting list time was 124.6 days (limits 1 and 543 days), and the average MELD score before transplant was 18.2.

All the hepatectomies were performed with caval vein preservation; in the last 40 cases we added a temporary portocaval shunt. In relation to biliary reconstruction, in 95.7 % of cases, a duct-to-duct anastomosis was performed, with T-tube in the first 17 (12.1 %), and without tube in 117 (83.5 %). In six, a choledochojunostomy was performed.

The mean hospital stay was 18 days. Sixteen patients (11.4%) needed reoperations: wound dehiscence in 2.8%, portal thrombosis 2.1%, bleeding 2.1%, hepatic artery thrombosis 0.7%, biliary leakage 1.4%, other causes 2.1%.

In 34 cases (28.5%) we had biliary complications: 18 (12.8%) stenosis, 14 leakages (10%) and 2 patients with common bile duct stones. There were 26 patients with vascular complications: 19 (13.5%) hepatic artery thrombosis or stenosis and seven cases of portal thrombosis. A 25% of the recipients had episodes of acute rejection, and the rate of three-months infectious complications rate was 28.5%. One and five-year actuarial survival was 84.4% and 70.2%, respectively.

CONCLUSIONS: We can see similar patient outcomes when comparing our results to those of the other liver transplant groups.

Abstract# P-165

HEPATIC VEIN RECONSTRUCTION FOR EXTENDED RIGHT LOBE GRAFT IN LIVING DONOR LIVER TRANSPLANTATION. Chul Soo Ahn, Sung Gyu Lee, Shin Hwang, Ki Hun Kim, Deok Bog Moon, Tae Yong Ha, Gi Won Song, Dong Hwan Jung, Kwan Woo Kim, Nam Kyu Choi. *Department of Liver Transplantation and Hepatobiliary Surgery, Asan Medical Center, Seoul, Korea*

In living donor liver transplantation, right lobe grafts are widely used to reach recipient's metabolic requirements. But sometimes right lobe graft can not reach the demand of patient's physiologic demand. Extended right lobe(ERL) grafts may be an alternative solution. Due to the complexity of hepatic vein openings, some modification should be applied, both graft and recipients. We introduce our techniques for ERL engraftment.

On back table, after the graft harvest and perfusion, a small vessel patch was placed between right hepatic vein(RHV) and middle hepatic vein(MHV) of graft. If these two veins were located closely, direct suture could be possible to make one opening. Two or three fold of vein patch were applied on MHV side to make big and sufficient anastomosis.

In recipient side, hepatic veins were examined and measured after diseased liver removal. Usually big wide opening was made by excision of IVC between right and middle hepatic veins. To make sufficient space, we made new cuff around unified hepatic vein of recipient. Recipient's great saphenous vein was most commonly used, but cryopreserved vessels could be used also. Graft anastomosis was done between two new cuffs of graft and recipient's hepatic vein. Intermittent traction was helpful to adjust its length. After hepatic vein anastomosis, portal vein, hepatic artery, bile duct were reconstructed as usual procedures.

Venoplasty in ERL takes more time and effort, but it guarantee more graft volume and better graft function.

Abstract# P-166

MORBIDITY OF BILIARY COMPLICATION IN LDLT IS ENHANCED BY DUCTOPLASTY IRRESPECTIVELY OF THE OPERATIVE APPROACH: A COMPARISON BETWEEN TWO DIFFERENT INSTITUTIONAL EXPERIENCES. Roberto Troisi¹, Alessandro Giacomoni², Roberto Montalti³, Andrea Lauterio², Abdallah O. Slim², Luciano De Carlis², Bernard de Hemptinne¹. ¹General & Hepato-Biliary Surgery, Ghent University Hospital Medical School, Ghent, Belgium; ²Hepatobiliary Surgery and Liver Transplantation Unit, Niguarda Hospital, Milan, Italy; ³Multivisceral Transplantation Center, University Hospital Policlinico, Modena, Italy

Background. Biliary complications (BC) in adult-to-adult living donor liver transplantation (LDLT) are the major cause of morbidity affecting early and long-term outcomes. We analyzed retrospectively the incidence, risk factors and overall morbidity of 115 consecutive LDLT comparing two different surgical approaches. Materials and methods. Clinical data of 115 consecutive LDLT from Ghent University Hospital (Center 1, 77 pts) and Milan Niguarda Hospital (Center 2, 38 pts) performed during September 1999 and November 2007 were evaluated. Recipient's M/F ratio was 71/44 and the median age was of 52 y (range 19-67). Pre and perioperative differences were as follows: Cholangio-CT for donor evaluation, intraoperative cholangiography (IOC),

cutting ducts after parenchyma transection, HTK perfusion, single stitches anastomosis (Center 1); Cholangio MRCP for donor evaluation, no IOC, cutting before parenchyma transection, Celsior perfusion and running/ single stitches anastomosis (Center 2). Ductoplasty for joining 2 single apart ducts in one anastomosis were identically performed with absorbable suture, duct-to-duct anastomosis preferred when possible and external biliary drainage routinely applied. Results. Following a median FU of 46 m (range 12-106 m) a total of 38/115 (33%) patients experienced early and 26/115 (22%) late BC (p=ns for Center 1 vs. Center 2). Ductoplasty were significantly associated with BC (p=0,007 for Center 1 and 0,049 for Center 2). Univariate analysis identified ductoplasty as significant factors for early BC. Ductoplasty and small ducts (<4mm) were significantly associated to late BC and the multivariate confirmed ductoplasty as independent risk factor. Five out of 115 (4,3%) grafts were lost due to BC. Overall graft survival was of 70% and 64% at 5-y respectively in patients with and w/o BC (p=ns). Conclusions. BC represents a significant source of morbidity potentially leading to graft loss in LDLT. BC originating from ductoplasty are irrespective of the perioperative surgical approach and its avoidance may significantly lower the morbidity.

Abstract# P-167

LIVING DONOR LIVER TRANSPLANTATION FOR HEPATOPULMONARY SYNDROME. N. Mehta, S. Saigal, V. Kumaran, R. Mohanka, N. Saraf, S. Nundy, A. Soin. *Department of Surgical Gastroenterology and Liver Transplantation, Sir Ganga Ram Hospital, New Delhi, India*

Hepatopulmonary syndrome (HPS) characterized by a triad of impaired arterial oxygenation, hepatic dysfunction and presence of intrapulmonary vascular dilations and is an independent risk factor for mortality in patients with end stage liver disease. Liver transplantation is the only definitive treatment leading to reversal of shunting, however increased postoperative morbidity and mortality has been reported. Results of HPS remains poorly defined in living donor liver transplantation (LDLT). We present our experience in six patients who underwent LDLT for HPS.

Methods: Data was obtained from a prospectively maintained database of 325 LDLTs performed until 2008. Six patients (5 males, 1 female) underwent right lobe LDLT for chronic liver disease with HPS. Mean age was 46 years. Diagnosis of HPS was based on arterial hypoxemia (PaO₂ <70mmHg) and evidence of a right-to-left shunt on contrast echocardiography and Macroaggregated Albumin Scan (MAA). Cyanosis and clubbing was seen in all patients. The etiology of liver disease was autoimmune (n=1), cryptogenic (n=3) and hepatitis C (n=2). Patients were Child-Pugh's grade B (n=3) and grade C (n=3). MELD range was 14 – 23. MAA shunt fraction in these patients was between 11% to 43%.

Results: Patient and graft survival at median follow up of 16 months was 100%. There were no episodes of rejection, vascular or biliary complications. All patients had resolution of HPS clinically on contrast echo and MAA scan performed 4-6 weeks later. Peri-operative details are in table 1.

Table 1: Peri-operative details of patients with Hepato-pulmonary syndrome

Patient No.	MELD	Shunt fraction(%)	Pre-op pO2	Ventilation period	Hospital stay(days)	Secondary pulmonary hypertension
1	23	27	62.1	<12 hrs	7	No
2	15	43	63.7	<12 hrs	16	No
3	14	43	55.3	<12 hrs	15	No
4	22	10.75	61	21 days	44	Yes
5	14	11.4	50.6	38 hrs	17	No
6	17	31.8	51.8	24 days	43	Yes

MELD: Model for end stage liver disease

Conclusions: LDLT is an excellent therapeutic option for HPS although these patients require complex post-transplant ventilatory management.

Abstract# P-168

RESCUE APPROACH FOR UNEXPECTED PORTAL VEIN THROMBOSIS DURING ORTHOTOPIC LIVER TRANSPLANTATION. Daniela Kniepeiss, Helmut Mueller, Doris Wagner, Silvia Schaffellner, Estrella Jakoby, Florian Iberer, Karl-Heinz Tscheliessnigg. *Department of Surgery, Division of Transplantation, Medical University Graz, Graz, Austria*

Thanks to innovative surgical techniques, portal venous thrombosis no longer is a contraindication for liver transplantation. In case of extensive portal and mesenteric venous thrombosis, cavoportal hemitransposition has been described as a salvage technique but experience is still limited and there is a high risk of serious complications. We present an alternative management of portal vein thrombosis during liver transplantation.

A 61-year-old man with liver cirrhosis underwent liver transplantation. Although preoperative Doppler ultrasound showed portal perfusion, severe portal vein thrombosis was found during transplantation. Obviously, the flow of one variceal vein located cranial to the hepatic artery was interpreted as portal vein flow in the pretransplant ultrasound examination. As a salvage measure, the variceal collateral vein was used for portal end-to-end anastomosis. Postoperatively, primary graft function was acceptable and improved day by day. Moderate renal failure as defined by the K/DOQI-guidelines improved gradually and dialysis was never indicated.

Persistent ascites required repeated paracentesis during the first month after liver transplantation but medical treatment sufficed thereafter.

Six months after transplantation the patient has normal liver function and adequate renal function. Colour Doppler ultrasound shows normal flow in all vessels. There are no ultrasonographic signs of ascites and diuretics are not required.

We conclude that when there is portal vein thrombosis, a collateral vein of sufficient calibre in the hilum can be used if present for portal vein anastomosis. In our case the surgical procedure was uneventful; postoperative complications were not serious and were controllable with medical therapy.

Abstract# P-169

VASCULAR COMPLICATIONS AFTER PEDIATRIC SPLIT LIVER TRANSPLANTATION: DIAGNOSIS, TREATMENT AND RISK FACTORS. Marco Spada, Pieralba Catalano, Fabrizio Di Francesco, Angelo Luca, Silvia Riva, Davide Cintorino, Settimo Caruso, Bruno Gridelli. *ISMETT, UPMC, Palermo, Italy*

PURPOSE: Analyze vascular reconstruction, diagnosis and treatment of vascular complications after split liver transplantation.

METHOD: Over 5 years, we performed 95 liver transplantations (LTx) in 80 children. 75 were primary LTx that represent our study group. Recipient median age was 2.4 yrs. Median follow up was 25 months. Pre-LTx vascular anatomy was assessed with angio-CT. Split liver was *in situ*, leaving main hepatic artery (HA) with the left lateral segment (LLS). Post-LTx liver flows were monitored with ultrasound and in case of abnormal findings angio-CT was used.

RESULTS: Pre-LTx HA anomalies were detected in 36% of cases, portal vein (PV) hypoplasia in 13%, and PV thrombosis in 5%. Recipients received 12 whole livers (WL), 53 LLS, and 11 extended right grafts (ERG). HA anomalies were detected in 10 grafts, requiring bench reconstruction in 3 cases; 7 LLS had two left hepatic veins requiring bench plasty or conduit. HA anastomosis was between graft and recipient HA or celiac trunk in 60 cases, between graft celiac trunk and recipient aorta in 4, and between ERG right HA and recipient right HA in 11. PV anastomosis was with an interposed vein graft in 2 cases. In 3 LLS recipients venous outflow was restored creating a neocava with and iliac vein graft. 3-year patient and graft survivals were 86% and 82%. Post-LTx, HA thrombosis developed in 4 cases; 1 LLS recipient died, while the others were treated with anastomosis redo (WL=1, ERG=1) or reLTx (WL=1). HA stenosis developed in 6 cases (LLS=3, ERG=3), all treated with angioplasty. Early PV thrombosis developed in 3 LLS recipients, treated with anastomosis redo. Outflow obstruction was diagnosed in 4 LLS recipients treated with angioplasty. Univariate and multivariate analysis identified among 18 parameters small donor, ERG, and portal vein hypoplasia as risk factors for HA thrombosis, HA stenosis and PV complications, respectively.

CONCLUSION: Split LTx can be safely used in pediatric LTx with a low rate of vascular complications, that can be effectively diagnosed and treated in an high percentage of cases.

Abstract# P-170

PNEUMATOSIS INTESTINALIS AFTER LIVER TRANSPLANTATION: SINGLE CENTER EXPERIENCES.

Ja Young Cho¹, Sung-Gyu Lee¹, Heon-Ju Kwon², Kyoung Won Kim², Gi-Won Song¹, Shin Hwang¹, Ki-Hun Kim¹, Chul-Soo Ahn¹.

¹Division of Hepatobiliary Surgery and Liver Transplantation, Department of Surgery, Asan Medical Center, Seoul, Korea;

²Department of Radiology and Research Institute of Radiology, Asan Medical Center, Seoul, Korea

(Background) Pneumatosis Intestinalis is a condition rarely diagnosed after the Liver transplantation (LT). It may be both fatal or benign self-limiting. The purpose of this study is to elucidate the actual incidence of pneumatosis intestinalis (PI) after LT and to figure out the clinical features and characteristic CT findings.

(Patients and Methods) This study enrolled 2080 patients who underwent LT between January 1998 and April 2008. Among them, 22 patients were diagnosed as the PI during post operative follow-up. Those patients were divided into two groups : the recovery group and the mortality group. We compared the clinical features and CT findings between two groups. (Results) The actual incidence of the PI was approximately 1% (22 of 2080).

Among 22 of the PI patient, 18 recovered spontaneously and assigned as the recovery group, the other 4, aggravated rapidly and died within 2.8 days after onset, assigned as the mortality group. The time interval varied very widely (7days-7years). Half of them were asymptomatic, but 11 patients were accompanied with clinical symptoms (feve, mild abdominal pain, hypotension , etc) There were no statistically significant differences in the onset and the mode of presentation between two groups.(p=.14,.09) Right colon involvement was common in the recovery group (n=18,100%), while small bowel involvement was particular characteristic of the mortality group(n=4,100%)(p<0.05) The range of the caliber changes in superior mesenteric artery (SMA) and superior mesenteric vein (SMV) in the mortality group(SMA:49.6%,SMV:67%) was greater than the recovery group (SMA:101.7%,SMV:99%)(p<0.05). The mortality group shows portomesenteric air-embolism, visceral infarction , and hemorrhagic ascites, which was not found in the recovery group, and more frequent small bowel ileus(n=4,100%) than in the recovery group(n=3/18, 17%)(p<.05). (Conclusion) PI after LT may be clinically insignificant phenomenon which is usually discovered incidentally. However, PI developed in seriously-ill patient eventually progressed to fatal outcome. Particularly, small bowel involvement, change of mesenteric vessels caliber, portomesenteric air-embolism, visceral infarction or hemorrhagic ascites is ominous sign of fatal form of PI.

Abstract# P-171

PORTAL VEIN THROMBOSIS AND LIVER TRANSPLANTATION: EVOLUTIONS DURING 10-YEARS EXPERIENCE AT THE UNIVERSITY OF BOLOGNA.

Matteo Ravaioli, Matteo Zanello, Gian Luca Grazi, Giorgio Ercolani, Matteo Cescon, Massimo Del Gaudio, Alessandro Cucchetti, Gaetano Vetrone, Alessandro Dazzi, Francesco Tuci, Chiara Zanfi, Paolo Di Gioia, Giovanni Ramacciato, Cristina Morelli, Antonio Daniele Pinna. *Department of Liver and Multi-Organ Transplantation, S.Orsola-Malpighi Hospital-University of Bologna, Bologna, Italy*

Background: portal vein thrombosis (PVT) may be a contraindication to liver transplantation (LT); we reviewed our 10-years experience on LT and PVT.

Methods: during 1998-2008 (1st era 1998-2002 and 2nd era 2003-2008), patients with non-neoplastic PVT intra-operatively confirmed, formed the study group (PVT) and were sub-classified according to Yerdel classification: partial PVT (grade 1-2) and complete PVT (grade 3-4). Patients without PVT were the control group (non-PVT).

Results: Among 889 consecutive LTs, we intra-operatively diagnosed 91 PVT (10.2%): 51 partial PVT (56%) and 40 total PVT(44%). The rate of complete PVT increased from the 1st to the 2nd era (2.2% vs. 6.7%, p<0.005). At multivariate analysis, previous surgery, HCC on sample and alcoholic cirrhosis were independently related to PVT (C.I.=2.7-46.8, p=0.001; C.I.=1.1-3, p=0.022; C.I.=1.9-6.1, p=0.001 respectively).

Partial PVT were treated with thrombectomy in 27 cases (54%) or anastomosis to spleno-mesenteric confluence in 23 (46%). Complete PVT were managed with thrombectomy in 26 cases (63%), jumping graft in 6 (15%), cavo-portal hemitransposition in 6 (15%) and anastomosis to varix in 3 (7%).

Among PVT and non-PVT groups we didn't find any intra-operative differences: blood transfusions (3273±3389 ml vs. 2849±3184 ml), operative time (446±116 min vs. 436±141 min) and cold ischemic time (442±125 min vs. 425±118 min). The post-operative mortality was also comparable (6.6% vs. 5.8%), such as the 1- and 5-years patient survival (85% and 68% PVT vs. 86% and 73% non-PVT) and graft survival (79% and 60% PVT vs. 78% and 66% non-PVT). The only statistically difference in post-operative outcome was the rate of re-PVT: 6.6% PVT vs. 0.6% non-PVT, p=0.0001.

Post-operative outcome was similar in PVT group between patients with partial and complete PVT, but in this last group, there was a significantly different patient survival between the 1st and 2nd era (57% vs. 89% at 1-year, p<0.05).

Conclusions: LT is safe and with good long term results in patients with partial PVT, but also in selected cases with total PVT.

Abstract# P-172

RIGHT SUBCOSTAL INCISION IN LIVER TRANSPLANTATION. Matteo Donatuccio, Giorgio Dalle Ore,

Dino Donatuccio. *Liver Transplant Unit, Azienda Ospedaliera di Verona, Verona, VR, Italy*

The midline of abdomen and the junction of the upper midline and transverse incision has been reported as more frequent site of incisional hernia (IH) occurrence.

We previously published the feasibility of liver transplantation through only right subcostal incision (SI), with better perioperative outcome and reduction of abdominal wall complications, compared to more extensive incisions attending the midline.

In 77 out of 106 Liver Transplantations (OLT) we used right subcostal incision and in 29 OLT the incision attended midline of abdomen wall (12 Mercedes, 11 J shaped, 6 bilateral subcostal).

Right subcostal incision had better results compared with others incisions in term of operating time (330 min. vs 415 min.) and perioperative blood products consumption (4 Packed Cell Units (PCU) vs 7 PCU). In 99 patients with at last 3 months follow-up incisional hernia occurred in 5 out of 72 subcostal incision (6,9%) and in 6 out of 29 others incisions (22,2%).

In conclusion right subcostal incision, when possible, should be the incision of choice in liver transplantation, with better perioperative outcome and significantly reduced incisional hernia rate.

Abstract# P-173

ABDOMINAL CUTANEOUS NUMBNESS IN THE SUPRAUMBILICAL REGION POST LIVER TRANSPLANT (LTx) PATIENT AND ITS COMPLICATIONS. Ashokkumar Jain¹,

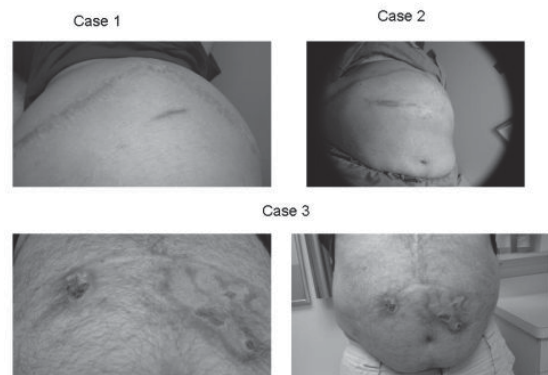
Pauline Nemitz², Rajeev Sharma Sharma², Marry Vetter², Leah Brayan², Baber Sheikh¹, Pam Batzold², Randeep Kashyap², Mark Orloff². ¹*Surgery, Division of Abdominal Organ Transplant, Temple University, Philadelphia, PA, USA;* ²*Surgery, Division of Solid Organ Transplant & Hepatobiliary Surgery, University of Rochester, Rochester, NY, USA*

LTx is a life saving major surgical procedure; however it carries significant morbidity including mortality related to the procedure. While several different types of post LTx complication have been described, subcutaneous numbness below the bilateral sub costal incision, above the umbilicus has not been described.

Aim of the present study is to evaluate the rate of cutaneous numbness at various time points in post LTx patients and its impact.

Patient and method: From July 2008 onwards, all post LTx patients were inquired about the abdominal cutaneous numbness (below the bilateral subcostal scar) and also inquired how it is beneficial or detrimental in their daily life. Basic demographic details were also obtained from existing computerized electronic database.

Results: One hundred and two patients were evaluated for numbness. They were 35.0 ± 29.5 (median 25.85 range 1 to 80) months post LTx. 18 patients had upper abdominal surgery prior to LTx (13 open cholecystectomy, 1 total colectomy, 1 Kasai, 1 hepatic resection, 1 partial gastrectomy, 1 abdominal wall reconstruction). Also twelve patients underwent second liver transplant, three of which underwent third LTx. 10 patients were diabetics, six of them were insulin dependent. All 102 patients (100%) had area of numbness between bilateral sub costal incision and supra-umbilical region. Three patients had epidermal to dermal deep burns from heating pads, stove and hot tea.



Conclusion: Persistent numbness between bilateral subcostal scar and umbilicus occurs in 100% of cases even after six years of LTx. 4% of patients had cutaneous and subcutaneous complications. However patients took advantage of this numbness for subcutaneous injections of insulin and interferon. In addition, one patient had echymosis from blunt trauma during gardening.

Poster Session II

Abstract# P-174

LIVER TRANSPLANTATION IN A PATIENT WITH HEMOLYTIC ANEMIA. Haran Fisher, Vadim Shatz, Ernesto Pretto. *Jackson Memorial Hospital Anesthesiology, University of Miami, Miami, FL, USA*

A 57 year old lady presented for a repeat Liver Transplantation. Her first Liver transplant in 1999 was due to auto-immune hepatitis. Recently she was diagnosed with Auto-Immune Hemolytic Anemia (AIHA) and admitted repeatedly for blood transfusions and high dose steroid administration.

The deterioration in Liver function was due to chronic rejection. Anesthesia induction and subsequent line placement was smooth. Her first arterial blood gas, prior to skin incision, showed a Hct of <15. This was corrected with administration of RPC and cell saver blood. Following reperfusion blood tinged urine was noted due to Hemolysis. Total operative time was 9 hours; during the procedure Splenectomy was performed.

In all the patient received 5,500ml of blood and 6,000ml of FFP.

Subsequent icu course was unremarkable.

Anaesthetic considerations:

Pre-operatively:

Availability of plasmapheresis.

Close co-operation with the blood bank as compatible blood may be difficult to obtain

Blood must be available prior to induction, anticipate a low Hematocrit.

Intra-operatively

Preservation of normothermia even more important in this cases due to the possibility of inducing cold agglutinins.

Correction of known factors which may worsen coagulation e.g: acidosis, hypomagnesemia, hypocalcemia, shock.

Supplemental steroids administration on induction as this population likely to be on glucocorticoids.

AIHA is potentially associated with a Thrombophilic state.

Judicious use of blood products is advised, based on clinical appearance of surgical field and TEG monitoring as to avoid a potential life threatening complication viz. PE.

Post-operatively:

Availability of plasmapheresis.

Avoiding known precipitant to AIHA e.g cold exposure, infections.

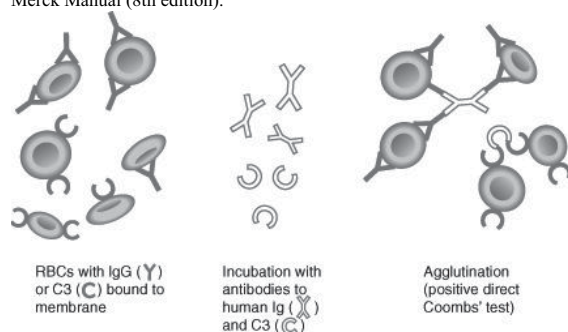
Choice of anti-rejection medication i.e: Tacrolimus may precipitate AIHA whilst Rituximab may be used to treat condition.

Steroids administration with concomitant attention to possible side effects.

Close co-operation between hepatologist, hematologist icu physicians regarding administration of anti-coagulation following liver transplantation.

Vaccination vs. N.Meningitidis, H.Influenzae, S.Pneumonia, if splenectomy done.

Merck Manual (8th edition):



Abstract# P-175

PERIOPERATIVE ADMINISTRATION OF THE RECOMBINANT FACTOR VII IN PATIENTS UNDERGOING HIGH URGENCY LIVER TRANSPLANTATION FOR FULMINANT WILSON'S DISEASE – EIGHT YEARS OF EXPERIENCE OF TWO POLISH CENTERS. Maria M. Czuprynska¹, Lidia Jureczko², Janina Andrzejewska¹, Konrad Jarosz¹, Marta Wawrzynowicz-Syczewska³, Janusz Trzebicki², Beata Blaszczyk², Marek Pacholczyk², Maciej Wojcicki¹.

¹Department of Hepatobiliary Surgery and Transplantation, Marie Curie Hospital, Szczecin, Poland; ²Department of General and Transplantation Surgery, Dzieciatka Jezus Clinical Hospital, Warsaw, Poland; ³Infectious Diseases and Hepatology, Pomeranian Medical University, Szczecin, Poland

Aim: The course of Wilson's liver disease can be highly variable ranging from asymptomatic biochemical abnormalities to fulminant hepatic failure accompanied by the varying degrees of coagulation impairment and thus posing a risk of massive bleeding. The aim of the study was the analysis of safety and efficacy of the administration of the recombinant factor VII (rVIIa) before liver transplantation for fulminant Wilson's disease.

Patients and methods: Out of 445 orthotopic liver transplantations (OLTx) performed in two Polish centers (Marie Curie Hospital in Szczecin and the Department of General and Transplantation Surgery Dzieciatko Jezus Hospital in Warsaw) in years 2000-2008 fourteen were carried out due to the fulminant Wilson's disease. In these patients clinical and laboratory findings of massive coagulopathy were detected. Each of them received rVIIa 5 – 10 min. before skin incision and orthotopic piggyback cadaveric liver transplant was subsequently performed. The MELD score, the dose of rVIIa per body weight and INR before and after rVIIa administration was estimated.

Results: The median MELD score was 39 (27–48) and median INR value before rVIIa administration was 3.1 (1.9–4.7). In two cases prothrombin time was indeterminate. Each patient received rVIIa in a mean single dose of 56 µg/kg of body weight. The median corrected INR value, estimated 30 minutes after administration, was 1.2 (0.9–1.6) and this difference was statistically significant (p<0.000). OLTx was performed without significant intraoperative bleeding in all cases. The average number of blood units transfused during the procedure was 4,52 ± 2,54 and that was comparable to the elective OLTx performed for another indications (4,9 ± 3,14). There were no thrombo-embolic incidences noted in any patients.

Conclusions: Administration of rVIIa allows for a safe, highly effective and rapid correction of coagulopathy in patients with fulminant Wilson's disease.

Abstract# P-176

USE OF PROTHROMBIN COMPLEX CONCENTRATE IN ACUTE HEPATIC FAILURE. Jasmeet Kaur, Nicola Jones, Susan Mallett. *Anesthesia, Royal Free Hospital, London, United Kingdom*

Introduction

Acute hepatic failure (AHF) is often complicated by haemodynamic instability, cerebral oedema and renal failure making the management of the associated coagulopathy challenging. Correction of INR prior to invasive procedures/transplantation may require large volumes of fresh frozen plasma (FFP). This may be detrimental to cerebral compliance (when intracranial pressure (ICP) is raised), may result in a fall in haematocrit and may further compromise the haemodynamic status.

We report the use of prothrombin complex concentrate (PCC) to reverse prolonged INR in a patient with AHF secondary to paracetamol overdose. The patient was admitted to ICU 2 days post admission, where she was intubated due to encephalopathy and acidosis, commenced on continuous veno-venous haemofiltration and required inotropic support. She was listed for urgent orthotopic liver transplantation (OLT) and was plasmapherised with 6l of FFP due to her deteriorating condition. It was deemed that ICP monitoring would aid management, however post plasmapheresis INR was 1.7. An hour before surgery, she was given 2000U of PCC which reduced the INR to 1.4 and allowed placement of an ICP probe. She immediately proceeded to OLT. Intraoperatively, coagulation was regularly monitored using thromboelastography, INR and platelet counts. This guided further treatment with PCC and FFP. The patient remained on CVVHF throughout surgery. Surgery was successful, without any excessive bleeding. A total of 1500u PCC, 10u FFP and 2u PRC were given intraoperatively.

Discussion

This case demonstrates the successful use of PCC's in addition to FFP to manage coagulopathy in AHF perioperatively. The use of factor concentrates allow rapid and targeted correction of coagulopathy with small volumes thus minimizing compromise of cerebral perfusion and haemodynamic status. PCC's contain factors II, VII, IX and X, proteins C, S and Z, heparin and antithrombin. Recommended doses of PCC are 1-2 ml/kg vs 10-15ml/kg for FFP respectively. In addition, PCCs may be a cheaper and safer alternative to rFVIIa which has been widely used to correct coagulopathy prior to ICP probe insertion.(1)

We believe this to be the first documentation of the use of PCC's to correct INR prior to and during liver transplantation in a patient with AHF. The low volumes required and the rapidity of effect (2) have obvious potential advantages in this group of patients.

- 1.Shami et al Liver Transplant. 2003;9:138-143
2. Vigue B et al. Int Care Med 2007.

Abstract# P-177

RISK FACTORS OF ACUTE RENAL INJURY IN THE IMMEDIATE POSTOPERATIVE PERIOD AFTER OLT.

Amy Robertson, Ricky Sierra-Anderson, Ann Walia. *Vanderbilt University Medical Center, Nashville, USA*

Introduction

Postoperative renal dysfunction has been observed in almost 75% of patients undergoing OLT. It may be an acute finding with full recovery of renal function or may ultimately result in long-standing disease. The importance of addressing mild renal dysfunction is illustrated by a recent study which demonstrated that hospitalized patients with a modest increase in serum creatinine (0.3-0.4mg/dL) have increased morbidity and a 70% greater risk of mortality(1). Liver transplantation literature supports the correlation of renal dysfunction with increased morbidity and mortality. Studies have identified preoperative and postoperative risk factors associated with renal dysfunction(2). However, few studies have addressed potential intraoperative risk factors correlating with acute kidney injury (AKI) in the immediate postoperative period.

Methods

A cohort of 149 patients who received cadaveric liver transplant between January 2006 and December 2007 were included in this retrospective study. The primary outcome was the development of AKI which was defined as an increase in baseline serum creatinine by >50% or by 0.3mg/dL within the first 7 days after OLT. Intraoperative variables were evaluated using logistic regression models to determine correlation with AKI. These variables include mean blood glucose, hemodynamic values (CVP, SBP, DBP), vasopressor use, transfusion requirements, reperfusion syndrome, warm and cold ischemia time, and serum lactate. Analysis of recipient characteristics (age, gender, cirrhosis etiology, MELD score) was also performed to determine association with AKI.

Results

Of the 149 patients included in the study, 31% met the criteria for AKI. When evaluating the intraoperative variables, there was no statistically significant difference between the non-AKI and AKI patients. Additionally, there was no statistically significant association between development of AKI and recipient characteristics. AKI patients had a longer length of stay in ICU (3 days vs 2 days) and longer duration of hospitalization (9 days vs 8 days). AKI patients were more likely to require vasopressor support in the immediate postop period (59% vs 52%).

Reference

- 1.Chertow GM, et al. Acute kidney injury, mortality, length of stay, and costs in hospitalized patients. *J Am Soc Nephrol* 2005;16:3365-70
- 2.Gallardo ML, et al. Risk factors for renal dysfunction in the postoperative course of liver transplant. *Liver Transplantation* 2004;10:1379-85.

Abstract# P-178

INDOCYANINE-GREEN-PLASMA-DISAPPEARANCE-RATE IN ANHEPATIC PATIENTS. Falk Rauchfuß¹, Martin Brauer², Erik Bärthel¹, Michael Heise¹, Utz Settmacher¹.

¹Department of General, Visceral and Vascular Surgery, Friedrich Schiller University, Jena, Germany; ²Department of Anesthesiology and Intensive Care, Friedrich Schiller University, Jena, Germany

Introduction:

The measurement of indocyanine green plasma disappearance rate (ICG-PDR) is an established technique for the assessment of liver function after major surgery and liver transplantation (LT).

In all clinical studies, ICG-PDR was measured in patients with at least some remnant hepatic tissue.

To best of our knowledge, there are no reports about ICG-PDR measurement in patients without any liver tissue.

We report about ICG-PDR assessment in two anhepatic patients suggesting that a low level ICG-PDR may not essentially be associated with functional liver tissue.

Patients:

In our center we had to perform two hepatectomies after LT:

Patient 1 showed an initial non-function of the graft. Due to a toxic liver syndrome, the allograft was removed and a porto-caval shunt had to be performed. Before liver re-transplantation was realized, an ICG-PDR of 4,3 %/min was determined in the anhepatic patient.

In Patient 2, the transplanted liver demonstrated a very inhomogeneous morphologic pattern after reperfusion. Furthermore, the liver capsula revealed an increasing tension without identifying a surgical problem at the upper cava-anastomosis. Subsequently, the liver capsula disrupted. So, hepatectomy and porto-caval shunting became necessary. At this clinical situation, we measured an ICG-PDR of 4,6 %/min. The patient died due to multi organ failure before a re-transplantation could be realized.

Discussion:

An ICG-PDR > 0 %/min in an anhepatic situation was an unexpected result. We supposed an ICG-PDR-value of 0 %/min because of the absence of any liver tissue in both patients.

Trying to explain our collected data, there are different approaches:

First, both patients may have suffered from a severe inflammation reaction which is combined with a capillary leakage. This leakage could explain the loss of ICG into the interstitium.

Another possible explanation for our findings is an uptake of ICG in other tissues such as the kidneys. However, we can not provide evidence that there is an elimination of ICG in others organs in our setting.

In conclusion, our results suggest that an ICG-PDR of some percent (per minute) does not necessarily reflect the presence of functional liver tissue but may be even measured in an anhepatic situation.

Thus, the interpretation of ICG-PDR values in a low percent range has to be done carefully.

Abstract# P-179

THE CVP ZERO REFERENCE AND HEPATIC SURGERY.

Chris R. Giordano, Nik Gravenstein, Mark Rice. *Anesthesiology, University of Florida, Gainesville, FL, USA*

Two of the most significant risks germane to the anesthesiologist during hepatic surgeries are major blood loss and venous air emboli (VAE). The risk of VAE increases as CVP is decreased, but an increased CVP increases hemorrhagic risk. There exists little advice as to where to zero reference the CVP for hepatic surgery. During hepatic procedures the interest is primarily the sinusoidal pressure at the point of resection rather than the CVP. Not infrequently, the operative team encounters patients with abdominal AP diameters over 20cm creating a substantial pressure gradient relative to the CVP zero reference. Therefore, the reference zero point relative to the surgical site lends major importance to minimizing blood loss as well as reducing VAE risk. The liver AP diameter in the supine position has not been described. The goal of this study is to better understand this patient variable and how this can impact the operative goals of maintaining the desired liver venous pressure pertaining to the establishment of the CVP zero reference point.

Methods

100 adult chest CT with contrast examining the anterior-posterior (A-P) dimensions of the both A-P liver margins, A-P skin margins, portal triad, and right atrium/IVC.

Results: Mean (cm) +/-Standard deviation (cm)

Liver AP width 17.9 +/-2.8

Anterior skin to portal triad 10.8 +/-2.4

Anterior skin to anterior liver 3.4 +/-1.3

Anterior skin to RA/IVC 11.2 +/-2.7

Discussion

The data reveal a large interindividual variability in the liver dimensions and reference structures as reflected by the large standard deviation. The disparity in liver anatomy creates significant uncertainty and reliability when zeroing the CVP at the traditional phlebostatic reference point. If a goal is to maintain the CVP within the narrow range of 0-5mmHg, then the relative width of the liver corresponding to that pressure approximates a range of 0-7cm allowed above the zero reference. With a documented mean liver size of 18cm it is then inevitable that many patients will be vulnerable to a negative CVP value at the anterior surface of the liver and thus vulnerable to VAE. The data suggest that zero referencing the CVP to the actual liver

parenchyma or CT data informing about the operational site should be considered as a potentially a better way to minimize both hemorrhage and VAE risk. Otherwise the CVP may provide misinformation concerning the safety and optimal management of the patient.

Abstract# P-180

BLOOD PRODUCTS REQUIREMENTS AFTER ADOPTION OF MELD SCORE AS GRAFT ALLOCATION CRITERIA.

Alexandre Teruya, Alexandre P. Oliveira, Rogério P. Barbosa, Diná M. H. Nowak, Marcel V. Vitoreli, Rafael C. P. Zamper, Rogério Carballo, Maria Paula V. C. Zurstrassen, Marcelo B. Rezende, Sérgio P. Meira-F^o, **Ben-Hur Ferraz-Neto**, Flávio Takaoka. *Hospital Israelita Albert Einstein, Sao Paulo, Brazil*

Introduction: Model for End Stage Liver Disease - MELD - score has been adopted in Brazil since July 2006. We expected that this would result in sicker patients having transplant and ultimately have an effect on clinical bleeding and coagulopathy during surgery.

Aim: The aim of this study is to evaluate blood products requirements in orthotopic liver transplantation (OLT).

Methods: We retrospectively reviewed 185 OLT performed between June 2005 and November 2007. Patients were separated into two group: 1. Group pre-MELD, comprised 38 transplanted in the pre-MELD era; and 2. Group MELD, consisted of 147 patients transplanted with MELD criteria. Intraoperative Packed Red Blood Cell (PRBC); Fresh Frozen Plasma (FFP), Cryoprecipitate (Cryo) and Platelet (Plt) transfused were evaluated in both groups.

Results: MELD score in Group pre-MELD was lower than in Group MELD (19.6 vs 25.7).

Average blood products transfused is shown on table 1 and showed an increase in the MELD group for PRBC, FFP, Cryo and Plt when compared to Group pre-MELD.

MELD	MELD	PRBC	FFP	Platelets	Cryo
Pre MELD (n=38)	19,63	1,47	1,42	0,74	0,32
Post MELD (n=147)	25,77	2,21	3,02	2,03	0,80

Average transfusion pre and post MELD. PRBC - Packed Red Blood Cells; FFP Fresh Frozen Plasma

Conclusions: Since adoption of MELD score as determinant of graft allocation, patients with higher MELD scores have been receiving significant larger amounts of PRBC, FFP, Plt and Cryo. Consequently, elevated perioperative costs of hemotherapy during OLT is expected. Adoption of MELD score 'per se' may present an additional challenge in the financing policies in developing countries with limited resources for high cost procedures. Further studies should evaluate the overall impact of the MELD score in the outcome and cost of OLT.

Abstract# P-181

CARDIAC RESPONSE TO LIVER TRANSPLANT IN

PATIENTS WITH ALCOHOLIC CIRRHOSIS.

Bibiana Escobar¹, Pilar Taura¹, Joan Beltran¹, Jaume Balust¹, Graciela Martinez-Palli¹, Elizabeth Zabala¹, Constantino Fondevila², Juan Carlos Garcia-Valdecasas². ¹Department of Anesthesiology, Hospital Clinic de Barcelona, University of Barcelona, Barcelona, Catalunya, Spain; ²Liver Transplant Unit, Hospital Clinic de Barcelona, University of Barcelona, Barcelona, Catalunya, Spain

Cirrhosis cardiomyopathy (CC) describes abnormal heart structure and ventricular function in patients with cirrhosis. The disease is normally latent, but stresses such as liver transplant (LT) may induce heart failure appearance. Alcoholic etiology may aggravate cardiovascular changes induced by cirrhosis.

The AIM of this retrospective study is to analyze the hemodynamic and cardiac behavior in alcoholic cirrhotic patients during LT.

PATIENTS AND METHODS: Between January 2000 and August 2008, a total of 189 alcoholic cirrhotic patients (ACG), aged 53,8±7 yr (167 men/26 women) underwent LT in our institution. All patients were abstaining from alcohol for at least six months. Time-matched controls were 188 non-alcoholic cirrhotic patients that underwent LT (CG), aged 56,4±8 yr (118 men/70 women). Presence of ascitis was 32% in ACG and 23% in CG. The prevalence of echocardiographic signs of CC was 43% in ACG and 35% in CG patients. The presence of comorbidities was 62% in ACG and 42% in CG (p<0.001).

In all patients, mean arterial pressure, heart rate, cardiac index (CI), systemic vascular resistance index (SVRI), right and left ventricular work index (RVWI and LVWI) and the need for vasoactive drugs were recorded.

RESULTS: Hyperdynamic circulation was present at the beginning of the procedure with normal ventricular work in both groups (Table1). At the reperfusion time significant worsening in LVWI (p<0.001) was observed only in ACG, with progressive recovering to the normal values.

	BASELINE		REPERFUSION		60 min post-reperf	
	ACG	CG	ACG	CG	ACG	CG
CI (L/min/m2)	4.4±1.4§	4.1±1.3	4.9±1.5‡	5.1±1.7‡	5.5±1.5‡	5.4±1.5‡
SVRI (dyn/s/cm5/m2)	1295±525	1384±494	1046±424‡	1045±447‡	1031±346‡	1016±314‡
RVWI (g/min/m2)	8.3±4§	7±3	8.3±4	8.7±4	10.5±5 §‡	9.6±4‡
LVWI (g/min/m2)	49.8±19	47.9±15	40.6±15‡	46.5±18‡	55.3±18‡	52.3±15‡

Table 1. § p≤0.05 between groups. ‡ p≤0.05; ‡ p≤0.01 compared with baseline

CONCLUSIONS: The cardiovascular behavior in alcoholic cirrhotic patients during LT shows a different pattern of ventricular function that is evidenced specially after reperfusion time when the hemodynamic stress is higher.

Abstract# P-182

THE IMPACT OF RESTRICTIVE FLUID REPLACEMENT ON CARDIAC FUNCTION DURING LIVER TRANSPLANT

IN ALCOHOLIC CIRRHOTIC PATIENTS.

Pilar Taura¹, Bibiana Escobar¹, Joan Beltran¹, Jaume Balust¹, Graciela Martinez-Palli¹, Annabel Blasi¹, Constantino Fondevila², Juan Carlos Garcia-Valdecasas². ¹Department of Anesthesiology, Hospital Clinic. University of Barcelona, Barcelona, Spain; ²Department of Surgery, Liver Transplant Unit, Hospital Clinic. University of Barcelona, Barcelona, Catalunya, Spain

The cardiomyopathy in alcoholic cirrhotic (AC) patients, characterized by altered ventricular relaxation, could be unmasked during stressful procedures such as liver transplant. This noncompliance reduces left ventricular filling, which leads to a limited cardiac preload reserve and thus diastolic dysfunction. The restrictive fluid administration, aimed to preserve coagulation, could be controversial in these patients.

The AIM: To study the ventricular work in AC patients treated with restrictive fluid replacement during LT.

PATIENTS AND METHODS: 189 consecutive AC patients underwent LT, were retrospectively stratified according to intraoperative fluid therapy. 65 patients were managed with restrictive policy (RG), aged 54.2±7 yr (58 men/7 women); the remaining 124 patients were managed with standard policy (SG), aged 53.6±7 yr (105 men/19 women). Prevalence of echocardiographic signs of cirrhotic cardiomyopathy was 42% in RG and 36% in SG. Presence of comorbidities was 65% in RG and 60% in SG. MELD score was 16.9±4 in RG and 15.1±4 in SG. Fluid balance was -1019±1685 in RG and -68±1466 in SG (p≤0.001). In both groups, intraoperative hemodynamic variables, right and left ventricular work index (RVWI and LVWI) and need for vasoactive drugs were recorded.

RESULTS: At the reperfusion time, patients in RG showed a significant decrease of both ventricular works; the most severe reduction was for left ventricle (p≤0.001). Afterwards, we found a progressive ventricular function recovering to normal values (Table 1). The need of more than one vasoactive drug was higher in RG (p≤0.001).

	BASELINE		REPERFUSION		60 min post-reperf	
	RG	CG	RG	CG	RG	CG
CI (L/min/m2)	4.4±1.3	4.3±1.4	4.2±1.2§	5.1±1.5**	5.1±1.3**	5.6±1.5**
SVRI (dyn/s/cm5/m2)	1261±535	1312±522	1173±418§	986±415**	1115±384§	991±320**
RVWI (g/min/m2)	9.1±4	8±4	7.3±4§**	8.7±3*	9.5±4	11±5**
LVWI (g/min/m2)	55±25	50.3±16	38.4±16§**	44.5±14**	51.8±18	56.9±18**

Table 1. §p≤0.05 between groups. *p≤0.01 **p≤0.005 with baseline

CONCLUSIONS: The restrictive intraoperative fluid management of AC patients during LT must be done with caution regarding their limited cardiac preload reserve.

Abstract# P-183

SIMULTANEOUS LIVER AND KIDNEY TRANSPLANTATION AND ABDOMINAL AORTIC ANEURYSMAL REPAIR: A CASE REPORT. Lalitha V. Sundararaman, Venkata Sampathi, Aharon Avramovich, Yehuda Raveh, Ernesto A. Pretto. *Solid Organ Transplant Anesthesiology, Jackson Memorial Hospital, Miami, FL, USA*

Introduction:

We report a case of abdominal aortic aneurysmal (AAA) repair in a patient undergoing combined liver-kidney transplantation. Sequential reperfusion, timing of transplantation vis-a-vis aneurysmal repair, coagulation abnormalities and possible compromise of graft perfusion during AAA repair make it a challenge for the anesthesiologist¹.

Case report:

56 year old hypertensive male with cirrhosis and renal failure, on dialysis, presented with an abdominal aortic aneurysm measuring 4.8 cm, extending for 1.8 cm into both common iliac arteries. Preoperative work up revealed a creatinine of 7.2, moderate left ventricular hypertrophy on echocardiogram and normal adenosine stress test. His MELD score was 23 and was in Child Pugh class C. Invasive blood pressure monitoring was placed prior to induction and modified rapid sequence intubation done with propofol, fentanyl and rocuronium. Pulmonary arterial and 12 Fr triple lumen catheters were placed in the right jugular vein. Continuous venovenous hemofiltration was done throughout the surgery. Liver dissection and AAA repair with a hepatic artery graft were done. Liver reperfusion was uneventful and thereafter renal transplantation was done. Two hours later, the arterial graft gave way and massive bleeding ensued. The aorta was clamped and the AAA repair redone with a gortex graft. Aggressive resuscitation was done and acid base and coagulation abnormalities corrected. The patient received 30 liters of fluids intraoperatively including blood products and was extubated in the ICU after a day. He continues to do well.

Discussion:

Combined AAA repair and transplantation pose several challenges. The morbidity and mortality associated with the surgery increase when compared to isolated AAA repair or transplantation.² We believe that this is one of the first case reports of AAA repair with liver and kidney transplantation. Herein reperfusion hyperkalemia, acidosis and ischemic injury are more common. When the aneurysmal repair is done after transplantation, there are additional risks of hypoperfusion induced graft failure, persistent acidosis and hepatic artery thrombosis.¹ With anticipation and preparation, simultaneous AAA repair and liver kidney transplantation can be successfully managed.

References:

1. American Journal of Transplantation 2003; 3: 1036-1039
2. American Journal of Transplantation 2004; 4: 666-668.

Abstract# P-184

BILIARY INDOCYANINE GREEN EXCRETION – AN ADDITIONAL USEFUL TOOL FOR THE ASSESSMENT OF ALLOGRAFT FUNCTION AFTER LIVER TRANSPLANTATION. Falk Rauchfuss¹, Andreas Kortgen², Martin Siering², Erik Bärthel¹, Rigo Voigt¹, Michael Heise¹, Michael Bauer², Utz Settmacher¹. ¹Department for General, Visceral and Vascular Surgery, Friedrich-Schiller-University, Jena, Germany; ²Department for Anaesthesiology and Critical Care Medicine, Friedrich-Schiller-University, Jena, Germany

Background

The assessment of the indocyanine green plasma disappearance rate (ICG-PDR) is a common tool evaluating the liver function after major liver surgery. The uptake of the dye (ICG) takes place at the hepatocyte's basolateral membrane and ICG will be excreted into the bile. The aim of this study was to correlate the ICG-bile excretion with the graft function after liver transplantation (LT).

Methods

Twenty liver recipients were included in this study, so far. The post-LT ICG-PDR measurement was performed in standard practice twelve hours after reperfusion. Moreover, we quantified the dye excretion in the bile fluid 60, 120 and 180 minutes after dye injection. Spectrophotometric assessment of the ICG concentration (wave length 800 nm) was read using a NanodropTM spectrophotometer (Nanodrop Technologies, Wilmington, USA). The allograft function was evaluated post-LT using the criteria defined by Pokorny et al. (Transpl Int. 2000;13 Suppl 1:S154-7). Statistical analysis was performed using a MWU-Test, a p-value < 0,05 was considered to be significant.

Results

Six patients had a good graft function (30 %), nine had a fair one (45 %) and five had a poor graft function (25 %).

Biliary ICG-excretion was reduced between patients with fair and poor graft function, tendentially after 60 and 120 minutes and significantly (p = 0,03) after 180 minutes (fair graft function: ICG₆₀ 250,6 ng/μl; ICG₁₂₀ 226,6 ng/μl; ICG₁₈₀ 205,5 ng/μl; poor graft function: ICG₆₀ 62,9 ng/μl; ICG₁₂₀ 71,6 ng/μl; ICG₁₈₀ 62,4 ng/μl).

There was no difference between patients with good and fair graft function, but we could detect well patients with poor graft function. Furthermore, the assessment of ICG-PDR could not differ between the patients with regard to the graft function.

Conclusion

Our first results of this ongoing study are very encouraging. We assume that the analysis of the biliary ICG-excretion can be a helpful additional tool for early identification of liver transplant patients with poor initial allograft function.

Abstract# P-185

COMPARISON OF THE EFFICIENCY OF THE EXTRACORPOREAL LIVER SUPPORT SYSTEMS MARS AND SPAD IN ACUTE AND ACUTE-ON-CHRONIC LIVER FAILURE. C. Sponholz¹, A. Kortgen¹, F. Rauchfuss², U. Settmacher², M. Bauer¹. ¹Department of Anaesthesiology and Critical Care Therapy, Friedrich-Schiller University, Jena, Germany; ²Department of General, Visceral and Vascular Surgery, Friedrich-Schiller University, Jena, Germany

Introduction:

Acute or acute-on-chronic liver failure carries a high mortality. Modern therapeutic concepts aim to bridge time to recover endogenous liver function or until liver transplantation can be performed. In addition to standard medical treatment extracorporeal liver support systems are used in these patients.

The following investigation compares two liver support systems, the molecular absorbent recirculating system (MARS) and single pass albumin dialysis (SPAD), in view of changes in clinical and laboratory parameters.

Methods:

Retrospective analysis of patients treated by either MARS or SPAD between July 2004 and August 2008 on a surgical intensive care unit of a university hospital. Clinical and routine laboratory data were compared.

Statistics: t-, U- and Wilcoxon-Test; level of significance: p<0.05.

Results:

163 liver support cycles, 37 SPAD and 126 MARS, in n=57 patients were accomplished.

Both systems led to significant changes of bilirubin, gGT, ALAT, creatinine and urea. MARS significantly reduced levels of bilirubin (301±154 μmol/l vs. 262±124 μmol/l), gGT (2.1±1.7 μmol/l.s vs 1.9±1.9 μmol/l.s), ALAT, creatinine and urea. With SPAD levels of bilirubin (345±172 μmol/l vs. 305±115 μmol/l) and gGT (3.5±3.2 μmol/l.s vs. 3.1±2.7 μmol/l.s) fell significantly, although fewer treatments were performed. Lactate levels increased with SPAD (2.6±2.57 mmol/l vs 3.5±4.32 mmol/l) but not with MARS (3.1±3.24 mmol/l vs 3.2±3.11 mmol/l) treatments. Calcium levels fell significantly but clinically neglectable during SPAD treatment. Need for blood transfusion, health scoring and mortality were comparable.

Discussion:

Liver support systems are aimed to recover endogenous liver function or gain time until liver transplantation is available. MARS is predominantly used in this clinical setting and its efficiency of detoxification and its safety was demonstrated. However large prospective randomized trials with respect to outcome are still missing. Concerning SPAD only few case reports and "in-vitro" studies are available. Our retrospective evaluation of MARS and SPAD suggests comparable changes of clinical and routine laboratory parameters. Prospective investigations are necessary to further define the role of SPAD in these patient cohort.

Abstract# P-186

A LIVER TRANSPLANT MAY NOT PREVENT THE PROGRESSION OF PULMONARY HYPERTENSION.

Michael A. E. Ramsay¹, Goran B. Klintmalm², Edmund Q. Sanchez², Kate B. Newman¹. ¹Anesthesiology and Pain Management, Baylor University Medical Center, Dallas, TX, USA; ²Baylor Regional Transplant Institute, Baylor University Medical Center, Dallas, TX, USA

A 52-year-old man presented for orthotopic liver transplant (OLT) with severe pulmonary hypertension and severe dilation of the right heart chambers demonstrated by TEE. The surgery was aborted and the patient was started on an intravenous epoprostenol infusion. See Table 1 for pre-OLT and post-OLT hemodynamics.

He was successfully transplanted 11 months after vasodilator therapy. This patient expired of complications related to severe PHTN a little more than 15 months after his successful liver allograft.

Table 1. Hemodynamic Timeline

	mPAP (mmHg)	PVR (dyne/s/cm ⁵)	CI (L/m ²)
Aborted initial OLT, epoprostenol started	55	445	3.6
On epoprostenol 2 mos	44	300	4.2
On epoprostenol 4 mos	49	367	3.8
On epoprostenol 8 mos	41	343	4.1
On epoprostenol 10 mos	29	182	5.4
Liver Transplant, 11 mos later	37	191	5.2
TTE 4 days after OLT	RV dilated, hypertrophied with moderately depressed systolic function, estimated RVSP 90 mmHg		
R Heart Cath, 9 mos after OLT, treprostinil ↑	53	585	2.6
TTE 14 mos after OLT	Dilated RV, LV hypertrophy with mild diastolic dysfunction, RVSP 70 mmHg and flattening of the LV septum		
TTE 15 mos after OLT	Dilated RV, RA and LA, moderate RV dysfunction, moderate to severe tricuspid regurgitation, RVSP 90 mmHg, moderate LV hypertrophy with impaired relaxation, small pericardial effusion		

With time and vasodilator therapy, the PHTN may stabilize and the RV becomes conditioned such that a successful transplant can take place. However, this case demonstrates that despite a successful transplant, PHTN may still progress even with continued vasodilator therapy.

Abstract# P-187

ARTIFICIAL HEMOGLOBIN BASED OXYGEN CARRIERS FOR MACHINE PRESERVATION OF THE LIVER.

Peter Olschewski, Veeravorn Aryjakhagorn, Martin Mentzel, Peter Neuhaus, Gero Puhl. *Dep. of General, Visceral and Transplant Surgery, Charité Universitätsmedizin Berlin, Berlin, Germany*
Machine perfusion (MP) is suggested for marginal donor livers. MP usually is performed at 4°C or at physiological temperature of 37°C with red blood cells. Recently some evidence emerged that subnormothermic temperatures might be a third way. Therefore in the present study MP of 21°C was compared to static cold storage (CS) or MP at 4°. Moreover an artificial haemoglobin based oxygen carrier (Oxyglobin®) was used for providing sufficient oxygen under low flow conditions.

Methods: Livers from non-heparinized Lewis rats (250-270g) were harvested 60 min after cardiac death induced by phrenotomy. Livers were preserved for 6h either by cold storage (HTK-CS) or oxygenated MP (5mls/min flow rate) at 4° (Belzer-MP, HTK-MP) and 21° (Oxyglobin based solution, Oxy-MP) respectively. Finally livers were transplanted orthotopically using male Lewis rats as recipients (n≥5 for each group).

Results:

Results after 6 hours of machine perfusion

	HTK-MP 4°C	Belzer-MP 4°C	Oxy-MP 21°C	HTK-CS 4°C
AST mU/l/g LW	16713±7793 *	3538±1885	4809±2682	n.a.
ALT mU/l/g LW	13179±2920 *	4308±8763	2123±2014	n.a.
Oxygen consumption mlO ₂ /min	2,45 ±0,56	1,65±0,90	182±62	n.a.
ATP content mM/mg Protein	335,54± 63,48 #	473,02±241,21 #	319,52±169,74 #	32,96±18,92

* p<0,05 vs Belzer-MP 4°C and Oxy-MP 21°C; # <0,05 vs HTK-CS 4°C

Results 30min after oLTX and longterm survival

	HTK-MP 4°C	Belzer-MP 4°C	Oxy-MP 21°C	HTK-CS 4°C
AST mU/l/g	3173±1054	1993±1653	1032±238*	2927±788
MPO content mU/mg Protein	63,43±25,9	17,29±2,21	50,83±30,85	70,71±34,14
Longterm survival (>60days)	0/5	5/6	6/6	3/5

* p<0,05 vs HTK-MP 4°C and HTK-CS 4°C

Summary:

MP facilitates revitalizing and transplantation of marginal livers even after 60min of warm ischemic time. Livers preserved at 4°C using Belzer-MP solution or at 21°C using an artificial haemoglobin based solution had a significant lower release of transaminases already during MP and higher ATP levels as well resulting in an improved survival rate compared to CS. Nevertheless, according to the present data the use of HTK-solution for machine MP was even harmful compared to simple CS. In conclusion for successful machine preservation appropriate perfusion solutions have to be applied. Furthermore for the first time the successful use of artificial haemoglobin based oxygen carriers for MP at elevated temperature was shown.

Abstract# P-188

REGENERATION OF THE HUMAN EXTRAHEPATIC BILE DUCT AND THE ROLE OF PROGENITOR CELLS.

Michael E. Sutton, Ton Lisman, Dorien S. Visser, Annette S. H. Gouw, Robert J. Porte. *Department of HPB Surgery and Liver Transplantation, University Medical Center Groningen, Groningen, Netherlands*

Background: The extrahepatic bile duct (EHBD) is a target in various diseases, either before or after liver transplantation. Although regeneration of intrahepatic bile ducts is extensively studied and progenitor cells have been identified inside the liver, very little is known about the mechanisms of EHBD regeneration.

Objective: To identify the site of epithelial cell regeneration in the (EHBD) and to study the possible role of local progenitor cells.

Methods: Normal EHBD was obtained from twelve donor livers. Specimens of mildly diseased EHBD were obtained from five patients with cholangitis. Specimens of severely diseased EHBD, characterized by partial erosion of the epithelial layer, were obtained from six patients undergoing retransplantation of the liver because of ischemic cholangiopathy. Double immuno-staining for CK-19 and Ki-67 was performed to identify proliferating epithelial cells. Expression of the putative hepatobiliary progenitor cell markers c-Kit and Thy-1 was detected using PCR and immuno-histochemistry.

Results: In normal EHBD, very few Ki-67 positive cells were detected. In mildly diseased EHBD, Ki-67 positive cells were mainly located in the basal layer of the epithelium. In severely diseased EHBD, Ki-67 positive cells were observed in the peribiliary glands. In all normal EHBD, mRNA transcripts for c-Kit and Thy-1 were present. Expression of c-Kit was localized in single cells throughout the EHBD wall, suggestive of Cajal cells and mast cells. Thy-1 immuno-staining was abundantly present in stromal cells and nerve bundles, but not in epithelial cells.

Conclusions: While proliferation of mature cholangiocytes may be sufficient to restore epithelial lining after mild injury, recruitment of cells from the peribiliary glands seems to occur after severe epithelial injury of the EHBD. In this context, the peribiliary glands should be considered as a potential niche of local biliary progenitor cells. Although previous studies in rodents have suggested that c-Kit and Thy-1 are useful biliary progenitor cell markers, these markers appeared of no value in human EHBD.

Abstract# P-189

ROLE OF HIPOXIA INDUCIBLE FACTOR (HIF) IN FATTY LIVER PRESERVATION: AN EX VIVO APPROACH USING IGL-1 SOLUTION.

Amine Zaouali¹, Ismail Ben Mosbah¹, Hassen Ben Abdennebi², Olivier Boillot³, Joan Rosello-Catafau^{1,4}, Carmen Peralta⁴. ¹Experimental Hepatology Unit, Instituto de Investigaciones Biomedicas de Barcelona, Barcelona, Spain; ²Human Physiology Unit, Faculté de Pharmacie, Monastir, Tunisia; ³Hôpital Edouard Herriot, Lyon, France; ⁴IDIBAPS, Barcelona, Spain

Hypoxia inducible factor (HIF) generated during hypoxia is responsible for the tissue adaptation to ischemia. However, recent studies point out that HIF involvement in enhancing of liver tolerance against reoxygenation injury. IGL-1 solution has been successfully employed to prevent fatty liver cold ischemia-reperfusion injury (IRI), but the induced protection mechanisms are still understood.

Steatotic livers from Zucker rats (n=6) were preserved for 24 hours at 4°C in IGL-1 and UW solutions and then “ex vivo” perfused for 2 hours at 37°C. HIF and nitric oxide (nitrites/nitrates and NOS activity) were measured and correlated with liver(AST/ALT) and function(bile production)injury; as well as, other factors tied to the known exacerbated susceptibility of steatotic livers against IRI, as the oxidative stress (MDA) and mitochondrial damage (GLDH), respectively.

Fatty livers preserved in IGL-1 showed higher HIF levels when compared to goal UW solution (3.85 ± 0.9 vs 1.48 ± 0.48 ug HIF/ug protein). Surprisingly, the addition of an antiischemic drug as trimetazidine (10-6M) to the original IGL-1 solution (IGL-1+TMZ)showed a significant increase in HIF levels(7.02 ± 0.82 vs 3.85 ± 0.9 ug HIF/ug protein)which were concomitant with increased nitrites/nitrates levels observed for the IGL-1+trimetazidine solution vs IGL-1 alone (403.3 ± 21.7 vs 259.8 ± 33.8 pmol/mg), respectively. This fact was consistent with the subsequent activation of constitutive NOS. An effective prevention of oxidative stress and mitochondrial damage was also observed.

In conclusion, the preservation of HIF levels during normothermic reperfusion seems to be associated with an increased production of NO due to IGL-1 + trimetazidine solution was used.

* A. Zaouali is fellow from the AECI/MAEC (Madrid, Spain).

Abstract# P-190

THERAPEUTIC SIGNIFICANCE OF AUTOANTIBODY AGAINST HISTONE H1 IN A RAT MODEL OF T-CELL MEDIATED AUTOIMMUNE HEPATITIS. Toshiaki Nakano^{1,2},

Shigeru Goto^{1,3}, Chia-Yun Lai¹, Li-Wen Hsu¹, Jin-Long Wong¹, Yen-Chen Chang¹, Chin-Hsiang Yang¹, Chih-Chi Wang¹, Bruno Jawan¹, Yu-Fan Cheng¹, Chao-Long Chen¹. ¹Liver Transplantation Program, Chang Gung Memorial Hospital-Kaohsiung Medical Center, Kaohsiung, Taiwan; ²Graduate Institute of Clinical Medical Sciences, Chang Gung University College of Medicine, Kaohsiung, Taiwan; ³Iwao Hospital, Yufuin, Japan

Aims. We previously demonstrated the immunosuppressive activity of anti-histone H1 autoreactive antibody (auto-Ab) induced in experimental and clinical liver allograft tolerance (*Transplantation* 2004; 77: 1595 and *Transplantation* 2007; 83: 1122). This study aimed to explore the immunological aspects of anti-histone H1 Ab in Concanavalin A (ConA)-induced liver injury, which is well characterized as a model for T-cell mediated autoimmune hepatitis.

Methods. To establish ConA-hepatitis model in rats, 20 mg/kg of ConA was intravenously injected and liver function and histopathological analysis were performed. To evaluate the anti-inflammatory activity of anti-histone H1 Ab, rabbit polyclonal Ab against histone H1 was intraperitoneally injected immediately after ConA injection. Western blot analyses were performed to evaluate the effects of anti-histone H1 Abs on T-cell receptor (TCR) signaling.

Results. In this autoimmune hepatitis model, anti-histone H1 auto-Ab was transiently induced in the sera during the natural recovery stage at 3 to 7 days after ConA injection. Furthermore, we found that injection of ConA with anti-histone H1 Ab could reduce liver damage. Further mechanical analyses revealed that anti-histone H1 Ab altered the intracellular activation of mitogen activated protein kinase (MAPK), nuclear factor-kappaB (NF-κB) and calcineurin via TCR signaling, suggesting that anti-histone H1 Ab may protect ConA-induced liver injury by inhibiting activation of effector T cells.

Conclusions. These results suggest that anti-histone H1 auto-Ab may be natural immune regulative factor to protect inflamed livers suffered from autoimmune hepatitis, and may lead to T-cell unresponsiveness through the selective regulation of MAPK/NF-κB and calcineurin signaling.

Abstract# P-191

TARGETED QUANTITATIVE METABOLOMICS IN RATS DURING EARLY REPERFUSION. Kim Dang^{1,2}, Marc L.

Melcher¹, Yeonho Park^{2,3}, Natalie J. Serkova⁴, Claus U. Niemann^{2,5}. ¹Surgery, Stanford School of Medicine, Stanford, CA, USA; ²U of California, San Francisco, CA, USA; ³Gachon U Gil Medical Center, Incheon, Korea; ⁴Anesthesiology, U of Colorado Health Sciences Center, Denver, CO, USA; ⁵Anesthesia & Peri-Op Care, U of California, San Francisco, CA, USA

Background Quantitative nuclear magnetic resonance (NMR)-based metabolomics was primarily used to evaluate very early metabolic alterations in obese Zucker rats undergoing liver ischemia reperfusion (I/R).

Methods Obese and lean Zucker rats were subjected to 75 min partial warm liver ischemia. Rats were sacrificed 4h post-reperfusion for blood (AST, ALT, glucose) and tissue (NMR metabolome and GLUT1/2 mRNA) analysis.

Results Serum AST and ALT were significantly higher in obese rats than in lean rats. Despite lack of baseline glucose differences, blood glucose increased significantly in obese rats at the end of ischemia (obese 281 ± 77 mg/dL, lean 125 ± 50). While blood glucose stayed significantly elevated from baseline after 4h reperfusion, significance was lost across groups (obese 246 ± 106 , lean 166 ± 35). GLUT2, the major liver-type glucose transporter, was equally reduced (<0.5-fold of respective shams) in both groups after I/R. Baseline GLUT1 was significantly lower in obese rats (<0.5-fold of lean*), but was induced by a greater degree after I/R (7.3-fold* vs 2.5-fold of shams). NMR analysis identified significant early differences in several markers of I/R severity (Table 1). * $p < 0.05$ vs lean

Table 1: ¹H-NMR quantification of rat liver metabolites 4h after reperfusion

Metabolite	Lean	Obese
Allantoin	0.2 ± 0.1	$0.5 \pm 0.3^*$
Betaine	1.5 ± 0.6	$0.8 \pm 0.3^*$
Lysine & Arginine	1.0 ± 0.3	$0.5 \pm 0.1^*$
Mono-unsaturated fatty acids	34.1 ± 7.6	$55.9 \pm 22.0^*$
Choline	13.1 ± 1.9	$9.3 \pm 2.4^*$
Fatty acids	86.1 ± 10.5	$130.1 \pm 46.6^*$
Total lipids	763.4 ± 94.9	$1258.0 \pm 467.4^*$
Saturation index for fatty acids	2.6 ± 0.3	$1.5 \pm 0.3^*$

Values in ave umol/mg tissue± SD. * $p < 0.05$ vs lean

Conclusion Hepatic metabolic markers, such as increased allantoin (marker of oxidative stress via the xanthine pathway) and a decreased saturation index (lipid peroxidation), revealed increased early injury in obese rats after I/R. Increased lipid (decreased hepatic lipid catabolism) as well as a decreased betaine and choline (hepatic osmolytes) levels indicate compromised organ function. Hyperglycemia after early I/R may be due to GLUT2 down-regulation and decreased liver function.

Abstract# P-192

HEPATOPROTECTIVE EFFECTS OF MARINE AND KUHANG IN LIVER TRANSPLANT RECIPIENTS. Xiao

Xu, Qi Ling, Feng Gao, Hai-Yang Xie, Shu-Sen Zheng. Division of Hepatobiliary and Pancreatic Surgery, Department of Surgery, First Affiliated Hospital, Zhejiang University School of Medicine, Hangzhou, Zhejiang, China

We aimed to assess the effects of traditional Chinese medicine; marine (MT) and kuhuang (KH), either alone or in combination, on the early graft function of the recipients and overall patient survival rate after liver transplantation (LT) by using diammonium glycyrrhizinate (DG) as a positive control. A total of 151 subjects undergoing LT were included in this prospective study. According to the different regimens given in the first two posttransplant weeks, they were divided into DG group (n = 49), DG + KH group (n = 36), MT group (n = 42) and MT+KH group (n = 24). The graft function in the early post-transplant period and patient survival rate were examined. During the first two post-transplant weeks, there was no significant difference in total bilirubin, alanine transaminase, aspartate transaminase, serum creatinine, and prothrombin time between MT group and DG group. Patient survivals in these two groups were also similar. Compared to DG group, DG + KH group showed a significantly lower total bilirubin value on post-transplant day 5 (3.2 ± 2.1 mg/dL vs. 5.7 ± 5.6 mg/dL, $p < 0.01$) and day 7 (2.8 ± 1.8 mg/dL vs. 5.8 ± 6.1 mg/dL, $p < 0.01$), and higher patient survival. There was no significant difference between DG + KH group and MT + KH group. In conclusion, MT provides an alternative to DG after LT. The combination 25 of DG and KH is highly effective in decreasing the total bilirubin in the early post-transplant period and improving patient survival.

Keywords: Diammonium Glycyrrhizinate; Kuhuang; Matrine; Liver Transplantation; Prognosis.

Abstract# P-193

ANGIOTENSIN II RECEPTOR ANTAGONISTS AS USEFUL STRATEGIES IN STEATOTIC AND NON-STEATOTIC LIVERS IN CONDITIONS OF PARTIAL HEPATECTOMY UNDER ISCHEMIA-REPERFUSION. Izabel Alfany-Fernandez^{1,3}, Fernando S. Ramalho², Araní Casillas-Ramirez^{1,3}, Marta Massip-Salcedo^{1,3}, Anna Serafin⁴, Antoni Rimola⁵, Vicente Arroyo⁵, Juan Rodés⁵, Joan Roselló-Catafau^{1,2,3}, Carmen Peralta^{1,3}.

¹Un. Transpl de Fetge i Viabilitat de L'empelt, IDIBAPS-CSIC, Barcelona, Spain; ²Hepatic Ischemia-Reperfusion Unit, IIBB-CSIC, Barcelona, Spain; ³CIBEK CIBER-EHD, IDIBAPS, Barcelona, Spain; ⁴CBATEG, UAB, Barcelona, Spain; ⁵Hosp Clinic Universitari, IDIBAPS, Barcelona, Spain

We examined whether Angiotensin II (Ang II) receptor antagonists could be considered as a therapeutic strategy in steatotic and non-steatotic livers in conditions of partial hepatectomy under ischemia-reperfusion -which is commonly applied in clinical practice to reduce blood loss.

Steatotic and non-steatotic livers from Zucker rats were subjected to partial hepatectomy under ischemia-reperfusion with or without previous Ang II receptor antagonist treatment. The actions of p38 mitogen-activated protein kinase and nitric oxide were altered pharmacologically.

We report that Ang II type I receptor (AT1R) antagonist, but not Ang II type II receptor (AT2R) antagonist, increased regeneration in non-steatotic livers. In the presence of steatosis, both AT1R and AT2R antagonists increased liver regeneration. This effect was stronger when the two were combined. Neither of the Ang II receptor antagonists protected non-steatotic livers against damage. Only AT1R antagonist, through nitric oxide inhibition, reduced damage in steatotic livers. The combination of AT1R and AT2R antagonists in steatotic livers conferred a similar degree of protection to AT1R antagonist alone. Herein we show that p38 mitogen-activated protein kinase was a key mechanism in the regeneration induced by the Ang II receptor antagonists in both liver types, since when this signalling pathway was inhibited, the beneficial effects of the Ang II receptor antagonists on liver regeneration disappeared, regardless of HGF or TGF- β hepatic levels. In conclusion, in conditions of partial hepatectomy under ischemia-reperfusion, AT1R antagonist for non-steatotic livers and AT1R and AT2R antagonists for steatotic livers improved regeneration in the remnant liver through p38 mitogen-activated protein kinase activation. In addition, the combination of AT1R and AT2R antagonists in steatotic livers lead to stronger liver regeneration than either antagonists used separately, and also provided the same protection against damage as that afforded by AT1R antagonist alone.

Abstract# P-194

TISSUE ENGINEERING OF PRIMARY RAT HEPATOCYTES USING NANO-FIBROUS 3D POLYMERIC SCAFFOLDS FOR APPLICATION IN ADME STUDIES IN PHARMACEUTICAL RESEARCH. Jeanette Bierwolf¹, Johannes P. Erbes¹, Steffen Deichmann¹, Christina Stieglitz¹, Eva Toronyi¹, Marc Luetgehetmann², Bjoern Nashan¹, Kai Feng³, Peter X. Ma³, Joerg M. Pollok¹. ¹Hepatobiliary and Transplantation Surgery, University Medical Center Hamburg-Eppendorf, Hamburg, Germany; ²Internal Medicine 1, University Medical Center Hamburg-Eppendorf, Hamburg, Germany; ³Department of Biomedical Engineering, University of Michigan, Ann Arbor, MI, USA

Purpose: Primary hepatocytes are widely used to estimate drug toxicology due to their high metabolic function. In currently used 2-dimensional culture systems morphological changes occur. Tissue engineering using 3D polymer scaffolds could support the establishment of a superior culture system for pharmaceutical research.

Methods: Primary rat hepatocytes were seeded onto collagen coated nano-fibrous poly-L-lactic acid (PLLA) scaffolds using a static seeding method or centrifugal force respectively. The scaffolds were incubated in a humidified atmosphere of 5% CO₂ and 95% air at 37°C. Extent of hepatocyte leakage was quantified by DNA content measurement. Cell viability and maintenance of glycogen storage were evaluated at different time points during cell culture by HE and PAS staining. Albumin secretion was measured by ELISA. The activity of liver-specific factors (Connexin32, ZO-1, HNF-4) and cytochrome p450 enzymes were analyzed by immunofluorescent microscopy. RNA was isolated for RT-PCR.

Conclusions: Primary rat hepatocytes cultured on nano-fibrous scaffolds revealed intact cell micro-architecture with high cell viability and well

preserved glycogen storage during the entire culture period of 7 days, as demonstrated by HE staining and positive PAS reaction. Albumin secretion determined by ELISA was present during the entire culture period. Aggregated hepatocytes in our 3D culture system re-establish positive signalling for HNF-4 and Connexin 32 indicating highly preserved cell differentiation and interaction respectively. ZO-1 positive hepatocytes were detected after 7 days of culture demonstrating recreation of tight junctions. Furthermore, cytochrome p450 enzymes were positive in the 3D-cultured hepatocytes as demonstrated by immunofluorescent microscopy. This indicates that collagen coated PLLA scaffolds with interconnected spherical macropores provide a good in-vitro-microenvironment for viability and neo tissue regeneration of primary rat hepatocytes, preserving specific enzymatic function and morphology.

Abstract# P-195

CHOLEHEPATIC SHUNTING AFTER ORTHOTOPIC LIVER TRANSPLANTATION: AN ATTEMPT TO PREVENT BILE DUCT INJURY. Harm Hoekstra^{1,2}, Bruno Stieger², Robert J. Porte³, Pierre A. Clavien¹. ¹Department of Visceral and Transplant Surgery, University Hospital Zurich, Zurich, Switzerland; ²Division of Clinical Pharmacology and Toxicology, Department of Internal Medicine, University Hospital Zurich, Zurich, Switzerland; ³Section of Hepatobiliary Surgery and Liver Transplantation, Department of Surgery, University Medical Center Groningen, Groningen, Netherlands

Background Bile salts cycle between cholangiocytes and hepatocytes through a cholehepatic shunt pathway. The magnitude of bile salt absorption and excretion through cholangiocytes after orthotopic liver transplantation (OLT) is not known. We aimed to define endogenous bile salt cytotoxicity induced in cholangiocytes after OLT.

Methods Previously, we have established a mouse OLT model for toxic bile duct injury. Livers from wild-type mice and mice heterozygous for disruption of the multidrug resistance 2 Mdr2 gene (Mdr2^{+/-}) were transplanted into wild-type recipient mice. Mdr2^{+/-} mice have normal liver histology and function under normal conditions, though secrete only 50% of the normal amount of phospholipids into their bile, leading to an abnormally high bile salt/phospholipid ratio. Two weeks after OLT, cholangiocyte bile salt transporter expression and cholestasis were assessed by RT-PCR, western blotting and measurement of serum and biliary bile salt levels.

Results In contrast to wild-type liver grafts after OLT, liver grafts from Mdr2^{+/-} donors revealed signs of bile duct injury and cholestasis. Serum bile salt levels were elevated, whereas biliary bile salt concentrations dropped significantly and the biliary bile salt/phospholipid ratio was normalized. Parallel to this observation, Mdr2^{+/-} livers after OLT showed significantly increased protein expression of cholangiocyte bile salt transporters responsible for biliary uptake (Asbt) and excretion (Ost-beta); Asbt transcript levels were down-regulated significantly. Ost-alpha was down-regulated on both protein and transcript levels.

Conclusions In the absence of bile duct obstruction, the cholehepatic shunt provides an alternative route for continuation of hepatocholangiocyte flux of bile salts, normalizing the bile salt/phospholipid ratio and preventing further bile duct injury. Cholangiocyte bile transporter expression was compatible with the cholestatic Mdr2^{+/-} phenotype after OLT. Subsequently, bile salts may accumulate in cholangiocytes, act cytotoxic and aggravate bile duct injury after OLT.

Abstract# P-196

THE EFFECT OF FISH OIL TO END STAGE LIVER DISEASE. Chih-Cheng Chen¹, Li-Tung Huang¹, Hsio-Chi Chung², Allan Concejro¹, Chih-Chi Wang¹, Shih-Ho Wang¹, Chao-Long Chen¹. ¹Liver Transplantation Program, Chang Gung Memorial Hospital-Kaohsiung Medical Center, Kaohsiung, Taiwan; ²Veterinarian Department, National Pingtung University of Science and Technology, Pingtung, Taiwan

Background: End stage liver disease affected the liver's ability to maintain long chain polyunsaturated fatty acids (PUFAs) especially docosahexaenoic acid (DHA) and arachidonic acid (AA). DHA and AA deficiency are responsible for increasing oxidative stress and/or impairing cognitive functioning. This study investigated whether dietary supplement with fish oil, mainly composed of DHA and eicosapentaenoic acid, would increase the tissue content of polyunsaturated fatty acids, alter systemic oxidative stress, and/or improve spatial memory functioning in rats with obstructive jaundice.

Material and methods:

Sprague Dawley rats were used throughout the study. Rats were divided into 4 groups: group 1: rats received sham operation for bile duct ligation (BDL); group 2: rat received BDL for 2 wks; group 3: rats received sham operation with fish oil supplement (0.4% of its own body weight per day via gavage feeding) for 2 wks; group 4: rats received BDL with fish oil supplement for 2 wks. All rats were assessed for spatial memory learning by Morris Water Maze task. Blood was aspirated by cardiocentesis for biochemistry study. Liver tissues of all groups were collected for asymmetric dimethylarginine (ADMA) histo-immunostaining as well as fatty acids analysis. Urine specimens of all rats were collected for analysis of systemic oxidative stress through nitrite/nitrate (NOX) evaluation.

Results:

Fish oil significantly increased the liver tissue content of DHA in fish oil supplemented groups. Both group 2 and 4 had impaired spatial performance compared to both group 1 and 3. Among 4 study groups, both group 2 and 4 had significantly higher plasma direct/total bilirubin, aspartate aminotransferase, alanine aminotransferase, and urinary NOX levels as compared to group 1 and 3. Histogram of immuno-stain of liver tissue showed significantly higher accumulation of ADMA in both group 2 and 4 as compared to group 1 and 3.

Conclusion: The results of this study revealed that obstructive jaundice increased systemic oxidative stress and caused impairment of spatial memory functioning. Fish oil supplementation, albeit increased tissue content of DHA in subject with obstructive jaundice, it neither decreased systemic oxidative stress nor improved spatial performance in BDL rats.

Abstract# P-197

A NEW MODEL OF HEPATIC ENCEPHALOPATHY IN RATS.

Antonio Roberto Teixeira, Marta B. Privato, Nilza T. Molan, Marcia Kubrusly, Ana Maria Coelho, Wellington Andraus, Meirelles Roberto, Telesforo Bacchella, Marcel C. C. Machado, Luiz A. C. D. Albuquerque. *Gastroenterology, Sao Paulo University School of Medicine, Sao Paulo, Brazil*

INTRODUCTION: Hepatic encephalopathy is a very frequent complication among chiroctic patients waiting for liver transplantation. The molecular biology of the astrocytes and glia is under investigation. Glucose transporters (GLUT 1) and aquaporine regulation are theoretically related to HE. To investigate further, a simple and cheap model of HE is needed. In the past, several models of hepatic encephalopathy (HE) were described in dogs. These models included the ligation of hepatic artery and a portocaval anastomosis (MACHADO et al, 1975). Other models utilize choledocal ligature and dietary-induced hyperammonemia to produce HE (JOVER et al, 2006). There are models of HE described in monkeys (VILLANO et al, 2008) and rabbits (HUNG et al, 2007). An ideal model of HE should be related to cirrhosis, be simple to perform, applicable to small animals (rats and mice), reproducible and not expensive.

AIM: To develop a simple and cheap model of hepatic encephalopathy in rats.

METHODS: Six Sprague-Dawley male rats were submitted to laparotomy under anesthesia. The paracaval lobes were clamped with vascular soft bulldogs to produce ischemia for one hour. Afterwards, the median, left and right lateral lobes were resected according to HIGGINS & ANDERSON classical technique. It produced a very ill animal, that survived for 6-7 hours, presenting severe disorientation. After 6 hours, all animals were killed by decapitation, using a proper guillotine device. Blood samples were collected to analyze liver enzymes, ammonia, urea, Na, K, bilirubines and Malondialdehyde (MDA), a marker of lipid peroxidation.

RESULTS: In this model, comparing to a normal control group, AST and ALT levels were significantly increased ($p=0.0043$). Bilirubines (direct and indirect) were also elevated ($p=0.0043$). MDA was very elevated in the HE group ($p=0.057$). Most important, AMMONIA levels were very high in the HE animals ($p=0.0013$).

CONCLUSION: We develop a very simple, cheap and reproducible model of hepatic encephalopathy in rats that produces animals with severe disorientation, remarkable hyperammonemia, jaundice and elevated aminotransferases. This model may be useful in further researches concerning human hepatic encephalopathy.

Abstract# P-198

ACTIVATED src FAMILY KINASE LYN AS SIGNALING MOLECULE FOR MITOCHONDRIA IN EARLY LIVER REGENERATION.

Francesco E. D'Amico¹, Enrico Gringeri¹, Amedeo Carraro², Pagano Mario³, Tibaldi Elena³, Maurizio Buggio¹, Brunati Anna Maria³, Cillo Umberto¹. ¹*General Surgery and Liver Transplant, University of Padua, Hepatobiliary and Liver Transplant Surgery, Padova, Italy;* ²*Istituto Oncologico Veneto, IRCCS, Surgical Oncology, Padova, Italy;* ³*Department of Biochemistry University of Padua, , Padova, Italy*

In the early phases of liver regeneration after 2/3 partial hepatectomy, mitochondria undergo transient functional alterations, such as impairment of bioenergetic metabolism as well as overproduction of ROS and overloading of calcium, which are also regarded as pro-apoptotic signals. Nonetheless, hepatocytes do not enter apoptosis, suggesting that programmed cell death is prevented by a well orchestrated regulatory mechanism. The aim of this study was to establish whether tyrosine phosphorylation, an emerging mechanism of mitochondrial regulation, participates in signalling events generated in response to liver injury to modulate mitochondrial activity. We did not find any src family kinases (SFKs) in mitochondria of quiescent liver as compared to other organs: only upon growth factor and cytokine receptor engagement during the early phases of liver regeneration, an active form of Lyn, the predominant SFK in the liver, translocates from the plasma membrane to mitochondria and phosphorylates several mitochondrial proteins concurrently with changes in various mitochondrial functional parameters. In this respect, Lyn appears to convey information from the cell membrane to mitochondria in a coordinated and sequential manner to support cell proliferation in early liver regeneration and may represent a significant player in contrasting cell death signals in the liver under pathophysiological conditions.

Abstract# P-199

CYP2C19 SEQUENCE IN LIVING DONOR LIVER TRANSPLANTATION.

King-Wah Chiu, Wei-Chen Tai, Toshiaki Nakano, Wei-Pang Chang, Chao-Long Chen. *Liver Transplant Center, Chang Gung Memorial Hospital, Kaohsiung Medical Center, Kaohsiung, Taiwan*

Background: Cytochrome P450 2C19 (CYP2C19) was the main cause for large differences in the pharmacokinetics of a number of clinically important drugs. The function of the CYP2C19 was altered in the patients with end stage liver disease, cholestatic liver disease and renal transplant recipients. The situation was quite different between the donor and the recipient. What happens on the CYP2C19 when the recipient blood goes into the new liver?

Aim: The purpose of this study is clarifying the change of CYP2C19 at the time of pre operation day (donor), post operation day 1 (unstable recipient) and one month after liver transplantation (stable recipient).

Methods: Eleven pairs of living donors and recipients were enrolled in our liver transplantation program at the time of the abstract submission. The CYP2C19 were sequenced and analyzed from the 3c.c. venous blood at the pre operation day (blood from the donor), post operation day 1 (blood from the unstable recipient) and one month later after liver transplantation (blood from the unstable recipient). The genotypes from the blood used with a modification of the DNA extraction and polymerase chain reaction amplification method. The DNA was used to amplify five fragments of the CYP2C19 gene corresponding to exons 1 (410 bp), 2-3 (719 bp), 4 (310 bp), 5 (410 bp) and 9 (529 bp).

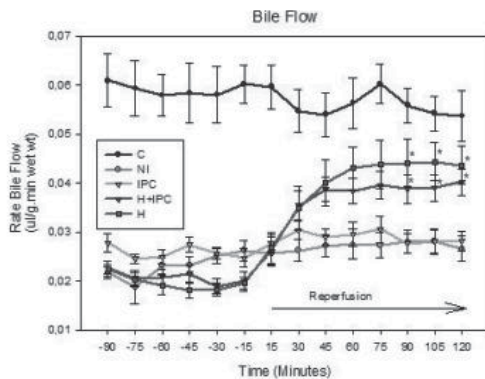
Results: Analyzed 5 fragments as exon 1 (410 bp), 2-3 (719 bp), 4 (310 bp), 5 (410 bp) and 9 (529 bp) of CYP2C19 genotypes, homozygous (G) and heterozygous (A/G) were found only. No evidence of Mutant (A) type is identified.

Conclusion: CYP2C19 is quite stable in the system of cytochrome P450. No evidence of mutation even the recipient blood goes into the new liver. According to that easier detection of CYP2C19 in the patients with liver transplantation may represent the graft function early and reduce the evidence of graft rejection.

Abstract# P-200

TOPICAL HYPOTHERMIA PLUS ISCHEMIC PRECONDITIONING: LIVER INJURIES AND OXIDANT DEFENSES IN A MODEL OF ISCHEMIA AND REPERFUSION IN RATS. Tomaz J. M. Grezzana, Carlos O. Corso, Cleber D. P. Kruehl, Tais B. Mendonça. *Department of Surgery, UFRGS, Porto Alegre, RS, Brazil*

Introduction: The use of Topical Hypothermia or Ischemic Preconditioning (IPC) as adjuncts in hepatic resections can be useful to attenuate the injuries of ischemia and reperfusion. However, until the present moment, the combination of both techniques was not evaluated. **Objectives:** Development of a model to evaluate the initial ischemia/reperfusion injuries and the possible synergistic effects when both tools are applied concomitantly. **Methods:** Animals were divided in five groups: Control (C), Normothermic Ischemia (NI), Ischemic Preconditioning (IPC), Hypothermia 26°C (H) and Hypothermia 26°C plus IPC (H+IPC). Partial liver ischemia was induced during 90 minutes followed by 120 minutes of reperfusion. The induction of hypothermia was by superfusion of cooled saline on the ischemic lobes and IPC consisted of 10 minutes of ischemia and reperfusion before the occlusion of the hepatic vessels. The MAP, body temperature, bile flow, ALT, AST, TBARS, CAT and histopathologic injuries were evaluated. **Results:** No differences were seen in MAP and body temperatures throughout all experiment. The bile flow showed recovery to pre-ischemic values in H and H+IPC groups after 45 minutes of reperfusion ($P < 0.05$) and significant difference to NI and IPC groups after 90 minutes ($P < 0.05$).



In the hypothermic groups, ALT and AST showed significant difference in comparison to NI and IPC groups ($P < 0.05$) and significant inverse correlation with bile flow. TBARS levels were significantly decreased in H+IPC group in comparison to C, NI and IPC groups ($P < 0.05$). CAT levels showed significant increase in IPC group, but the hypothermia avoided the CAT increasing in H+IPC group. Histopathologic injuries were mild but NI presented difference in comparison to the C group. **Conclusions:** The induction of Topical Hypothermia was associated to an early recovery of hepatic function and protected the ischemic liver against the ischemia/reperfusion injuries, a mechanism probably related to attenuation in oxidant stress and ATP preservation. Synergistic effects cannot be discarded when both tools are applied.

Abstract# P-201

LIVER TRANSPLANTATION FROM A DECEASED DONOR WITH SEVERE RHABDOMYOLYSIS. Hae Won Lee^{1,2}, Seong-Hwan Chang^{1,2}, Youn Jin Kim², Ik Jin Yun^{1,2}. *¹Department of Surgery, Konkuk University School of Medicine, Seoul, Republic of Korea; ²Oran Transplant Center, Konkuk University Hospital, Seoul, Republic of Korea*

Many deceased donors have intracranial lesions that triggered seizures, which can induce rhabdomyolysis. In donors with severe rhabdomyolysis, the kidneys often cannot be transplanted because acute renal failure develops. However, whether the liver can be transplanted safely is not clear. Most serum markers of liver function deteriorate markedly with rhabdomyolysis because of the massive muscle destruction and disseminated intravascular coagulation that occurs, making it very difficult to evaluate hepatic viability. Consequently, some viable livers might be discarded because of anxiety over post-transplant dysfunction. We transplanted a liver to a stuporous recipient with fulminant hepatic failure from a donor with severe rhabdomyolysis.

When the donor management began, the serum lactate dehydrogenase and total creatine kinase were 661 IU/L and 16,559 IU/L, respectively. Rhabdomyolysis was diagnosed based on a high serum myoglobin level of 42,554 ng/mL. The serum urea nitrogen and creatinine level were 42 mg/dL and 4.6 mg/dL, respectively and the serum AST/ALT was 225/67 IU/L. The PT INR was also prolonged to 2.14. Hydration and urine alkalization were attempted to protect the kidneys and FFP was transfused to normalize the PT. However, the serum creatinine increased further to 5.2 mg/dL 1 day later and consequently the kidneys could not be used for transplantation. The PT did not improve despite the transfusion of 4 units of FFP. Furthermore, the AST and ALT increased steadily to 1,156 and 256 IU/L, respectively. Nonetheless, we agreed to make a final decision after an intraoperative assessment. Grossly, the liver was very dark brown, but its texture was good. On frozen section histopathological examination of the liver tissue, no cellular necrosis or severe fatty change was observed. Considering the serious condition of the recipient, we decided to attempt transplantation. After transplantation, the recipient's hepatic function improved rapidly despite the poor preoperative function, and the recipient completely recovered her health. In conclusion, the liver of a donor with rhabdomyolysis can be transplanted safely despite the poor preoperative hepatic function. Therefore, a liver should not be discarded based on the preoperative laboratory results; the final decision should be made after an intraoperative assessment.

Abstract# P-202

TRANSMISSION OF IDIOPATHIC THROMBOCYTOPENIC PURPURA DURING ORTHOTOPIC LIVER TRANSPLANTATION. Ilona T. A. Pereboom^{1,2}, Marieke T. de Boer¹, Elizabeth B. Haagsma³, Frans van der Heide³, Leendert Porcelijn⁴, Ton Lisman^{1,2}, Robert J. Porte¹. *¹Hepatobiliary Surgery and Liver Transplantation, University Medical Center Groningen, Groningen, Netherlands; ²Surgical Research Laboratory, University Medical Center Groningen, Groningen, Netherlands; ³Gastroenterology and Hepatology, University Medical Center Groningen, Groningen, Netherlands; ⁴Immunohematology Diagnostic Services, Sanquin Diagnostic Services, Amsterdam, Netherlands*

Organ transplantation carries the risk of transmission of a disease from the donor to the recipient. Although the overall risk is small due to careful donor selection, transmission of some diseases, such as malignancies or immune-mediated diseases may have an important impact on the recipient. Immune disorders can be transferred via lymphoid tissue and passenger lymphocytes by solid organ transplantation. Here we report a case of a 44-year-old male who received a liver from a donor who died from intracerebral bleeding due to idiopathic thrombocytopenic purpura (ITP). At the time of organ procurement, platelet count in the donor was $4 \times 10^9/L$. Preoperative platelet count in the recipient was $424 \times 10^9/L$. Three days after transplantation, the recipient's platelet count suddenly dropped to $6 \times 10^9/L$. Despite multiple platelet transfusions, administration of immunoglobulins, and high dose steroids, severe and life-threatening thrombocytopenia persisted until postoperative day 8 when platelet count slowly started to rise. However, on postoperative day 12 the patient's condition suddenly worsened because of acute portal vein thrombosis, eventually leading to his death. Laboratory studies demonstrated anti-platelet antibodies in serum of both donor and recipient. As other causes for the thrombocytopenia in the recipient were ruled out, we conclude that the patient contracted ITP through transmission of anti-platelet antibody-producing lymphocytes by the liver transplant procedure. Although this condition is likely to be self-limiting (depending on the persistence of passenger donor lymphocytes), current evidence suggests that patients receiving such a donor have difficulties to survive the immediate post-operative period.

Abstract# P-203

DISSEMINATED NOCARDIOSIS: A RARE INFECTIOUS COMPLICATION FOLLOWING NON-HEART-BEATING DONOR LIVER TRANSPLANTATION. Santos Jiménez-Galanes, Juan Carlos Meneu Diaz, Baltasar Perez-Saborido, Almudena Moreno Elola-Olaso, Yiliam Fundora Suarez, Manuel Abradelo Usera, Alberto Gimeno Calvo, Enrique Moreno González.

Surgery and Abdominal Organs Transplantation Department, 12 de Octubre University Hospital, Madrid, Spain

INTRODUCTION

Nocardiosis is an infrequent disease that use to affect patients who present a cellular immunodeficiency, such as transplant recipients on immunosuppression treatment, and although uncommon associate high rates of morbidity and mortality. Disseminated Nocardiasis affecting central nervous system (CNS), abdomen, skin and lungs has been described in bone marrow, lung and kidney transplanted patients. However, to our knowledge, no cases involving these three structures have been reported in liver transplant recipients.

CASE REPORT

Herein, we report a case of CNS, pulmonary and cutaneous nocardiosis in a liver transplant recipient from a non-heart-beating donor due to hepatitis C virus related cirrhosis and hepatocellular carcinoma. At 7th posttransplant month, patient was admitted at emergency department presenting bad general health status, fever, edema and subcutaneous nodules in legs. A computed tomography scan was performed revealing multiple nodules disseminated thorough both lungs, abdomen, brain a subcutaneous tissue. By these clinical and radiological findings needle biopsy was performed over one of the subcutaneous nodules. Cultures of the material tested positive for *Nocardia farcinica*. Thus, we started treatment with intravenous sulfamethoxazole-trimethoprim (SMZ-TMP) shifted after one month to oral. Radiological examination performed after two weeks of treatment showed a 70% reduction on subcutaneous, pulmonary and cerebral lesions. After six months of SMZ-TMP treatment, patient remained free of the symptoms, with involution of the subcutaneous nodules and significant radiological improvement.

CONCLUSION

Among opportunistic infections appearing in liver transplant recipients, *Nocardia* spp. should have special consideration according to the success in early treated patients and bad prognosis in cases of delayed diagnose.

Abstract# P-204

POSSIBLE ERRORS IN HBC AND HCV TESTING DUE TO FLUID IMBALANCE IN DECEASED POTENTIAL LIVER DONORS. J. Czerwinski^{1,2}, A. Pszeny^{1,2}, M. Laba², K. Ostrowski³, M. Pacholczyk³, D. Wasiak², M. Kosieradzki³, A. Chmura³, P. Malkowski².

¹Poltransplant, Warsaw, Poland; ²Dep. of Surg. and Transpl. Nursing, Med. Univ. of Warsaw, Warsaw, Poland; ³Dep. of Gen. and Transpl. Surg., Med. Univ. of Warsaw, Warsaw, Poland

To avoid viral transmission anti-HIV, anti-HCV, HBsAg and anti-HBc tests are obligatory in the donor. There are limitations to viral determination methods even using new ELISA-tests. Donor management is associated with alterations in homeostasis (anemia, hyponatremia, polyuria, diabetes insipidus).

We suggest that these disturbances may influence testing to provide a percentage of false-negative or false-positive results.

Method In order to explore the potentiality of false-determination of HBV and HCV we designed a study with aims: to assess and compare the incidence of positive and negative anti-HCV, HBsAg and anti-HBc results.

- in the donors with low (0,11-0,36), normal (0,36-0,44) and elevated (0,45-0,56) hematocrit and
- with hypo- (256-279), normal (280-300) and hyperosmolality (301-404).

A correlation was performed (Chi-test, p-value of <0,05).

Results Between 2004 and 2007, 2435 possible donors were referred to Poltransplant. 1967 were effective, 745 became liver donors. Anti-HCV were tested in 2185, HBsAg - in 2200, anti-HBc in 1183 referred donors.

61 (2,8%) donors were positive for anti-HCV. In the group with anemia (hematocrit 0,11-0,35) we observed a significantly lower incidence (2,2%, p=0,04) of negative tests. In the group of donor with hypoosmolality visibly higher percentage of positive tests were recorded (6,9%), but not significantly.

HBsAg were positive in 15 cases (0,7%). Although in the groups of donors with elevated hematocrit, hypo- and normal osmolality the numbers of

HBsAg(+) were distinctly very low (0 or 1), it was not possible estimate the significance due to small groups.

Anti-HBc(+) were obtained in 192 cases (16,2%) and differ between groups with different hematocrit (from 12,9% to 16,7%) and osmolality (from 13,0% to 20,0%), but not significantly.

Conclusions

1. In donors with hematocrit < 0,35 anti-HCV(+) percentage is significantly lower. It is probably related to hemodilution (anemia is an indirect sign of blood dilution) with consequence of false-negative marker determination. PCR-RNA should be considered in this group.
2. Abnormalities in plasma osmolality do not affect viral determination.
3. The influence of homeostasis abnormalities on HBsAg testing requires further investigation.

Abstract# P-205

APPLICATION AND MODIFICATION OF THE DONOR RISK INDEX FOR DONATION AFTER CARDIAC DEATH.

Jason Y. Rhee¹, Robin Ruthazer¹, Kevin O'Connor², Francis L. Delmonico², Richard Luskin², Richard B. Freeman¹. *¹Transplant Surgery, Tufts Medical Center, Boston, MA, USA; ²New England Organ Bank, Newton, MA, USA*

Background: The DRI is a useful tool for evaluating donor risk for all deceased liver donors, however it has yet to be specifically applied to DCD. Though donation after cardiac death (DCD) is a covariate of the DRI, a model specific for DCD donors has not been developed. We modified the DRI (Mod-DRI) and examined several other variables to construct a graft failure risk index for DCD livers.

Methods: We used data from 394 consecutive DCD potential donors from the New England Organ Bank (NEOB) registry from January 1, 2000 – July 30, 2008. Patient and graft survival data were obtained from the UNOS registry. The DRI was calculated as described by Feng, et al. Mod-DRI excluded cold ischemia time and placement location. Composite graft failure or death was the endpoint.

Results: 63 DCD livers were identified as having been transplanted with a mean follow-up time of 18.6 months ± 14.6 months. There were 33 (52.4%) donors with a DRI ≥ 2 (Hi-DRI) and 30 (47.6%) patients with a DRI < 2 (Lo-DRI). Seventeen additional variables not included in the DRI were also examined in univariate analysis. Only Hx of defibrillation (defib) was associated with worse outcome (p<0.05 in both log-rank and Wilcoxon rank test) in Kaplan Meier freedom from death or graft failure at 6, 12, and 24 months. 2-variable models (DRI ≥ 2 + defib and Mod-DRI ≥ 1.65 + defib) were both significantly associated with the composite endpoint (p<0.05), with Mod-DRI + defib having a slightly higher Model chi-square (7.5 vs 6.0).

Conclusions: In our small cohort, DRI was significantly associated with our composite outcome and inclusion of history of defib improved this association slightly. These results need validation in a larger cohort.

Abstract# P-206

LIVER TRANSPLANTATION FROM CONTROLLED DONATION AFTER CARDIAC DEATH (DCD) DONORS: A SINGLE CENTER EXPERIENCE. Olivier Detry¹, Caroline Veys¹, Benoît Seydel¹, Emmanuel Decker¹, Séverine Lauwick², Pierre Damas², François Damas², Arnaud De Roover¹, Pierre Honoré¹, Michel Meurisse¹.

¹Dpt of Abdominal Transplantation, CHU de Liège, University of Liège, Liège, Belgium; ²Dpt of Anaesthesiology and Intensive Care Medicine, CHU de Liège, University of Liège, Liège, Belgium

Background: The aim of this paper is to report the results of controlled donation after cardiac death (DCD) liver transplantation (LT) and to compare them with the results of donation after brain death (DBD) LT. **Patients and Methods:** From 2003 to 2008, amongst 176 consecutive LT, 19 (10.7%) were DCD-LT that were compared with the 113 first whole DBD-LT, excluding reLT, combined procedures or partial grafts. All DCD procurements were performed in the operative room. Allocation was center-oriented for the DCD-LT, and patient-oriented in the DBD group. The DCD recipients were chosen according to their low surgical risk and their low chances to receive a liver graft in a timely manner according to the patient-oriented allocation rule. DCD recipients were called in hospital before the procurement procedure to limit ischemia. Primary endpoints were graft failure and patient death. Secondary endpoints were postLT length of stay in ICU and total hospitalization, first week peaks of transaminase and total bilirubin, need for blood products during the first week, and the occurrence of biliary complications in the follow-up. **Results:** DCD donors were older, had higher BMI and longer ICU stay. In

the DCD group, mean donor warm ischemic time was 20 ± 1.5 min (range, 12–39 min), with a mean withdrawal phase of 11.7 ± 1.4 min (range, 4–30 min) and a mean circulatory arrest phase of 8.5 ± 0.6 min (range, 4–15 min). Mean MELD score at LT was 13.3 ± 0.8 and 18.8 ± 1.3 in the DCD and DBD groups, respectively ($p < 0.05$). Mean cold ischemia was 304 ± 25 min and 421 ± 15 min in the DCD and DBD groups, respectively ($p < 0.05$). Despite higher transaminase peak in the DCD group, recipient and graft survivals were not significantly different at 1 month, 1- and 5 years. DCD graft and patient survivals were 100% at one year, and no DCD graft was lost due to bile duct ischemic cholangiopathy. No DCD patient needed retransplantation. There was no significant difference in the different secondary endpoints. Conclusion: Controlled DCD liver grafts may provide excellent results if transplanted in low surgical risk recipients with a short cold ischemia and DWIT limited to 40 minutes.

Abstract# P-207

EVALUATION OF FACTORS RELATED TO PRIMARY GRAFT DYSFUNCTION AND NONFUNCTION IN THE LIVER TRANSPLANTATION. Gustavo R. Coelho, Katia F. Vasconcelos, Jose T. Valenca, Jr., Joao B. Vasconcelos, Douglas H. Filho, Tarciso D. Rocha, Cinthya F. Viana, Clovis R. Coelho, Paulo E. Costa, Ivelise R. Brasil, Gleydson C. Borges, Denissa F. Mesquita, Dirk Sherenken, Marcos A. Barros, Jose H. Garcia. *Surgery, Federal University of Ceara, Fortaleza, Ceara, Brazil*
A hepatic insufficiency of the graft after liver transplantation can be defined with Primary Graft Dysfunction (PGD) or Primary Nonfunction (PNF). The Objective of this work is to evaluate the factors related to the donor and the recipient with PGD or PNF in patients submitted to the liver transplant. 176 patients were submitted a liver transplantation in the Walter Cantidio University Hospital of the Federal University of Ceara. The mortality, in 30 days, of the patients with normal enzymatic evolution was of 5%; of the patients with PGD was 19.7% and the patients with PNF was of 100%. The patients who had evolved in the postoperative (PO) with PGD and PNF had had 3,69 times more possibilities of death in 30 days than the patients who had had normal evolution. In this work, we evaluated donors and recipients variables: age, peak serum sodium, aminotransferases, liver steatosis, score MELD, the Cold Ischemia Time of Ischemia Fria (CIT) and the Warm Ischemia Time (WIT). The TIF bigger than 600 minutes, the WIT bigger than 55 minutes and liver steatosis $> 30\%$ were factors of risk for the PGD/PNF development. The correlation between the CIT, in minutes, with the evolution aminotransferases of the first one to the seventh postoperative day, it disclosed to significance statistic in 1st PO, 2nd PO, 3rd PO, 4th PO, 6th PO and 7th PO for AST. In relation the ALT had significance statistics in 1st PO, 2nd PO, 3rd PO, 4th PO, 5th PO, 6th PO and 7th PO. The correlation between WIT, in minutes, with the evolution of aminotransaminases the first one to the seventh postoperative day, revealed a significance statistic in 1st PO, 5th PO, 6th PO and 7th PO for AST. In relation the ALT we had significance statistic in the 1st PO. The liver steatosis $> 30\%$, the increase of the CIT and the WIT consequently have correlation with increase of aminotransaminases in postoperative and the bigger risk of DPE/NFE.

Abstract# P-208

SPLIT LIVER TRANSPLANTATION IN PEDIATRICS RECIPIENTS. "12 DE OCTUBRE" UNIVERSITY HOSPITAL EXPERIENCE. MADRID, SPAIN. Yiliam Fundora, Almudena Moreno, Juan C. Meneu, Javier Manzanares, Manuel Abradelo, Pedro Urruzuno, Alberto Gimeno, Baltasar Pérez, Carlos Jiménez, Enrique Medina, Enrique Moreno. *Digestive Surgery and Abdominal Organs Transplants, 12 de Octubre University Hospital, Madrid, Spain*
Aim: To describe the clinical, surgical procedure, postoperative complications and mortality in pediatric recipients of liver grafts from split . Actuarial survival compared with a control group receiving whole graft.
Method: Between April 1991 and September 2006 were a total of 984 liver transplants, using a 4.86% grafts from THBH. A total of 48 recipients THBH, 17 were children.
Results: 64.7% less than a year. Over 50% were transplanted on an urgent basis (n = 10). The most common reason that prompted the transplant was the extrahepatic biliary tract atresia. The grafts were used right liver lobe (n = 1), left (n = 3), extended the right to segment IV (n = 1) and left lateral segments (n = 12). The average time of surgery was 13 ± 3 hours, with a cold ischemia time of 552 ± 235 minutes. The ecodoppler control showed the presence of thrombosis of the hepatic artery in five cases (29.4%) and three

of portal vein thrombosis (17.6%). Three patients had an anastomotic fistula of biliodigestiva. In seven cases it was necessary a surgical reintervention (compartment syndrome, hemoperitoneum, TP early intestinal fistula (n = 2), hematoma and ischemic colitis. Actuarial survival of graft and recipient was 53 and 55% a year. While the control group was 92%, reaching these differences statistically significant ($p = 0.005$). Conclusions: The split liver transplantation can expand the pool of donors. Morbidity and mortality increases in children receiving less than one year to be transplanted on an urgent status.

Abstract# P-209

KINGS COLLEGE SCORE FOR PREDICTING DEATH IN DONATION AFTER CARDIAC DEATH (DCD) LIVER DONORS. Paul J. Marriott, Adam Bartlett, Mark McPhail, Amy Dukoff-Gordon, William Bernal, Nigel Heaton. *Institute of Liver Studies, Kings College Hospital, London, United Kingdom*
Donation after cardiac death (DCD) has the potential to increase the number of potential organs for liver transplantation (LT) with acceptable graft- and patient survival. The aim of this study was to identify donor variables predictive of death within 60 minutes of treatment withdrawal in DCD donors, and to construct a score that can be used to determine likelihood that a potential donor progresses to donation.
All Maastricht category III and IV DCD offers from January 2001 to December 2007 were identified retrospectively. Quantitative and qualitative donor variables were recorded. Patients that died within 60 minutes of withdrawal LST were compared to those that did not using univariate and multivariate analysis to construct a risk score to predict likelihood of death. A validation cohort was used to test the accuracy of the model. A total of 455 DCD donors were offered, of which a retrieval team was sent for 223. 169 (75.8%) patients died within 60 minutes of treatment withdrawal and 90 (53.3%) of these livers were transplanted. Univariate analysis identified age, heart rate, mean arterial pressure, serum calcium, serum sodium, serum creatinine, absence of a cough, gag reflex or spontaneous respirations, past history of alcohol abuse and the presence of inotropic support as predictive of death within 60 minutes of withdrawal of LST. Three variables were significant on multivariate analysis; heart rate ($p = 0.005$, OR 0.977), serum creatinine ($p < 0.001$, OR 0.976) and the use of inotropes ($p < 0.001$, OR = 4.352). These variables were used to construct a risk score whereby a score of 1 was assigned to each positive variable; serum creatinine $> 95 \mu\text{mol/L}$, heart rate $> 66 \text{ min}^{-1}$ or the donor was on inotropes. The cohort was divided into three categories; patients at low (score 0), intermediate (score 1) and high (score > 1) risk of death within 60 minutes of withdrawal of LST. A total of 41.2%, 71% and 94.8% of patients with a score of 0, 1 or > 1 respectively, died within 60 min of withdrawal of LST.
Using three non-invasive variables we have developed a risk score that helps to objectively stratify DCD donors into low-, intermediate-, or high risk of death within 60 minutes of withdrawal of treatment in order to improve donor selection in DCD.

Abstract# P-210

VANISHING BILE DUCT AND STEVEN-JOHNSON SYNDROMES ASSOCIATED WITH AZITHROMYCIN SUCCESSFULLY TREATED BY LIVER TRANSPLANTATION – A CASE REPORT. Mate Skegro¹, Ognjan Deban¹, Irena Hratic², Davor Radic², Danica Juricic², Bosko Romcic¹, Ante Gojevic¹, Tomislav Baotic¹, Igor Petrovic¹. ¹Department of Surgery, University of Zagreb Medical School, Zagreb, Croatia; ²Department of Gastroenterology, University of Zagreb Medical School, Zagreb, Croatia
Vanishing bile duct syndrome (VBDS) is a rare cholestatic disease characterized by progressive destruction of intrahepatic bile ducts. For the pathogenesis of VBDS a combination of immune, toxic and idiosyncratic mechanisms has been proposed. Many medications have been associated with this syndrome. Immunosuppression and ursodeoxycholic acid are the mainstay of the treatment, but biliary cirrhosis often results despite aggressive treatment. Steven-Johnson syndrome (SJS) is an immune-complex mediated hypersensitivity disorder. The etiology may be drug-induced, infectious, malignant or idiopathic. Rarely, VBDS and SJS can co-exist. We present a case of SJS and VBDS associated with the use of azithromycin. After the diagnosis, patient was treated with all therapeutic modalities proposed in the literature. Medical therapy achieved no improvement, he was assigned for liver transplantation, successfully transplanted and fully recovered.
Case Report: A 62-year-old male was referred due to acute hepatic lesion. One

month prior he was treated for SJS presented with skin rash and elevated liver enzymes after use of azithromycin for upper respiratory tract infection. After the treatment with corticosteroids and antihistamines skin rash disappeared and laboratory findings returned to normal. Two weeks after discharge he presented with itching, jaundice, elevated liver enzymes and preserved liver function. Laboratory and imaging workup excluded viral, autoimmune, metabolic, obstructive or neoplastic liver disease. Liver biopsy was performed and histology was consistent with VBDS. Initial therapy consisted of ursodeoxycholic acid and steroids. On initial treatment, itching subsided but liver enzymes and bilirubin remained elevated. After 3 months of follow up and no improvement he was assigned for liver transplantation (MELD score 23). Due to steady elevation in liver enzymes, hyperbilirubinemia, itching, decrease in liver synthetic function and no available organ, treatment with tacrolimus was started. On tacrolimus further elevation of liver enzymes was noticed so the therapy was stopped. He was transplanted 7 months after the beginning of jaundice, and fully recovered. Histology of explanted liver confirmed VBDS.

Abstract# P-211

LIVER TRANSPLANTATION FOR ORALLY ADMINISTERED AMIODARONE-INDUCED HEPATIC FAILURE. Dong Lak Choi, Young Seok Han, Mi Kyung Kim, Su Hee Jin. *Hepatobiliary Surgery and Liver Transplantation, Daegu Catholic Medical Center, Catholic University of Daegu, School of Medicine, Daegu, Republic of Korea*

Amiodarone is used to treat cardiac rhythm abnormalities. Amiodarone-induced hepatotoxicity is a relatively uncommon side effect, but rarely fatal cases after oral administration have been reported. Case Report: A 67-year-old woman with a history of ischemic heart disease has been treated with an amiodarone 400mg orally per day for 19 months because of cardiac arrhythmia. She admitted with the elevation of serum aminotransferase and jaundice. Unfortunately her general condition deteriorated and complicated with hepatic encephalopathy by hepatic failure and renal failure was developed. Emergency deceased donor liver transplantation was performed. Pathologic result showed the presence of Mallory bodies and foam cells. Orally administered amiodarone is also a rare cause of acute liver failure necessitating liver transplantation.

Abstract# P-212

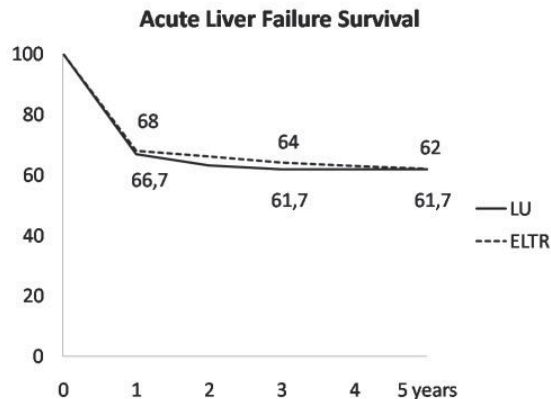
ACUTE LIVER FAILURE IN BRAZIL: TWENTY TWO YEARS OF A SINGLE CENTER EXPERIENCE. Leonardo Ferraz, Alexandre Teruya, Thomsom Palma, Margareth Lalle, Carlos Baia, Eloisa Quintela, Ana Olga Mies, Ana Sueli Zan, Osvaldo Pereira, Sergio Mies. *Liver Unit, Dante Pazzanese, Sao Paulo, Brazil*

Introduction: In the last years the knowledge about acute liver failure (ALF) increased dramatically, with centers around the world reporting better survival rates and liver transplantation outcomes. We have few reports in the literature about the outcome of this syndrome in adult patients in Brazil.

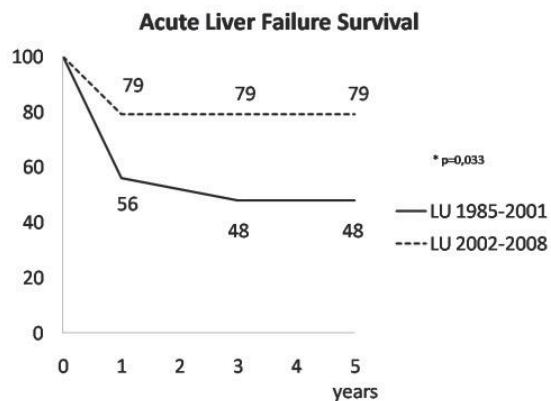
Objective: Describe the survival of acute liver failure transplantation in a referral liver transplantation center in São Paulo, Brazil, in a period of 22 years.

Methods: Retrospectively analyses of the hospital records of all adult acute liver failure patients admitted by our team between September 1985 and June 2008.

Results: During this period a total 1030 liver transplantations were done in 913 patients, 42 of those in adult patients with acute liver failure (4.6%). Overall survival in one, three and five years was 66.7%, 61.7% and 61.7% respectively. These results are very similar of the European Liver Transplantation Registry (ELTR) in the same period of time (see fig. 1).



When we analyze two different periods of time: 1985-2001 (23 patients) and 2002-2008 (19 patients) the survival curves are statistically different (see fig.2), with better results in the later phase. This could be related to advances in critical care support like intracranial pressure monitoring, hypothermia, hypertonic solutions, coagulopathy management and artificial liver support devices (MARS) that we use routinely in the last years.



Conclusions: In our series, the survival rates are very similar of those reported in literature. There is a clear difference of survival when we compare periods of time, with better results in last years, probably related to improvement of critical care support of these patients.

Abstract# P-213

A RANDOMIZED OPEN LABEL CLINICAL TRIAL WITH PREGABALIN IN THE TREATMENT REGIME WITH INTERFERON THERAPY FOR CHRONIC HEPATITIS C. P. Patrick Basu^{1,2}, Krishna Rayapudi³, Tommy Pacana³, Syed A. Hussain², Sindhu Ramamurthy⁴, Robert Brown, Jr.¹. ¹Gastroenterology, Hepatology and Liver Transplant, Columbia University College of Physicians and Surgeons, New York, NY, USA; ²Gastroenterology, Hepatology and Liver Transplant, New York Hospital Queens, Flushing, NY, USA; ³Internal Medicine and Gastroenterology, Forest Hills Hospital, Forest Hills, NY, USA; ⁴Gastroenterology, Royal Victoria Infirmary, Newcastle, Newcastle upon Tyne, United Kingdom

Introduction: Chronic Hepatitis C is a leading cause of liver failure and transplantation. Interferon alfa with weight-based ribavirin are mainstays of therapy with Sustained Viral Response(SVR) of approximately 50%. In addition to viral load, ethnicity (afro-american), genotype and Body Mass Index(BMI), SVR is affected by adherence and compliance with therapy. Depression, fatigue and myalgia are side effects that abort treatment prematurely and affect SVR. Anti-depressants (Selective Serotonin Reuptake Inhibitors) are used prophylactically to reduce interferon side effects. Pregabalin is an orally effective GABA-nergic drug that is used in fibromyalgia without hepatic toxicity. We sought to evaluate the effect of pregabalin to duloxetine (Serotonin/Norepinephrine reuptake inhibitor) to enhance adherence and improve SVR.

Methods: Thirty(30) patients with chronic hepatitis C were recruited in an open label randomized clinical trial with pregabalin 100mg orally in one arm (n=15) and duloxetine 20mg orally in other arm (n=15) with Interferon Alfa 2a - 180mcg SQ once a week with fixed dose Ribavirin 1200mg daily for 48 weeks. Population characteristics: mean age 46 years, male 20, female 10, Genotype(G)1-29, G6-1, Fibrotic score-F2(n=12), F3(n=12) and F4(n=6), mean BMI-29, African-American-17(56.67%), White-6(20%), Asian-1(3.33%) and Latino-6(20%); initial viral load was >800,000IU/ml. Exclusions: contraindication to interferon or ribavirin, prior consensus interferon therapy, fibromyalgia, Lyme disease, HIV infection, or receiving statin therapy. A modified myalgia anxiety scale and a modified quality of life score were evaluated at entry and every three months. All patients were tested for rapid viral response (RVR), early viral response (EVR) and end treatment viral response (ETVR) and sustained viral response (SVR).

Results: One stopped therapy due to excessive somnolence in the pregabalin arm. 4(26.67%) withdrew due to side events and 1(6.6%) left the country in the duloxetine arm. Complete results are shown in table.

Conclusions: Pregabalin increased the rate of adherence and SVR in this pilot study. Larger randomized studies are needed to confirm the findings.

Results		
	Pregabalin arm (n=15)	Duloxetine arm (n=15)
Completed therapy	14/15(93.33%)	10/15(66.67%)
SVR	9/15(60%)	5/15(33.33%)
Non-responders	2/15(13.33%)	2/15(13.33%)
Relapsers	2/15(13.33%)	2/15(13.33%)
Partial responders	7/15(46.67%)	7/15(46.67%)
	Male; Female	Male; Female
n	10 ; 5	10 ; 5
Interferon experienced (G1)	5 ; 3	5 ; 2
Interferon naïve	5(G1-4;G6-1); 2(G1-2)	5(G1-5); 3(G1-3)

Abstract# P-214

SUCCESSFUL TREATMENT OF FULMINANT WILSON'S DISEASE BY PLASMA EXCHANGE. Anwar Jarrad, Saeb Hammoudi, Reyad Saed, Aiman Obed, Abdulla Al Bashir. *Hepatologist and Transplant Unit, University Hospital, Amman, Jordan; General Surgery, University Hospital, Amman, Jordan; Nephrology, University Hospital, Amman, Jordan*

Background: Treatment of Fulminant Wilson's diseases still carries a high mortality without liver transplant. There is no acceptable treatment other than liver transplant.

Few case reports have successfully treated fulminant Wilsons, disease with plasma exchange.

Case Report: We report here a case of a 14 years old boy who presented to our hospital with fulminant Wilson's disease, including low AST and ALT and Alkaline phosphatase, high bilirubin 38 mg/dl, INR 3.1, creatinine 0.6 mg/dl, grade II hepatic encephalopathy, mild ascites, positive Kayser Fleischer ring, low ceruloplasmin, high serum copper, and a hematological picture consistent with hemolysis.

He was treated with 5 sessions of plasma exchange with improvised synthetic function, in addition to conservative treatment, and by the end of last plasma exchange session he was taken off the liver transplant list and was started on Wilson's disease treatment. He improved markedly over the last year and became asymptomatic with an almost normal synthetic function He is now only D- Penicillamine and Zinc.

Colclusion: Successful treatment of WD by plasma exchange and other supportive measure has been described. This case another example.

This could be due to removing excess copper as the crucial offending agent rather than removing other agents since this treatment is not successful in other etiologies of FHF.

Abstract# P-215

TWO CASES OF LIVING DONOR LIVER TRANSPLANTATION FOR ACUTE LIVER FAILURE CAUSED BY REACTIVATION OF HEPATITIS B VIRUS AFTER CHEMOTHERAPY FOR HEMATOLOGIC MALIGNANCY. Yoon Jin Hwnag, Sang Geol Kim, Young Kook Yun, Seung Jae Lee, Jae Beom Seo. *Department of Surgery, Kyungpook National University Hospital, Daegu, Republic of Korea*

Chemotherapy in chronic carriers of hepatitis B virus occasionally leads to acute liver failure from reactivation of viral replication resulting high incidence of mortality. In this situation, LDLT can be life saving procedure

and provide long term survival if the coexisting malignancy is not associated with poor prognosis. We report two patients who underwent successful LDLT for acute hepatic failure from reactivation of HBV infection after chemotherapy for Hodgkin's lymphoma and chronic myeloid leukemia(CML) respectively.

Case I

A 38-year-old male, HBV carrier, developed palpable mass on the neck, night sweats, and weight loss. Biopsy demonstrated Hodgkin's lymphoma with mixed cellularity. During 4th cycles of adriamycin, bleomycin, vinblastin, and dacarbazine chemotherapy, he complained of RUQ pain and jaundice. Laboratory findings of ALT: 701U/L, total bilirubin: 7.92mg/dL, and positive HBeAg gave rise to suspicion of acute exacerbation of chronic hepatitis. In spite of immediate lamivudine, he became disoriented and serum total bilirubin elevated up to 50.56mg/dL. One day prior to LDLT, the patient developed variceal bleeding and hepatic encephalopathy. MELD score was 40. After endoscopic bleeding control and confirming remission of Hodgkin's lymphoma by FDG-PET scan, we performed LDLT using extended right hemiliver graft. He is free of relapse for 43 months after LDLT.

Case II

A 49-year-old male with HBV related child A cirrhosis was diagnosed of chronic phase of CML 1 year ago, Imatinib had been used for 1 year until the patient was admitted for newly developed ascites and Jaundice. After admission, he developed several episodes of spontaneous bacterial peritonitis and encephalopathy grade II and total and direct bilirubin reached up to 50.8 and 29.5. On the diagnosis of acute exacerbation of HBV related CLD by reactivation of HBV during Imatinib chemotherapy, we performed LDLT using right hemiliver without including middle hepatic vein. He was discharged 5 weeks after LDLT without complication and is free of relapse for 7 months after LDLT.

Conclusion

LDLT is life-saving procedure for Acute Liver Failure caused by reactivation of HBV during chemotherapy for hematologic malignancy and it can provide long term survival if the coexisting hematologic malignancy is not associated with poor prognosis.

Abstract# P-216

LIVING DONOR LIVER TRANSPLANTATION FOR ACUTE LIVER FAILURE. Shih-Ming Kuo¹, Ming-Hsin Yang², Teng-Wei Chen², Chung-Bao Hsieh². *¹Pediatric Surgery, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan; ²General Surgery, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan*

Aim: Acute liver failure (ALF) still carries a high mortality and its survival rate is less than 20% without liver transplantation. In Asia, acute-on-chronic hepatitis B liver failure is a common reason for liver transplantation. We aimed to report our experience with living donor liver transplantation (LDLT) for ALF.

Patients and Methods: The medical records of patients undergoing LDLT for ALF were analyzed retrospectively with the period from May 2005 to January 2009.

Results: A total of 54 patients undergoing LDLT in our medical center were included in this analysis. Among them, 31 patients (57.4 %) demonstrated ALF. The etiologies of the disease were: acute hepatitis B in 16; acute hepatitis C in 3; acute hepatitis B and C in 1; acute Epstein-Barr virus-induced hepatitis in 1; drug-induced hepatitis in 1; primary biliary cirrhosis in 1; alcohol-related hepatitis in 7; unknown in 1. Graft type included right liver in 26 and left liver in 5. The mean graft-versus-recipient weight ratio was 1.05 %. Totally two patients died after LDLT: one due to primary non-function 8 days after operation; the other due to squamous cell carcinoma of esophagus 20.5 months after operation. At a mean follow-up of 17.7 months, the patient and graft survival rates were both 93.5%. Postoperative complications included acute rejection in 5 patients, biliary complications in 10 patients and pulmonary tuberculosis in 2 patients. **Conclusions:** LDLT improves the survival rate for patients with ALF. It could be a treatment choice while approaching patients not only with acute-on-chronic hepatitis B liver failure but also with other etiologies.

Abstract# P-217

IMATINIB INDUCED ACUTE LIVER FAILURE – FIRST REPORT OF A SUCCESSFUL LIVER TRANSPLANTATION.

Marcio D. Almeida, Bianca Della-Guardia, Maria P. V. C. Zurstrassen, Rogerio C. Afonso, Nelson Hamerschlag, Ben-Hur Ferraz-Neto. *Liver Transplantation Unit, Hospital Albert Einstein, Sao Paulo, SP, Brazil*

INTRODUCTION: The IMATINIB (Gleevec, Novartis) had FDA approval for first-line treatment for chronic phase of chronic myeloid leukemia (CML) in the year 2002 and is a potent and specific inhibitor of the Bcr-Abl tyrosine kinase. Several reports described imatinib leading hepatotoxicity, and the majority with improvement after reduction, suspension of the drug or the use of corticosteroids, however were described five deaths due to acute liver failure (ALF). Until now the exact mechanism of hepatotoxicity is not known, but probably represents an idiosyncratic reaction in susceptible individuals.

CASE: A 47 y-o female, was admitted to our transplant unit with ALF. She was diagnosed with CML and was treated with imatinib mesylate for one year and half, since Jan 2007. On admission she was jaundiced, with no signs of chronic liver disease and with encephalopathy grade II and the imatinib already done suspended. The patient had no risk factors for viral or alcoholic liver disease and had not used any dietary products or herbal remedies. The screening was negative to viral, autoimmune hepatitis and Wilson's disease. The patient was referred for liver transplantation (LT) in agreement with the O'Grady criteria and receive a compatible blood group graft seven days after admission. The evolution was satisfactory until de 7th PO when presented with elevation of hepatic enzymes and a liver biopsy was done. In the same day evolved with anemia and abdominal pain when USG showed hepatic hematoma. A hepatic arteriography was done with embolization of a hepatic artery branch with good response. The histology reveals mild cellular acute rejection treated with adjust of immunosuppressant with good evolution and discharge in the 30th PO.

DISCUSSION: We report the first case of successful LT for ALF in a patient receiving imatinib for CML. Actually is recommended monitorization of hepatic enzymes previous the use of the drug, weekly until 30 days and monthly until the end of treatment. It is important to take care with concomitant use of drugs that inhibit the CYP3A4 because the higher blood concentration of the drug. Due to lack of literature experience the evolution of transplanted cases by imatinib induced ALF is unknown. Special attention must be given to early diagnosis and indication for LT, as well as developments in hematological post-operative evolution.

Abstract# P-218

VARIABLES ASSOCIATED WITH SUSTAINED VIROLOGICAL RESPONSE IN LIVER TRANSPLANT RECIPIENTS TREATED FOR RECURRENT HEPATITIS C.

Anjana A. Pillai, Victoria S. Lee, Mary E. Rinella, Josh Levitsky. *Department of Hepatology and Transplant Surgery, Northwestern Memorial Hospital, Chicago, IL, USA*

Background: Antiviral therapy with pegylated interferon alfa (PEG) and ribavirin (RBV) has achieved sustained virological responses (SVR) in less than one-third of liver transplant (LT) recipients. **Aim:** To identify predictors (modifiable and non-modifiable) of SVR in LT recipients treated with PEG+RBV therapy for recurrent HCV. **Methods:** All patients with recurrent HCV post-LT treated with PEG+RBV at our institution (2001-2008) were identified. Univariate analysis was performed on variables known to be associated with SVR and significant associations ($p < 0.05$) were analyzed by multivariate logistic regression. Overall survivals as well as Kaplan-Meier survival curves were compared among patients with and without SVR. **Results:** Of the 58 treated OLT recipients, SVR was achieved in 17 (29.3%) subjects. On univariate analysis (SVR vs. non-SVR groups), older age (53.4 ± 6.4 vs 58.9 ± 8.1 , $P = 0.02$) and pre-treatment HCV RNA > 1 million IU/mL (37.5% vs 82.9% , $p = 0.001$) were significant predictors of treatment failure, whereas early virological response (EVR) (undetectable or > 2 log decline in RNA at 12 weeks; 92.9% vs 50% , $P = 0.005$) was associated with SVR. Other variables, i.e. pre-treatment liver biopsy stage, genotype, race, time from LT to PEG+RBV therapy, dose/duration of PEG+RBV, obesity, diabetes (DM), and the metabolic syndrome (MS), (NCEP, ATP III criteria) were not statistically different between the SVR and non-SVR groups. On multivariate analysis, only pre-treatment HCV RNA > 1 million IU/mL (OR 0.21, 95% CI 0.04-0.97) was a predictor of SVR (treatment failure). While overall survival after PEG+RBV therapy was higher in the SVR group (100% vs 75.6% , $p = 0.05$), the Kaplan Meier analysis did not demonstrate a significant difference in survival. **Conclusions:** Several covariates associated

with PEG+RBV treatment failure in the post-LT population are similar to chronic HCV+ patients (pre-LT) and include older age, lack of EVR, and most significantly high pre-treatment viral load. However, potentially modifiable variables associated with SVR in chronic HCV+ patients and often present in LT recipients, i.e. obesity, DM, and MS, were not found to be associated with treatment response. The benefit of modifying these risk factors prior to HCV therapy to improve SVR rates post-LT is not known and requires further investigation.

Abstract# P-219

A RETROSPECTIVE ANALYSIS OF THE SAFETY OF OUTPATIENT PERCUTANEOUS LIVER BIOPSY IN PATIENTS WITH VON WILLEBRAND DISEASE.

Patrick Basu^{1,2,3}, Krishna Rayapudi², Tommy Pacana², Sindhu Ramamurthy⁴, Robert Brown, Jr.³. ¹*Department of Gastroenterology and Hepatology, New York Hospital-Queens, New York, NY, USA;* ²*Department of Medicine and Gastroenterology, Forest Hills Hospital, Forest Hills, NY, USA;* ³*Division of Digestive and Liver Diseases, Columbia University Medical Center, New York, NY, USA;* ⁴*Royal Victoria Infirmary, New Castle upon Tyne, UK*

Purpose: Liver biopsy remains the gold standard for the diagnosis of chronic liver diseases. Outpatient percutaneous biopsy is generally safe with a mortality rate of 0.17% and hospitalization rate for bleeding of 3%. Von Willebrand Disease (VWD) is the most common inherited hematological disorder with a prevalence of 1-3% globally. There are 3 major types of VWD - type 1 (low levels of VW factor), type 2 (several qualitative abnormalities of VWF) and type 3 (extremely reduced or undetectable levels of VWF with low concentration of factor VIII). Type 1 is the mildest and most common form of VWD, while type 3 is the most serious, but very rare. Whether VWD increases the risk of bleeding in invasive procedures is not known. The purpose of this review is to determine the safety of outpatient percutaneous liver biopsies in patients with VWD.

Methods: 120 patients who underwent outpatient percutaneous liver biopsies from 1997 to 2007 were included in the study. Demographics, PT/INR, platelet count, VW factor antigen, VW factor ristocetin cofactor, Factor VIII activity, and VW factor multimers were collected. Patients had not received salicylates, NSAIDs or anticoagulants for at least 5 days prior to biopsy. Exclusions included prior known coagulation diathesis, familial bleeding history, arteriovenous malformations, collagen vascular diseases and congestive heart failure.

Results: Of the 120 patients biopsied, 66 (55%) had hepatitis C, 24 (20%) hepatitis B, 10 (8.3%) alcoholic hepatitis, 20 (16%) other diagnoses. Overall, 30 (25%) had minor local bleeding that resolved with pressure and 53 (48%) had biopsy site ecchymosis after 24 hours. Twelve (10%) patients were diagnosed with VW factor deficiency, of these 5 (41%), 7 (56%), and 0 had type 1, 2 and 3 respectively. No VWD patients had major bleeding that required transfusion, hospitalization or surgery but 9 (75%) had minor local bleeding and all had ecchymoses, which resolved spontaneously within a week.

Conclusion: Patients with VWD types 1 and 2 without prior bleeding diathesis can undergo percutaneous liver biopsy without major bleeding. Minor bleeding may occur at a slightly higher rate. VWD type 1 and type 2 does not appear to be a contraindication to percutaneous liver biopsy. The safety of percutaneous biopsy in VWD type 3 patients is unknown. We concur with the AGA guideline that outpatient percutaneous liver biopsy is safe and non-threatening in the setting of concomitant minor inherited bleeding diathesis without prior history of excessive bleeding. Routine screening for undiagnosed VW syndrome is not recommended.

Abstract# P-220

HEPATITIS C RECURRENCE FOLLOWING DECEASED DONOR LIVER TRANSPLANTATION VERSUS LIVING DONOR LIVER TRANSPLANTATION.

Samy M. Kashkoush, Khalid O. Abdullah, Mohammed F. Shaheen, Abdulrahman Aljumah, Ibrahim H. Altraif, Abduljaleel Alalwan, Sherif Elhanafi, Wael A. O'Hali. *Department of Hepatobiliary Sciences and Liver Transplantation, King Abdulaziz Medical City, National Guard Hospital, Riyadh, Saudi Arabia*

Concern over the possible higher incidence of recurrent Hepatitis C (HCV) in Living Donor Liver Transplant (LDLTx) recipients vs. Deceased Donor Liver Transplant (DDLTx) recipients has been raised in the literature. The aim of this study is to compare the incidence and time of clinical recurrence of HCV

infection in DDLTx vs. LDLTx recipients in a single center experience.

Methods: A retrospective review of HCV cirrhosis patients transplanted between Sep. 2000 and Jun. 2008 was conducted. Patients were divided to DDLTx recipients (Group1) and LDLTx recipients (Group2). Data collected included type of graft, donor and recipient demographics, donor history of diabetes mellitus, follow up period, histologically proven HCV recurrence and time to clinical HCV recurrence. Clinical HCV recurrence was determined based on clinically indicated liver biopsy and serum HCV-RNA PCR. Statistical analysis was done using Chi square and Student T test.

Results: A total of 58 patients were included. Group 1 had 41 patients (21 males, 20 females) with a mean age of 55.9+/-3.4 years. Group 2 had 17 patients (11 males, 6 females) with a mean age of 56.3+/-3.5years. Mean donor age for group 1 was 35+/-3.9 years compared to 27+/-2.8 years for group 2 (p=0.001). Other donor demographics were not statistically different in the two groups. Donor history of diabetes mellitus was noted in 4 of group 1 donors and none of group 2 donors. Follow up period was 38+/-8.3months for group1 vs. 46.3+/-14.7months for group 2. Clinical HCV recurrence occurred in 23(56.1%) group 1 patients compared to 14(82.4%) group 2 patients (p=0.076). Time to clinical recurrence was 15.5+/-9.6months in group 1 versus 24.6+/-14.3months in group 2 (p=0.25).

Conclusion: No statistically significant difference was found in the incidence or the time of clinical HCV recurrence in DDLTx vs. LDLTx recipients although a tendency towards a higher incidence of clinical HCV recurrence in LDLTx recipients was noted.

Abstract# P-221

PREDICTION OF ACUTE CELLULAR REJECTION POST LIVER TRANSPLANTATION FOR HEPATITIS C. M. Ghabril¹, R. C. Dickson², M. Krishna³, R. Nakhleh³, J. Aranda-Michel², H. Bonatti⁵, J. Nguyen⁴. ¹Clarian DDC, Indiana Univ, Indianapolis, IN, USA; ²Gastroenterology; ³Pathology; ⁴Surgery, Mayo Clinic, Jacksonville, FL; ⁵Surgery, Univ. of Virginia, Charlotte, VA

Acute cellular rejection (ACR) is a risk factor for more severe hepatitis C (HCV) recurrence post liver transplantation (LT). The factors associated with ACR are not well described. **Aim:** To determine the predictors of significant ACR post LT for HCV. **Methods:** All LT for HCV at our center between 1998-2001, were analyzed for episodes ACR. Immunosuppression consisted of Tacrolimus (FK) initial target level $\geq 8\text{ng/ml}$ + Mycophenolate mofetil (MMF) and prednisone for 4 months. Liver biopsies were taken post LT in the 1st month, at 4 months, annually, & as clinically indicated. Biopsies were prospectively graded for ACR per Demetris et al, Hepatology 1997 by experienced transplant pathologists. Clinically significant ACR was treated with steroid boluses. Patients were divided into 2 groups for comparison; **Group 1:** no or mild ACR; **Group 2:** any episode of $\geq$ moderate (mACR). Variables included patient, viral, donor, operative (warm/cold ischemia time) factors, LT-therapeutic FK level (LT-tFKI) interval, MMF stop or change from FK as primary agent <4months). A univariate/multivariate logistic regression model was used to analyze the predictors of $\geq$ mACR (thresholds derived from sensitivity analysis). **Results:** 159 HCV patients underwent LT: 11 died or had non-ACR related graft loss $\leq$ 2weeks of LT, 1 patient was treated for suspected ACR 2 years post LT without a biopsy, 147 were studied. The groups are described & compared in figure 1. On uni & multivariate logistic regression, the predictors of mACR were patient age < 50 [HR 5.6, 95%CI 2.3-13.9, p<0.001], donor age > 50 [HR 2.8, 95%CI 1.2-6.3, p .01], & LT-tFKI interval >7days [HR 4.6, 95%CI 1.9-11.2, p .001]. 92 % of mACR occurred <3months of LT, with mean LT-tFKI & LT-mACR intervals of 13 $\pm$ 13 & 26 $\pm$ 16 days respectively. **Conclusion:** The risk of mACR in HCV LT recipients is increased in younger patients & older donors, but may be reduced by more aggressive targeting of therapeutic immunosuppressive levels within the first 7 days.

P value ** <.01 * <.05	Group 1 n=95 (no/mild ACR)	Group 2 n=52 (m ACR)
**Patient age	49 $\pm$ 7	53 $\pm$ 8
Male gender %	71%	73%
MELD (raw)	15 $\pm$ 7	15 $\pm$ 7
Viral load (1000iu/ml)	508 $\pm$ 788	780 $\pm$ 1606
Genotype 1/4 %	79%	85%
**Donor age	42 $\pm$ 24	52 $\pm$ 8
Warm ischemia time min	36 $\pm$ 12	37 $\pm$ 11
Cold ischemia time hour	7.8 $\pm$ 2.3	7.3 $\pm$ 2.4
**LT-therapeutic FK interval days	9 $\pm$ 7	15 $\pm$ 19
MMF stop <4months %	9%	20%
FK changed <4mths %	12%	17%

Abstract# P-222

LEUKOCITY-APHERESIS ADACOLUMN TREATMENT IN KIDNEY TRANSPLANT PATIENTS WITH HEPATITIS C VIRUS. PRELIMINARY STUDY. Gilnardo Novelli, Massimo Rossi, Giancarlo Ferretti, Francesco Pugliese, Vincenzo Morabito, Pasquale Berloco. *Paride Stefanini, La Sapienza University, Rome, Italy*

INTRODUCTION: Patients who have undergone kidney transplant and suffer from hepatic C related (HCV) cannot be treated with standard therapy (PEG-IFN combined with ribavirine) due to acute rejection risk. Furthermore, immuno-suppressive therapy facilitates progression and infection and chronic hepatopathesis. Monocytes and macrophages are known to produce extra-hepatic breeding sites and spread disease. Our aim was to lower macrophages, granulocytes, monocytes, pro-inflammatory cells and viremia levels using an extra-corporeal device: Adacolumn® (OTZUKA).

METHODS: All patients had a diagnosis of chronic type C hepatitis. All patients were affected by virale genotype 1b. The patients underwent five one hour sessions, for five consecutive days. The column was placed in an extra-corporeal setting with a perfusion rate of 30 mL/min and duration of 60 min. Adacolumn® is a direct haemoperfusion type of leucocytapheresis device. The device column is a single-use (disposable) polycarbonate column with a capacity of about 335 mL, filled with 220 g cellulose acetate beads of 2mm in diameter bathed in physiological saline as the column leucocytapheresis carriers. The carriers adsorb "activated" granulocytes and monocytes/macrophages that bear the Fc-R and complement receptors. Blood cell counts from the column inflow and outflow points show that the carriers typically adsorb about 65% of granulocytes, 55% of monocytes and a very small fraction of lymphocytes from the blood in the column.

RESULTS: After five daily apheresis treatments no changes were observed for HCV-RNA copies, pro-inflammatory cells levels, immuno-modulation and kidney and liver parameters. In fact there was an improvement of parameters valued after 3 month follow up. It was observed a reduction of viremia in Pt.1, Pt.2, Pt.4 and Pt.6 in association with a decrease of cytokines levels and an equilibrate share of immuno-cells in particular after 3 months. Pt.1 and Pt.3 showed an alterate rapport CD4⁺/CD8⁺ T cells but changed at 4 months follow up in Pt.1 only. In Pt.5 we didn't observe any changes.

CONCLUSIONS: The treatment was found to be safe without hemodynamic or infective complications. Considering the results this method should be used on a greater number of patients evaluating successive treatment times in case of viremia increase.

Abstract# P-223

THE EFFICACY OF RETHERAPY WITH PEGYLATED INTERFERON ALFA-2a AND RIBAVIRIN IN LIVER TRANSPLANT RECIPIENTS WITH RECURRENCE OF CHRONIC HEPATITIS C – PRELIMINARY DATA.

Tomasz Cieciora¹, Emil Blazik¹, Olga Tronina¹, Ewa Nowacka-Cieciora¹, Marek Pacholczyk², Beata Lagiewska², Andrzej Chmura², Magdalena Durlik¹. ¹Department of Transplantation Medicine and Nephrology, Transplantation Institute, Medical University of Warsaw, Warsaw, Poland; ²Department of General and Transplantation Surgery, Transplantation Institute, Medical University of Warsaw, Warsaw, Poland

The aim of the study was to assess the efficacy of retherapy with pegylated interferon (PEG) alpha 2a and ribavirin (RBV) in liver transplant recipients suffering from recurrence of chronic hepatitis C (virus type 1). Six patients (Pts) who did not achieve sustained virological response (SVR) despite the previous antiviral therapy with Peg alpha 2b in combination with RBV, were included into the study between 5th June 2007 and 15th of February 2008. In this group we identified one and five Pts with end of treatment virological response (EOT) and no virological response, respectively. Five of six and one of six Pts were on double (steroids, tacrolimus) and triple (steroids, mycophenolate mofetil, tacrolimus) immunosuppression, respectively. We decided to treat the Pts for 48 weeks using standard doses of PEG (180 ug) and RBV (1000 mg or 1200 mg). Four of six (67 %) and one of six (17 %) Pts achieved complete early virological response and partial early virological response, respectively. EOT was observed in four of five Pts (80 %) who have finished antiviral treatment. Finally we confirmed SVR in all two Pts who were observed for 24 weeks after termination of antiviral therapy.

HCV viremia						
Patient initials	PCR 0	PCR 12 week	PCR 24 week	PCR 36 week	PCR 48 week	PCR - SVR
J.T.	7.5 x 10 ⁶	0	0	0	ND	ND
L.D.	2.2 x 10 ⁷	5.6 x 10 ⁵	4.7 x 10 ⁵	3.72 x 10 ⁵	1.8 x 10 ⁵	ND
G.B.	8.6 x 10 ⁶	1 x 10 ²	0	0	0	ND
J.K.	1.1 x 10 ⁷	0	0	0	0	ND
E.S.	9.1 x 10 ⁶	0	0	0	0	0
E.L.	1.6 x 10 ⁶	0	0	0	0	0

To avoid antiviral drugs reduction four of six (67 %) Pts received recombinant granulocyte colony stimulating factor (lenograstim 33.6 mln IU once or twice a week). Additionally four of six (67 %) Pts were treated with epoetin beta (4000-14000 IU per week), however all Pts on EPO received at least one blood transfusion. During the antiviral therapy we did not observe any episode of acute or chronic liver transplant rejection to date.

Abstract# P-224

INCREASED LFTs/CLINICAL LIVER FAILURE IN POST OLT PATIENTS BEING TREATED WITH PEG-IFN ALFA-2B PLUS RIBAVIRIN FOR RECURRENT HEPATITIS C.

Reem Ghalib¹, Cheryl Levine¹, Blaine Hollinger², Rise Stribling², Terry Box³, William Hutson³, Anthony Post⁴, Shobha Joshi⁵, Jeffrey Weinstein¹, Praveena Lammata¹, Alejandro Mejia¹, Stephen Cheng¹.

¹Liver Institute at Methodist Dallas, Dallas, TX, USA; ²Baylor College of Medicine, Houston, TX, USA; ³University of Utah, Salt Lake City, UT, USA; ⁴University of Cleveland Hospitals, Cleveland, OH, USA; ⁵Tuland University, New Orleans, LA, USA

Aims: Describe the occurrence of elevated LFTs or clinical liver failure during PegIFN and ribavirin therapy in OLT patients with recurrent HCV.

Methods: This was a secondary analysis on significantly increased LFT (>2 times increased over previous level) or clinical liver failure in subjects in a multi-center randomized clinical trial using 2 dosages of PegIFN with ribavirin.

Sample: Study population consisted of 59 post OLT patients (27 on PegIFN 0.5 mcg/kg; 32 on PegIFN 1.5 mcg/kg).

Results: 5 patients in the higher dose arm met inclusion criteria. 4/5 patients achieved undetectable HCV RNA prior to the elevated LFTs episode (patients 1-4). Patient 1 & 2 were treated for the episode and resumed HCV therapy subsequently achieving SVR. Patient 3 experienced liver failure with jaundice resulting in treatment cessation and subsequent death. Prior to the liver failure episode, treatment was stopped due to thrombocytopenia and nonresponse at week 24 in patients 4 & 5, respectively. Two patients expired.

Patient	Age	Genotype	Fibrosis	Days Post OLT	Week of Treatment	Description	Outcome
1	48 yo M	3	0	328	18	Renal failure with ascites; resumed tx	SVR
2	50 yo M	3	1	458	30	Increased LFT; bx mild to mod. acute rejection; tx steroids; resume tx	SVR
3	52 yo M	3	2	604	27	Increased LFT with jaundice	Died
4	67 yo F	1	4	1839	f/u 8	Low platelets; tx stopped; later ascites with increased LFTs	died
5	50 yo F	1	2	428	f/u 12	NR week 24 with tx stopped; then jaundice and ascites	Progression of disease

Conclusions: Incidence of clinically significant increased LFTs or liver failure was more common in the post OLT patients on the higher dose PegIFN. Careful monitoring of LFTs in patients on HCV therapy is needed during and after treatment discontinuation regardless of virologic response. Risk of rejection on PegIFN and ribavirin was 1.7 – 5% and liver failure risk was 5%. Abrupt stopping of PegIFN and ribavirin regardless of viral response may be followed by severe recurrent HCV and/or acute rejection.

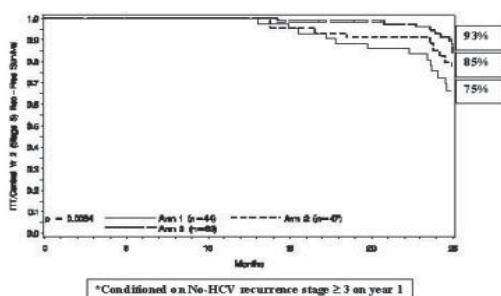
Abstract# P-225

HEPATITIS C (HCV)-3 STUDY: DECREASED INCIDENCE OF SEVERE HCV RECURRENCE (R) POST LIVER TRANSPLANTATION (OLT) IN PATIENTS (pt) TREATED WITH MYCOPHENOLATE MOFETIL (MMF), PARTICULARLY, IN THE ABSENCE OF STEROIDS (Pred).

Goran B. Klintmalm¹, Carlos G. Fasola², Linda Jennings¹, Hepatitis C. Study Group³. ¹Transplantation Services, Baylor University Medical Center, Dallas, TX, USA; ²Surgery, Emory University, Atlanta, GA, USA; ³Transplantation, Multiples (n = 18), Dallas, TX, USA

AIMS: Assess efficacy/safety of Pred-free immunosuppression (IS) using daclizumab (DAC), tacrolimus (TAC) and MMF to minimize acute rejection (AR), HCVR & adverse events post OLT. **METHODS:** Open label, prospective, multicenter study (n=18) on 312 adult HCV-OLT randomized (1:1:2) to 3 IS arms (see Results). Laboratory data & liver histology done when indicated or per protocol: days (d) 90, 365 and 730. AR graded by Banff schema. HCVR staged by Batts-Ludwig classification. Significant primary endpoints: AR (Grade ≥2 + RAI ≥4) &/or HCVR (Stage ≥2 or Grade ≥3 at any time). Significant statistics: p ≤0.05. **RESULTS:** Arm 1 (n=80): TAC+Pred; Arm 2 (n=79): TAC+Pred+MMF; Arm 3 (n=153): DAC (3 doses, d 1, 3 and 8)+TAC+MMF. All data (intention to treat; central pathologist) reported, at 2 years, for arms 1,2 and 3 respectively. Graft and Pt survivals: 79%, 78%, 84% (NS) and, 83%, 81% and 87% (NS). AR-free incidences: 86%, 87% and 86% (NS). No AR grade differences. AR: independent risk factor for HCVR (Cox: HR 2.69, p<0.001). HCVR-free incidences: 33%, 27% and 34% (NS). Arm analyzes showed stage 3 fibrosis in 33%, 28% and, 19% (p=0.08). More accelerated HCVR noted, between years 1-2, in arms 1 & 2. In Pt with no HCVR in year 1, freedom of stage 3 at year 2 is superior in arm 3.

Year 2 freedom from HCV recurrence (stage ≥ 3 *)



Differences persist for arms 1 + 2 (Pred) vs. 3 (Pred-free): 80% vs. 93% ($p < 0.01$) and, for arms 1 (no-MMF) vs. 2 + 3 (MMF): 75% vs. 90% ($p < 0.01$). Although not significant ($p = 0.2$), similar results noted in other analyses. No differences found for HCV-RNA levels at any time point. CONCLUSIONS: AR confirmed HCVR risk factor. At year 2, HCVR - apparently - not affected by IS. Progression rate to stage 3 fibrosis, on year 2, is favorably influenced by MMF therapy, particularly on arm 3. Longer-term follow up is critical to confirm these findings on HCV recurrence.

Abstract# P-226

SAFE OUTCOME IN PREGNANCY WITH A TACROLIMUS BASED REGIMEN FOR LIVER TRANSPLANTATION IN WILSON'S DISEASE. Guilherme Macedo¹, Susana Lopes¹, Costa Maia². ¹Gastroenterology, H S Marcos, Braga, Portugal; ²Surgery, H S Joao, Porto, Portugal

Although there are a large number of reports on successful pregnancies after orthotopic liver transplantation (OLT) (specially if the interval between OLT and conception is greater than 2 years), the numbers of pregnancies in a tacrolimus-based immunosuppression regimen are limited. We present a case of a 26 years old female, transplanted for fulminant hepatic failure due to Wilson's disease, 11 years before. The outcome after transplantation was satisfactory under tacrolimus 10 mg/day, without any metabolic, cardiovascular, renal or infectious complication for 10 years. After medical counselling, and acknowledging the higher risk of obstetric complications, foetal risks and graft dysfunction, the patient became pregnant in 2006. During the 37 weeks of pregnancy and post-partum there were no maternal or foetal complications, namely malformations or congenital abnormalities, graft dysfunction, changes in tacrolimus blood levels, or deterioration in renal function.

We present data regarding literature review, emphasizing the fact that there are only a very limited number of pregnancies following OLT for Wilson's disease.

Abstract# P-227

EVALUATION OF FACTORS THAT HAVE INFLUENCE ON ADHERENCE TO IMUNOSSUPPRESSION THERAPY AFTER LIVER TRANSPLANTATION. Marcelo S. Nogara, Julio C. Wiederkehr, Mauro R. Igreja, Ana C. Barros, Tatiane L. Bonfanti, Ernani T. Helena, Maria Manfredi, Maria B. Rocha, Barara A. Wiederkehr. *Liver Transplantation, Hospital Santa Isabel, Blumenau, Santa Catarina, Brazil*

Non-adherence to post transplantation treatment usually is a major cause of graft lost. The present study analyzes the prevalence of non-adherence to treatment of patients submitted to liver transplant at Hospital Santa Isabel, Blumenau, Brazil. Forty-two patients submitted to cadaveric liver transplant from August 2006 through March 2007 were evaluated. Data was obtained using Moriski-Green questionnaire. Adherence to treatment was based on the usage and serum level of tacrolimus. Twenty-seven patients were classified as social class A or B, and 22 (52.4%) had highschool or college degree. Nineteen patients (40.5%) declared themselves as retired. Mean follow-up time was 13.2 months. Thirty-nine patients (93%) believed they were using the right dose of tacrolimus, and 18 (42.7%) have had no adverse reaction due to immunosuppressive therapy. The prevalence of adherence was 76.2%. Adequate serum levels of tacrolimus were observed in 82.4% of patients. Mean serum tacrolimus levels among adherent patients shown to be higher than those considered non-adherent. College degree bearing

patients were more adherent ($p = 0.043$). Age, gender, and marital status, were not statistic significantly. Higher education is associated to post-transplant immunosuppressive treatment adherence.

Abstract# P-228

RESULTS OF THE PHASE 4 TRIAL OF TACROBELL® IN LIVER TRANSPLANTATION PATIENTS—A MULTICENTER CENTER STUDY IN KOREA. Young Dong Yu, Chul Su Ahn, Ki Hun Kim, Shin Whang, Sung Gyu Lee. *Surgery, Hepatobiliary and Liver Transplantation Division, Asan Medical Center, Seoul, Korea*

Purpose : To evaluate the efficacy of the Tacrobell capsule as a major immunosuppressant drug in living donor liver transplantation patients by determining the acute cellular rejection rate after its use and to evaluate its safety after its administration for 26 weeks post transplant.

Methods : From October 2005 to July 2007, 57 patients from 4 major medical centers in Korea were enrolled in the study. Tacrobell (0.05mg/kg/day, bid) and Methylprednisolone were injected on the day of the operation or post operative 1 day. A rejection activity index (RAI) score above 4 after biopsy was considered acute cellular rejection. The side effect profiles were also examined after its use for 26 weeks.

Conclusions : The acute cellular rejection rate of Tacrobell after its administration for 26 weeks was 0%. The side effect profile of the drug was no different than other tacrolimus based immunosuppressants. Immunosuppressant regimens using tacrolimus can be considered safe and effective in liver transplantation patients.

Abstract# P-229

IS MYCOPHENOLATE MOFETIL (MMF) REQUIRED IN RENAL SPARING DELAYED CALCINEURIN INHIBITOR (CI) REGIMENS IN LIVER TRANSPLANTATION (LTX)? Neha Patel¹, David J. Taber¹, Nicole A. Weimert¹, Brianna L. Dunn¹, Jenna L. Scheffert¹, Michael G. Hughes², John W. McGillicuddy², Charles F. Bratton², Angello Lin², Kenneth D. Chavin², Prabhaker K. Baliga². ¹Department of Pharmacy Services, Medical University of South Carolina, Charleston, SC, USA; ²Department of Transplant Surgery, Medical University of South Carolina, Charleston, SC, USA

Purpose: The aim of this study was to determine the effects of adding MMF in a renal sparing regimen with IL2RA and delayed CI in LTX.

Methods: This was an analysis of all LTX patients from 1/00 to 9/08 that received IL2RA and delayed CI initiation. Patients were divided into 2 groups: Group 1 received IL2RA + MMF with delayed CI; group 2 received IL2RA, no-MMF with delayed CI use. All patients received corticosteroids post-operatively with similar tapers. Pediatrics and multiorgan transplants were excluded.

Results: Between 1/00 and 9/08, 509 patients received LTX; of these, 93 met inclusion of receiving IL2RA with delayed CI initiation (46 received MMF as well and 47 did not receive MMF). Table 1 displays baseline characteristics, which were similar between groups. Table 2 displays the outcomes evaluated. The addition of MMF to a delayed CI regimen including IL2RA induction had no effect on post-transplant renal function, acute rejection rates, or patient and graft survival. However, the MMF group had a higher incidence of biopsy proven hepatitis C recurrence.

Baseline Characteristics	MMF (N=46)	No MMF (N=47)	P-value
Female	33%	23%	0.362
African-American	9%	11%	1.00
Mean Age (years)	51±10	50±9	0.748
Mean MELD at Transplant	24±10	22±9	0.292
Fulminant	20%	9%	0.146
ESLD due to Hepatitis C	35%	24%	0.259
Mean Follow-Up Time (months)	36±32	44±34	0.247

Outcomes	MMF (N=46)	No MMF (N=47)	P-value
Pre-op CrCl (mean $\pm$ SD)	68 $\pm$ 26	63 $\pm$ 26	0.366
CrCl day 1	70 $\pm$ 24	61 $\pm$ 24	0.205
CrCl day 7	75 $\pm$ 26	69 $\pm$ 31	0.419
CrCl year 1	73 $\pm$ 23	77 $\pm$ 23	0.622
Mean FK level (day 7)	5.0 $\pm$ 2.6	7.3 $\pm$ 3.5	0.124
Mean CSA level (day 7)	114 $\pm$ 92	190 $\pm$ 153	0.230
Acute Rejection at 1-yr	35%	23%	0.259
Hep C Recurrence	88%	54%	<0.05
Graft Survival at 2 years	78%	68%	0.351
Patient Survival at 2 years	78%	66%	0.249

Conclusions: The addition of MMF to an IL2RA induction based CI delayed regimen does not appear to improve efficacy or renal function, with potential detrimental effects on recurrent hepatitis C.

Abstract# P-230

ROLE OF IMMUNOSUPPRESSIVE THERAPY ON HISTOLOGICAL HEPATITIS-C VIRUS (HCV) RECURRENCE AFTER LIVER TRANSPLANTATION (LT): A RETROSPECTIVE COHORT DATA. Mario H. M. M. Meine, Maria Lucia Zanotelli, Guido P. C. Cantisani, Claudio A. Marroni, Ajácio B. M. Brandão, Eduardo S. Schlindwein, Ian Leipnitz, Guillermo Kiss, Marcos Mucenic, Marcus V. Osório. *Grupo de Transplante Hepático, Santa Casa - Porto Alegre, Porto Alegre, RS, Brazil*

Introduction: The role of immunosuppressive therapy in LT is undeniable. Some data suggest that the strength and effectiveness of the newer immunosuppressive agents could shorten the time until histological HCV recurrence and accelerate fibrosis progression after LT due to HCV cirrhosis.

Method: From January 1995 to march 2007, 366 patients with HCV cirrhosis were submitted to LT. Fifty-eight patients (15.8%) died on the first-year after LT and thirteen (3.5%) were missed on follow-up and excluded. We reviewed all biopsies specimens on 295 patients submitted to cadaveric LT.

Results: All patients received methylprednisolone on induction and prednisone as maintenance therapy. The mean time until withdrawal was 17 months, with a median time of 19 months. Three patients used prednisone for 3 months only, and 1 patient used for 106 months. The patients who had more frequent and severe acute rejection episodes remained on prednisone for a longer time ($p\alpha=0.015$).

All patients received a calcineurin inhibitor (CI). It was used on association with mycophenolate on 149 cases (50.5%). Tacrolimus was the most common CI used, on 180 patients (61%), with mycophenolate association on 98 patients (33.2%). Cyclosporine was used on 115 patients (39%), with mycophenolate association on 51 (17.2%).

Prednisone use was associated with HCV recurrence on univariate analysis. Patients who used prednisone longer than 10 months had a higher incidence of histological recurrence ($p\alpha = 0.0375$), not confirmed on multivariate analysis, considering donor and receptor ages, races, sex, ischemia time, HCV genotype, positive CMV antigenemia, HCV treatment, acute rejection and association with other immunosuppressive agents ($p\alpha=0.43$).

Patients who had 2 or more acute rejection episodes and were treated with tacrolimus and mycophenolate had significantly more histological HCV recurrence than patients treated with other immunosuppressive schemes ($p\alpha=0.0013$).

Conclusion: None of the adopted immunosuppressive schemes had a significantly higher chance of developing histological HCV recurrence. However, longer use of corticosteroids and higher levels of immunosuppressive therapy used to treat acute rejection episodes seems to carry on an increased risk of recurrence.

Abstract# P-231

COMPARISON OF OUTCOMES BETWEEN THREE IMMUNOSUPPRESSANT REGIMENS IN ADULT LIVER TRANSPLANT (LTX) RECIPIENTS. Neha Patel¹, David J. Taber¹, Nicole A. Weimert¹, Jenna L. Scheffert¹, Brianne L. Dunn¹, Michael G. Hughes², John W. McGillicuddy², Charles F. Bratton², Angello Lin², Kenneth D. Chavin², Prabhakar K. Baliga². ¹Department of Pharmacy Services, Medical University of South Carolina, Charleston, SC, USA; ²Department of Transplant Surgery, Medical University of South Carolina, Charleston, SC, USA

Purpose: The aim of this study was to compare the efficacy of three different immunosuppressant regimens in LTX.

Methods: This was an analysis of all adult liver transplant patients from 1/00 to 9/08 that received calcineurin inhibitors (CI) and corticosteroids (CS) in addition to mycophenolate mofetil (MMF) and/or IL-2 receptor antibodies (IL2RA). Patients were divided into 3 groups: Group 1: IL2RA + CI + CS; Group 2: MMF + CI + CS; and Group 3: IL2RA + MMF + CI + CS. Pediatrics and multiorgan transplants were excluded.

Results: A total of 509 patients were initially analyzed; of those patients, 258 patients met inclusion criteria. Table 1 displays baseline characteristics, which were similar between all three groups. Table 2 displays major outcomes evaluated. There was no difference in rates of acute rejection, graft and patient survival amongst the three groups. However, there was a trend in a higher incidence of recurrence of hepatitis C in group 2 compared with groups 1 and 2.

Baseline Characteristics	IL2RA + CI (N=59)	CI + MMF (N=83)	IL2RA + CI + MMF (N=116)	P-value
Female	37%	27%	35%	0.37
African-American	9%	16%	10%	0.36
Mean Age (yrs)	51 $\pm$ 12	51 $\pm$ 10	53 $\pm$ 11	0.30
Mean MELD at Tx	24	20	22	0.19
Pulminant	14%	10%	11%	0.77
ESLD due to Hep C	31%	40%	30%	0.32
LRD	0%	0%	1%	0.54
BCD	5%	1%	3%	0.40
Mean Follow-Up Time (months)	45 $\pm$ 26	50 $\pm$ 37	40 $\pm$ 32	0.12

Outcomes	IL2RA + CI (N=59)	CI + MMF (N=83)	IL2RA + CI + MMF (N=116)	P-value
Rejection at 1-year	39%	30%	28%	0.30
Antibody treated rejection at 1-year	3%	4%	3%	1.00
Any rejection	42%	36%	31%	0.33
Recurrence Hepatitis C	14%	28%	21%	0.12
Graft Survival	80%	76%	88%	0.08
Patient Survival	78%	78%	87%	0.18

Conclusions: Overall, the addition of either IL2RA and/or MMF to a CI and CS immunosuppressant regimen does not appear to reduce acute rejection rates or improve graft survival in LTX. This data suggests that double drug regimens provide similar efficacy compared to either triple or quadruple drug regimens in LTX.

Abstract# P-232

IMPACT OF AN STEROID-FREE REGIMEN (TACROLIMUS + MYCOPHENOLATE MOFETIL) VERSUS A CONVENTIONAL REGIMEN (TACROLIMUS + STEROIDS) IN CARDIOVASCULAR RISK FACTORS AFTER LIVER TRANSPLANTATION: PRELIMINARY RESULTS. Valentin Cuervas-Mons, Jose I. Herrero, Miguel A. Gomez, Ignacio Gonzalez, Trinidad Serrano, Manuel de la Mata, Joan Fabregat, Javier Bustamante, Mikel Gastaca⁸, Itxarone Bilbao, Evaristo Varo, Gloria Sánchez, Miguel Jimenez, Rafael Martin-Vivaldi. ¹H. Puerta de Hierro, Madrid, Spain; ²C.U. Navarra, Pamplona, Spain; ³H. Virgen del Rocío, Sevilla, Spain; ⁴H. Central de Asturias, Asturias, Spain; ⁵H. Lozano Blesa, Zaragoza, Spain; ⁶H. Reina Sofia, Cordoba, Spain; ⁷H. Bellvitge, Barcelona, Spain; ⁸H. Cruces, Bilbao, Spain; ⁹H. Vall d'Hebron, Barcelona, Spain; ¹⁰H. Santiago, Santiago de Compostela, Spain; ¹¹H. Rio Hortega, Valladolid, Spain; ¹²H. Carlos Haya, Malaga, Spain; ¹³H. Virgen de las Nieves, Granada, Spain

Background: Cardiovascular disease (CVD) is a relevant limiting factor in the long-term success of liver transplantation. The control of the cardiovascular risk factors is a priority. Immunosuppression without steroids could help to improve the control of these risk factors.

Objective: to compare the effect on cardiovascular risk factors after liver transplantation of a steroid-free immunosuppression regimen with tacrolimus + mycophenolate mofetil (group A) versus conventional immunosuppression with tacrolimus + steroids (group B).

Methods: Prospective, multicentric, randomized, open-label study in 118 adult liver transplant recipients. Descriptive intention-to-treat analysis with 12-month follow-up in 100 patients (50 in each group), to present the evolution of the principal variables: arterial hypertension, renal function, lipid profile, glycaemia, treated acute rejection, safety and graft/patient survival.

Results: general and demographic characteristics were similar in both groups. Mean variation between baseline and 12-month levels were:

	Group A	Group B	p
Systolic arterial pressure (mmHg)	2.80±28.48	6.5±24.58	p=NS
Total cholesterol (mg/dL)	14.5±67.85	19.85±68.69	p=NS
Glucose (mg/dL)	-8.4±63.2	7.88±54.82	p=NS
Creatinine (mg/dL)	0.18±0.49	0.43±0.69	p<0.05

The incidence of treated acute rejection was 22% (A) vs 30% (B). Graft/patient survival was 96% (A) vs 96% (B) (NS). The incidence of opportunistic infection was 22% (A) vs 18% (B) (NS).

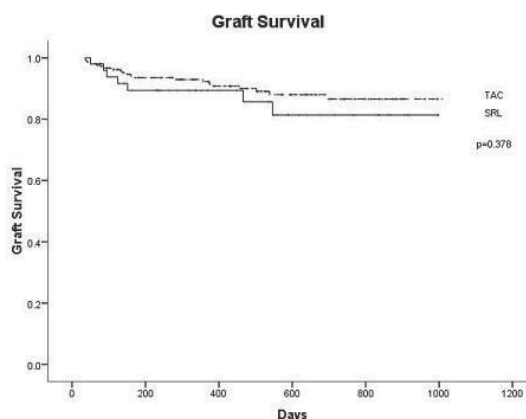
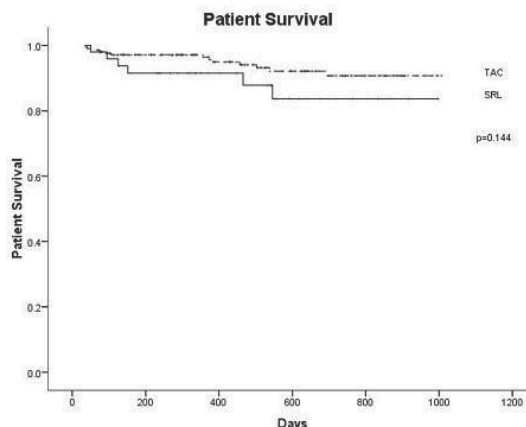
Conclusions: Kidney function was better preserved and a trend to less increase in systolic blood pressure, glucose and total cholesterol levels was observed in the tacrolimus + mycophenolate mofetil arm.

Abstract# P-233

COMPARISON BETWEEN PRIMARY SIROLIMUS AND PRIMARY TACROLIMUS IN LIVER TRANSPLANTATION AFTER STEROID FREE RABBIT ANTITHYMOCYTE GLOBULIN (RATG) INDUCTION. Jason M. Vanatta, Brandi Liggins, Amanda Dean, Donna Bogard, Nosratollah Nezakatgoo, Luis Campos, Olexandra Dryn, Sateesh Nair, James D. Eason. Transplantation, University of Tennessee, Methodist Transplant Institute, Memphis, TN, USA

Purpose: Sirolimus has concerns for increased complications, graft loss, and mortality when used as primary immunosuppression in liver transplantation. The purpose of this study was to evaluate patient outcomes with respect to complications, graft outcomes, and mortality. **Methods:** All 325 liver transplant patients at our center between 2006 and 2008 were reviewed to identify two groups: 50 patients had primary sirolimus (SRL), and 212 patients had primary tacrolimus (TAC). All patients received steroid free induction with RATG and maintenance with mycophenolate mofetil. Patient outcomes were recorded with respect to acute rejection, wound healing, infections, vascular complications, biliary complications, graft outcomes, and mortality.

Results: With median followup of 478 days for SRL group and 458 days for TAC group, 1 year patient and graft survivals were similar--91.5% and 89.4% respectively for SRL group and 96.4% and 92.2% respectively for TAC group.



Complication outcomes are presented in Table 1.

Outcomes	SRL	TAC	p-value
Rejection	16 (32%)	39 (18%)	.034
Wound Healing	7 (14%)	4 (2%)	.001
Infection	18 (36%)	32 (15%)	.001
Vascular Complication	5* (10%)	11# (5%)	.201
Biliary Complication	11(22%)	25 (12%)	.059

* 2 hepatic artery stenosis, # 3 hepatic artery thrombosis and 3 hepatic artery stenosis

Conclusion: Steroid free RATG induction with primary SRL has similar patient and graft survivals but significantly increased infection, wound healing and rejection rates compared to primary TAC in liver transplantation.

Abstract# P-234

COMPARATIVE STUDY OF RABBIT ANTITHYMOCYTE GLOBULIN (RATG) INDUCTION VERSUS STEROIDS ON OUTCOMES IN PATIENTS UNDERGOING ORTHOTOPIC LIVER TRANSPLANTATION (OLT) FOR HEPATITIS C (HCV). Sharad Sharma, Jason M. Vanatta, Nosratollah Nezakatgoo, Sateesh P. Nair, Luis Campos, Rakesh Rai, Amanda G. Dean, James D. Eason. Transplantation, University of TN Methodist Transplant Institute, Memphis, TN, USA

Introduction—Recurrent HCV is one of the greatest challenges in OLT. Steroids have been implicated as detrimental to outcomes in HCV recipients.

Aim—The purpose of this study was to evaluate one-year outcomes for RATG versus Steroid induction in patients transplanted for HCV.

Method—This study is a retrospective analysis of a prospectively maintained database. The study group consisted of 80 HCV patients (Total of 300) who underwent OLT between April 2006 to 2008 with 3 mg/kg of RATG induction with at least one year of follow up. The comparison group consisted of 60 HCV patients transplanted between 1998 to April 2006 with steroid induction and taper. Maintenance immunosuppression consisted of Tacrolimus and Mycophenolate Mofetil in both groups. Both groups were followed for at

least one year and biopsies done between 9 and 15 months were compared for severity of inflammation and fibrosis. In addition, AST and ALT levels were compared at the end of 3 and 6 months.

Results- The two groups were comparable in demographics and average MELD score at the time of transplant. The mean AST was 82 and 88 IU at the end of 3 and 6 months respectively in the RATG group and 64 and 79 at 3 and 6 months respectively in the Steroids group (P=ns). The mean ALT level was 96 and 96 IU at 3 and 6 months respectively in the RATG group and 98 and 103 IU at 3 and 6 months in the Steroids group (P=ns). Fifty-eight patients (58/68) had grade 1-2 inflammation and 10 patients (10/68) had grade 3-4 inflammation at one year in the RATG group compared to 48 patients (48/60) having grade 1-2 inflammation and 12 patients (12/60) having grade 3-4 inflammation in the Steroids group (P>0.005). One patient in each group developed stage 3-4 fibrosis during the first year of follow up (p > 0.005). One year graft loss was significantly higher (3/60) in the steroid group compared to the RATG group (3/80) (P< 0.005). Neither group had a graft loss attributable to HCV during the first year. One-year patient survival was 89.9% in each group with no deaths attributed to recurrent HCV.

Conclusion - RATG is an effective induction agent for HCV patients undergoing OLT. RATG provides excellent patient survival and slightly better graft survival compared to Steroids at one year.

Abstract# P-235

EXPERIENCE WITH THE USE OF ENTERIC COATED MYCOPHENOLATE SODIUM IN A STEROID-FREE IMMUNOSUPPRESSIVE REGIMEN IN ADULT LIVER TRANSPLANTATION.

Carlo B. Ramirez¹, D. Cataldo¹, Adam M. Frank¹, Victor Navarro², Steven Herrine², Simona Rossi², Mark Chaballa³, Silvia Vaccino¹, Stephen T. Arment⁴, Yoogoo Kang⁵, Ignazio R. Marino¹. ¹*Surgery, Thomas Jefferson University, Philadelphia, PA, USA;* ²*Medicine, Thomas Jefferson University, Philadelphia, PA, USA;* ³*Pharmacology, Thomas Jefferson University Hospital, Philadelphia, PA, USA;* ⁴*NYU School of Medicine, New York University, New York, NY, USA;* ⁵*Anesthesiology, Thomas Jefferson University Hospital, Philadelphia, PA, USA*

Purpose: To study enteric coated mycophenolate sodium (EC-MPS) as part of a corticosteroids (CS) or no-CS immunosuppressive (IS) regimen with Basiliximab (Bsx) and Tacrolimus (Tac) in adult liver transplantation (OLT). Methods: A 2-yr, prospective, randomized trial performed with 40 patients (pts) (CS:20;No-CS:19); 1 pt in No-CS required re-OLT and was excluded from analysis. Pts received Bsx induction (20mg intra-operatively, POD 4), Tac (0.1mg/kg/day), and EC-MPS (720mgBID). The CS-arm received methylprednisolone 1g IV intra-operatively followed by prednisone taper to 20mg PO QD and weaned off at 6 mths. Quality of life (QOL) was assessed pre-OLT, 3, 6 mths postOLT using the Gastrointestinal Quality of Life Index (GIQLI), a 36-item questionnaire evaluating the impact of GI symptoms, emotional status, physical and social function, and stress of medical treatment. Score range: 0-144 (higher score=better QOL). Results: Six pts were switched to cyclosporine micro-emulsion (CsA-ME). All pts received EC-MPS.

EC-MPS considerations

	CS	No-CS	P
Mean start time from OLT (days)	3.6	6.8	N.S
Mean duration (mths)	2.84	2.9	N.S
Dose reductions	10 (GI:4, neutropenia:3, infection:2, both GI and neutropenia:1)	13 (GI:4, neutropenia:6, infection:1, both GI and neutropenia:1, change of IS:1)	N.S.
Dose discontinuation due to unresolved complaint	3 (1GI, 2 non-GI)	2 (1GI, 1 non-GI)	N.S.

GI, gastrointestinal

EC-MPS mean dose at 3 mths was lower in No-Cs arm (Cs:1300mg; No-Cs:1083mg). 1 (5%) biopsy-proven CS-responsive rejection occurred in each arm. No CMV or difference in bacterial infection rate was observed. Clinical improvement in GIQLI was observed across groups from baseline (mean score=80) to 6 mths (mean score=107). Conclusion: EC-MPS, Bsx, Tac/CsA-ME in a Cs or No-Cs IS regimen is effective and safe with improvement in QOL in adult OLT. A longer follow-up and more subjects are necessary to further validate this conclusion.

Abstract# P-236

THE IMPACT OF EVEROLIMUS ON RENAL FUNCTION IN MAINTENANCE LIVER TRANSPLANTATION.

Paolo De Simone¹, Stefania Petrucci¹, Arianna Precisi², Paola Carrai¹, Emanuele Balzano¹, Juri Ducci¹, Lidiana Baldoni¹, Daniela Campani³, Franco Filipponi¹. ¹*Liver Transplant Unit, Azienda Ospedaliero-Universitaria Pisana, Pisa, Italy;* ²*Laboratory, Azienda Ospedaliero-Universitaria Pisana, Pisa, Italy;* ³*Pathology, Azienda Ospedaliero-Universitaria Pisana, Pisa, Italy*

We investigated retrospectively the impact of conversion from calcineurin inhibitors (CNI) to everolimus (EVL) monotherapy on renal function (RF) in liver transplant (LT) recipients. Between January 2006 and July 2007, 70 recipients (51 M, 19 F; mean age 55.9±11 years) from a deceased donor were enrolled into a program of conversion to EVL monotherapy at a mean interval of 45±35.9 months from transplantation (range 7-192). Indications for conversion were deteriorating RF in 63 (90%). Efficacy failure was defined as persistence of CNI, EVL discontinuation, death, graft loss, loss to follow-up and need for dialysis at 12 months. Twelve months after switching, 53 patients (75.7%) were on EVL monotherapy and the mean change of creatinine clearance (CrCl) from baseline (-day 1 before EVL introduction) to endpoint (12 months) was 5.8±13.1 mL/min. On univariate and multivariate analyses the clinical variable correlated with the greatest probability of improvement was the baseline CrCl (p<0.0001). Conversion from CNI to EVL monotherapy is successful in 75.7% of cases and the improvement in RF is correlated with baseline CrCl. These data support pre-emptive minimization of CNI in the post-transplant course in order to delay the decline in renal function.

Abstract# P-237

USE OF MYCOPHENOLATE MOFETIL IN LIVER TRANSPLANT PATIENTS. ANDALUSIAN LIVER REGISTRY.

Gomez M. A. Bravo¹, L. Barrera¹, M. de la Mata², Nuñez F. Garcia², M. Jimenez³, J. Rodrigo³, D. Marin³, M^a. D. Espinosa⁴, F. Noguera⁴, M^a. A. Garrido⁴. ¹*Hepatic Trasplant Unit, Hospital Virgen del Rocío, Sevilla, Spain;* ²*Hepatic Trasplant Unit, Hospital Reina Sofia, Cordoba, Spain;* ³*Hepatic Trasplant Unit, H Carlos Haya, Malaga, Spain;* ⁴*Hepatic Trasplant Unit, Hospital Virgen de las Nieves, Granada, Spain*

Objective: Efficacy and safety of different immunosuppressive regimens with mycophenolate mofetil (MMF).

Methods: A prospective observational multicenter registry of 226 liver transplants performed in 2005-2006 with two years of follow-up. Variables: renal, hepatic, and hematologic function, infections, rejection, de novo neoplasms and survival. Patients were divided in 4 groups according to MMF treatment: A. None (n=91), B. MMF from induction (n=83), C. Late introduction of MMF (n=30), D. MMF in induction with early withdrawal (n=22).

Results: Patients in groups B, C, and D were at increased risk (higher MELD and Child-Pugh scores, worse hematologic values and higher incidence of renal dysfunction).

Renal Function

Groups/ Creatinine (mg/dl)	Baseline	1 Month	3 Months	6 Months	12 Months	18 Months	24 Months
A	0.9+/- 0.46	1.22+/- 0.46a	1.20+/- 0.39b	1.19+/- 0.38	1.08+/- 0.30	1.08+/- 0.29	1.09+/- 0.30
B	1.09+/- 0.67	1.11+/- 0.44a	1.03+/- 0.31a	1.06+/- 0.31	1.00+/- 0.32	1.11+/- 0.32	1.02+/- 0.34
C	1.05+/- 0.38	1.56+/- 0.63	1.30+/- 0.37	1.36+/- 0.59a	1.06+/- 0.27	1.25+/- 0.65	1.13+/- 0.40
D	1.17+/- 0.74	1.15+/- 0.49	1.23+/- 0.58	1.09+/- 0.39	1.03+/- 0.31	1.03+/- 0.30	1.24+/- 0.63

a p<0.01 versus late introduction of MMF// b p<0.05 from MMF introduction

No differences in white blood cell counts for any of the groups. In groups B and D, the rate of infection at 3 months was 34.5% versus 17.9% in groups A and C (p<0.05). Mean acute (19%) and chronic (5%) rejection rates were similar in all groups. No differences in graft survival (80%) and HCV relapse rate (75%) at 2 years.

Conclusions: With late introduction of MMF, there seems to be a lower risk of infections and it allows stable creatinine values to be restored and maintained without increasing rejection risk. In patients at risk, the use of MMF provides stable renal function and allows calcineurin inhibitor doses to be reduced.

Abstract# P-238**INITIAL EXPERIENCE WITH A GENERIC TACROLIMUS FORMULATION IN A LIVER TRANSPLANT CENTER IN CHILE.**

Edgar B. Sanhueza, Montserrat A. Rius, Rodrigo L. Zapata, Roberto A. Humeres, Horacio R. Rios, Juan K. Juan. *Liver Transplantation, Clínica Alemana de Santiago, Santiago, Chile*

Introduction: Orthotopic liver transplantation (OLT) is the best therapeutic option for patients with end-stage liver disease. The number of patients undergoing this procedure is growing each year, requiring long term expensive immunosuppressive therapy. In developing countries (like Chile) the costs of OLT is a major issue, thus the reduction of costs associated with immunosuppression is a desired aim. Generic medications are a lot less expensive than brand name drugs, but generics have to be effective and safe to be used in these field, where a change in the absorption rate may modify blood levels of the drug and eventually induce toxicity or rejection. **Aims:** Report our initial experience with a generic tacrolimus (T-Inmun Corporación Farmacéutica Recalcine, Chile) in consecutive OLT patients at different times after OLT. **Methods:** Clinical and biochemical evaluation of consecutive adult OLT patients from Clínica Alemana using T-Inmun as the base immunosuppressive therapeutic agent. **Results:** Out of a total of 120 OLT adult patients, 14 have used T-Inmun for their immunosuppression. 4 as the primary initial immunosuppressive agent, 6 due to a need for a change in the calcineurinic agent (1 due to adverse effect, 1 due to chronic rejection, 4 due to difficulties in the withdrawal of steroids) and 4 due to economical issues. Three out of the 14 patients discontinued T-Inmun due to adverse side effects (renal disfunction, thrombopenic thrombotic purpura and pontine myelinolysis, respectively). None of the 11 patients who have been kept on T-Inmun has developed rejection, nor abnormal liver function tests during a follow-up period of 18,5 months (14-24 months). The predose through-levels of tacrolimus obtained with T-Inmun have been optimal with a mean dose of 5,4 mg/day (2-8 mg/day), which is about 1 mg less than the dose required by those patients using previously the brand drug tacrolimus. **Conclusions:** In our preliminary experience, the generic tacrolimus (T-Inmun) has shown to be an effective and safe immunosuppressive therapeutic agent. The adverse side effect profile is not different from a brand-name agent tacrolimus. The cost of the generic agent is 40% less than the original one, obtaining significant savings, with the same immunosuppressive effect.

Abstract# P-239**REJECTION AFTER LIVING RELATED LIVER TRANSPLANTATION (LRLT): A RETROSPECTIVE STUDY.**

Ibrahim Mostafa¹, Rasha Refae², Wael Safwat¹, Medhat Abd El All³, Ayman Namera¹, Sanaa Kamal², Moubarek Hussein², Magda El-Monayeri², Alaa Fayed², Mahmoud El-Meteini². ¹Theodor Bilharz Research Institute, Cairo, Egypt; ²Ain Shams University, Cairo, Egypt; ³Wady El Neel Hospital, Cairo, Egypt

Rejection is a common complication of liver transplantation but it has good prognosis and its management is possible with good immunosuppressive agents. Liver biopsy is considered the corner stone for diagnosing acute rejection and recurrent HCV; however, given histopathological similarities between the two conditions, discrimination can be extremely difficult. 89 patients underwent living donor liver transplantation in Wadi El-Nile hospital in Cairo, Egypt from October 2001 until June 2006. 32 patients died shortly after liver transplantation due to surgical complication so in this study was conducted 57 cases who survived. The leading etiology for LT in our study was post HCV cirrhosis (70%) and HCV with HCC (30%), 24 patients (42.1%) who experienced acute rejection most of them (81.4%) were during the first 6 months following transplantation. acute rejection was sub classified into mild (17 patients), moderate (5 patients) and severe (2 patients) rejection according to Banff Schema scoring system representing 70%, 21% and 8.3% respectively of all acute rejections. Mild attacks which showed a good response to their management. There were 3 patients (5.2%) who experienced chronic rejection. All cases of chronic rejection had previous attacks of acute rejection. The outcome of rejection, three patients experienced chronic rejection, 13 patients (54%) showed complete resolution while 8 patients (33%) showed HCV recurrence by pathology. There was only 1 death from chronic rejection after 1.5 year from date of transplantation. 59.6% of patients were under tacrolimus while 40.3% were under Cyclosporine. Percentage of patients who experienced rejection was 38.2% & 47.8% of patients under tacrolimus and Cyclosporin respectively. Tacrolimus showed better results in management of acute rejection, where 20 patients (83.3%) responded to tacrolimus compared to 4 patients (16.6%) under Cyclosporin. Conclusion: Liver biopsy is considered the corner stone for diagnosing acute rejection

and recurrent HCV; however, given histopathological similarities between the two conditions, discrimination can be extremely difficult. Tacrolimus had the upper hand in management of rejection over Cyclosporine.

Abstract# P-240**FOUR SUCCESSFUL CASES OF SIMULTANEOUS LIVING DONOR LIVER AND KIDNEY TRANSPLANTATION.**

R. Mohanka, N. Mohan, V. Kumaran, S. Saigal, N. Saraf, S. Nundy, A. Soin. *Department of Surgical Gastroenterology and Liver Transplantation, Sir Ganga Ram Hospital, New Delhi, India*

Simultaneous living donor liver-kidney transplantation (SLLKT) from different donors is not common because of logistic and technical difficulties.

Objective: We reviewed outcomes of patients who underwent SLLKT at our center.

Patients and Methods: Out of 323 patients who received 325 living donor liver transplants (LDLTs) in last 7 years, 4 received SLLKT, with liver and kidney from separate donors.

Results: Demographics are listed in table 1.

Table 1: Patient and donor demographics

Recipient Age	Etiology	Kidney Donor: Age / Relation	Liver Donor: Age / Relation
35	ETOH, HCV	39 / Sister	32 / Wife
16	Hyperoxaluria type I	38 / Mother	29 / Maternal Uncle
14	Hyperoxaluria type I	28 / Paternal Uncle	33 / Mother
61	Primary Biliary Cirrhosis	61 / Husband	24 / Nephew

Liver transplants were performed using right lobe (n = 3) or left lobe (n = 1) [Mean GRWR 1.3 ± 0.3]. Kidney transplants were done using standard technique. Renal vascular reconstruction was done with single (n = 3) or two (n = 1) renal arteries. Daclizumab was used for induction in all patients. Triple drug regimen with tacrolimus (levels 5-8 ng/l), mycophenolate mofetil and steroids was used for maintenance. Tacrolimus was not given for first 3-7 days post-operatively. There was no donor morbidity or mortality. Patient and liver and kidney graft survival were 100% at mean follow-up of 11.6 ± 6.1 months. Mean hospital stay was 18 ± 2 days. No vascular, biliary, ureteric complications or rejection episodes were encountered. Peri-operative morbidity is listed in table 2.

Table 2: Peri and post-operative morbidity

Morbidity	Outcome
Intra-operative cardiac arrest (n = 1)	Successfully resuscitated, IABP x 3 days, Full cardiac recovery
Post-operative CRRT (n = 1) x 8 hours	Complete renal recovery, No Dialysis need after POD 1
Secondary Bleeding – Coagulopathy	Stopped after stopping CRRT
Microscopic proteinuria	Resolved with increase in steroids
CMV Hepatitis	Resolved with ganciclovir

Mean serum bilirubin and serum creatinine were 0.7 ± 0.2 and 1.1 ± 0.2 at last follow-up.

Conclusion: Simultaneous living donor liver-kidney transplantation is a successful strategy for kidney failure due to primary hyperoxaluria or end stage liver and kidney failure. Although the numbers are small, the liver may afford immunological advantage for simultaneously transplanted kidney from another donors and may be safer for donors.

Abstract# P-241**DONOR BILIARY COMPLICATIONS IN LDLT: COULD IT BE MINIMIZED IN THE ABSENCE OF CADAVERIC PROGRAM?**

Ibrahim K. Marwan¹, Tarek M. Ibrahim², Mahmoud M. Elmeteny³, Alla F. Hamza⁴, Adel M. Hosny⁵, Osama A. Elmalet⁶, Khaled M. Amer⁷, Ibrahim M. Mostafa⁸, Ayman M. Yousry⁹, Wahed N. Dose¹⁰, Imam A. Wakid¹¹. ¹HBP Surgery, NLI Menoufeya University, Shebeen Elkom, Egypt; ²NLI, Egypt; ³Ain Shams University, Egypt; ⁴Ain Shams University, Egypt; ⁵Cairo University, Egypt; ⁶National Cancer Institute, Egypt; ⁷International Medical Center, Egypt; ⁸Toudor Institute, Egypt; ⁹Cairo University, Egypt; ¹⁰Cairo University, Egypt; ¹¹NLI, Egypt

Background: LDLT is a potentially safe procedure especially when cadaveric liver transplantation is not available. LDLT had reasonable outcomes; yet, it carries risks to healthy donors and lacks cadaveric back up.

The aim: is to present donor biliary complications developed after LDLT. Also to present the trails to lower donor biliary complications which leads to increase morbidity and mortality.

Patients and results: 690 patients received LDLT from Aug. 2001 to Aug. 2008. The adults were 622 (90.15%) and 68 (9.85%) were pediatrics. The mean age of adult was 53.65 years and in pediatric group was 8.73 years. The main

indication in the adults was HCV infection (97.7%), hepatocellular carcinoma (HCC) (34.8%) of the HCV patients. B.A represents 39.7% of the pediatric patients. The overall recipients mortality in seven years was (30.70%), in the adults 31.67% whereas 22.05% in pediatric group. Delineation of the biliary tree was made pre-transplantation by MRCP or by intra-operative cholangiogram. Sixty nine donors developed biliary complications 10%, with one donor mortality grade V complication according to Clavien&Dindo classification two months post-operative due to biliary leak followed by severe infection, septicemia and multi organ failure. There were 40 out of the 69 donors 57.97% grade I complication with biliary leak controlled by conservative treatment. Eighteen donors 26.08% had grade IIIa complication and the remaining 10 donors 14.49% had grade IIIb. ERCP and stent insertion were done in 7 donors to control biliary leakage and Roux-En-Y hepateco-Jujonostomy in 3 donors.

Conclusions: Still, organ availability remains as one of the major problems that leads to considerable risks to healthy donors especially when the graft had more than one bile duct. Better mapping of the biliary tree pre-operative, cystic duct decompression tube and using Left hepatic lobe and porto-caval shunt in adult are used to minimize donor biliary complications.

Abstract# P-242

CHYLOUS ASCITES AFTER LIVING DONOR LIVER TRANSPLANTATION – REPORT OF THREE CASES. Anwar Jarrad¹, Saeb Hammoudeh¹, Muawieh Ababneh¹, Aiman Obed², Abdullah Al Bashir¹.

¹Hepatology, University Hospital, Amman, Jordan; ²Transplant Surgery, University Hospital Goettingen, Goettingen, Germany

Background: Ascites can happen after liver transplantation in the early period and resolves when portal hypertension and other etiologies resolve. We report here three cases of Chylous ascites that occurred in the first month after liver transplant.

Case summary: three patients had LDLT, the first is a child aged 10 years who had LDLT for PSC and he was transplanted left lateral segment from his mother. His post operative course was uneventful and the surgical drains were removed after two weeks, but he presented after one month with ascites which was symptomatic, upon drainage it was milky in color and investigations revealed Chylous ascites. A paracentesis for three times controlled the ascites and disappeared.

The second case was a 53 years old woman who had LDLT from her brother for ESLD secondary to PBC, after removing the surgical drains; she presented after 5 weeks from the transplant date with ascites which turned to be Chylous and disappeared after paracentesis twice

The third case was for a 65 years old man who had LDLT for cryptogenic cirrhosis and he has severe portal hypertension, ad has uneventful recovery but almost at the third week post liver transplant he developed chylous ascites and one drain was kept in place and removed at the fourth week post transplant and at the fifth week he had paracentesis and the ascites disappeared after that.

Conclusion: Chylous ascites is a rare cause of ascites after liver transplant. It occurred towards the first month from the time of liver transplant and it disappeared spontaneously. It is noteworthy that these cases are probably to hilar dissections with bigger than usual lymph nodes in these situations. This report emphasizes the benign nature of chylous ascites post living donor liver transplant and emphasizes the conservative simple approach for treatment.

Abstract# P-243

BILIARY RECONSTRUCTION DURING ADULT LIVING DONOR LIVER TRANSPLANTATION. THE USE OF DUCTOPLASTY ADVERSELY AFFECTS THE OUTCOME. Juan Carlos Garcia-Valdecasas, Santiago Sanchez Cabus,

Constantino Fondevila, David Calatayud, Raquel Garcia Roca, Josep Marti, Maria Marta Modolo, Adolfo Parayno, Arturo Mora, Jose Fuster. *ICMD. Cirugia Hepatica y Trasplante., Hospital Clinic de Barcelona, Barcelona, Spain*

INTRODUCTION:

Biliary complications after adult living donor liver transplantation (LDLT) remain higher than for deceased donor liver transplantation (DDLT). Currently, the aim during surgery is to create a single duct for the anastomosis to the recipient's common bile duct (CBD), thus requiring ductoplasty on the donor graft.

AIM:

To evaluate the association between ductoplasty and long term biliary complications, as well as the treatment options of such complications.

MATERIAL AND METHODS:

From March 2000 to June 2008 a total of 66 patients underwent adult LDLT, hepatojejunostomy was created in 16 cases and were excluded from the study.

Of the remaining 50 patients, 28 grafts had a single bile duct (56%) allowing for a duct-to-duct anastomosis (DD) to be performed; two ducts were found in 20 grafts and three ducts in 2 patients, performing ductoplasty (DP) in 19 of these cases (38%) before the final anastomosis to the recipient's CBD. In all cases a T-tube was utilized to protect the anastomosis. We evaluated the long-term biliary tract complications in both groups and the treatment options required.

RESULTS:

Long-term stenosis was seen in 16 patients, 8 in the DP group (42%) and 8 in the DD group (29%). Radiological management was the first line of treatment in both groups, with a mean 3.1 balloon dilations and 2 stent placement (7%) in the DD group compared to a mean 3.6 dilations and 4 stenting procedures (21%) in the DP group. Surgical correction of strictures was required in a total of 6 patients due to failure of the radiological procedures, 3 in the DP group (16%) and 3 in DD group (11%). One patient died as a consequence of biliary complications and one required retransplantation due to development of secondary biliary cirrhosis despite radiological and surgical attempts to correct the stricture, both patients in the DP group.

CONCLUSIONS:

The use of a ductoplasty during adult LDLT is associated with a higher incidence of long-term biliary complications. Furthermore, patients undergoing DP are submitted to repeated and more complex definitive therapy, including retransplantation. The use of ductoplasty during adult LDLT should be reconsidered.

Abstract# P-244

HEMODYNAMIC MONITORING AND SMALL FOR SIZE SÍNDROME IN ADULT LIVING DONOR LIVER TRANSPLANTATION (LDLT). Santiago Sanchez Cabus, David

Calatayud, Raquel Garcia Roca, Constantino Fondevila, Josep Marti, Joana Ferrer, Marco Antonio Loera, Antonio Alvarado, Jose Fuster, Juan Carlos Garcia-Valdecasas. *ICMD. Cirugia Hepatica y Trasplante., Hospital Clinic de Barcelona., Barcelona, Spain*

INTRODUCTION:

Small for size syndrome (SFS) has been considered as an "all or none" effect. The use of a segmental graft for adult live donor liver transplantation does not achieve the same results of those obtained with deceased donor (DDLT).

AIMS:

To analyze the impact of hemodynamic parameters measured at the time of transplantation over immediate graft function in LDLT and the risk of developing SFS syndrome.

MATERIAL AND METHODS:

Adult LDLT was performed in 30 patients from May 2003 to June 2008. Prospective data collection included: graft to body weight ratio (GBWR), transjugular hepatic venous pressure gradient (HVPG) and Cardiac Index (CI) measured pretransplant, during surgery and on postoperative day 3 (POD). Biochemical values of graft function in terms of ALT, AST, total bilirubin (TB) and Prothrombin Time (PT) were collected on POD 1, 3, 5, 7 and 10. Patient and graft survival was analyzed in the first week and at 3 months.

RESULTS:

All patients survived during the time period evaluated. Liver function returned to normal within the first ten days after transplantation in the majority of patients. The presence of GBWR <1 correlated with worse graft function on POD 5 and 7, with a mean TB of 0.0 and 0.0 vs 0.0 and 0.0 in bigger grafts and with a PT of 0.0 and 0.0 vs 0.0 and 0.0 (p<0.05). An elevated CI over 5 L/min/m² at the end of the surgical procedure was associated with a compromised liver function during the immediate postoperative period (p<0.05). Finally, a HVPG over 7 mm Hg at the end of the operation resulted in a trend towards worse immediate liver function.

CONCLUSIONS:

This study confirms the importance of hemodynamic monitoring before, during and after living donor liver transplantation. The use of a segmental graft has a biochemical impact in the immediate postoperative course however it does not affect the final outcome.

Abstract# P-245

LIVING DONOR LIVER TRANSPLANTATION USING RIGHT LIVER GRAFT WITH HEMANGIOMATOSIS: CASE REPORT. Murat Dayangac, Onur Yaprak, Koray Bas, Levent Ulusoy, Cihan Duran, Refik Killi, Yildiray Yuzer, Yaman Tokat. *Center for Organ Transplantation, Florence Nightingale Hospital, Istanbul, Turkey*

Exclusion criteria for live liver donation are evolving. Recent reports have advocated expanding the live donor pool to further increase the use of right lobe (RL) living donor liver transplantation (LDLT). Although the use of liver allografts with hemangiomas has been described previously, we report the first transplantation of a live donor right liver with hemangiomas.

Case report: The donor was a 50-year-old female, who was evaluated for her 16-year-old niece suffering from congenital hepatic fibrosis. Preoperative ultrasound and contrast-enhanced CT scan of the donor revealed multiple hepatic lesions at segments 4, 5, 6, and 7 of the liver with a maximum diameter of 30 mm. Radiologic findings were compatible with hepatic hemangiomas.

Technically, all of the lesions were distant from the plane of resection and the potential donor was otherwise a good candidate for the LDLT procedure. However, donor's suitability was questioned because of the possibility of rapid enlargement of the hemangiomas in association with the post-transplant hyperperfusion and regeneration of the partial graft. Based on our experience with hepatic hemangiomas and given the fact that these lesions mostly remain asymptomatic, we decided to accept the donor.

Following donor right hepatectomy, the recipient operation was performed according to the standard LDLT procedure. The graft reperused well with a total ischemia time of 75 minutes. Routine postperfusion and day 1 doppler ultrasound showed normal flow in all major vessels and no alteration of flow within the hemangiomas.

The postoperative course was uneventful and the patient was discharged two weeks after the transplant. Preoperative total bilirubin level of 30 mg/dL gradually returned to normal levels in four weeks. Follow-up CT scans were performed on the first and third weeks posttransplant to assess the evolution of the hemangiomas which did not show a remarkable change in the size of hemangiomas despite a marked increase in graft volume. In the six months since the transplant, there have been no clinical complications.

Ours is the first report of transplantation using of a live donor right liver graft with hemangiomas. This case shows that multiple hemangiomas should not be a contraindication to live liver donation.

Abstract# P-246

LEFT VERSUS RIGHT LIVER GRAFTS FOR LIVING LIVER DONATION: OUTCOMES ANALYSIS OF 544 HEPATECTOMIES IN THE NSQIP DATASET. Thomas A. Aloia, Stephen Jones, Nadine Haykal, David Michel, Linda W. Moore, Joseph Galati, Ahmed O. Gaber, Barbara L. Bass, R. M. Ghobrial. *Department of Surgery, The Methodist Hospital, Houston, TX, USA*

Objectives: Although right hepatectomy is the most frequently performed living donor liver transplant (LDLT) operation, some have suggested that left hepatectomy is a safer donor operation. To address this issue, this study was designed to compare the risk factors, morbidity, and mortality for right versus left hepatectomy in the multi-institutional National Surgical Quality Improvement Program (NSQIP) Participant Use File (PUF).

Methods: Of the 360,000 cases in the 2005-2007 NSQIP PUF, 510 right hepatectomy (RH) and 232 left hepatectomy (LH) cases were identified. To create a cohort similar to LDLT, analysis was limited to elective cases in patients without recent chemotherapy, diabetes, or coronary disease (RH=388, LH=156). For each case, 36 perioperative risk factors and 52 postoperative complications were assessed. Multivariate Cox proportional hazards models were used to identify factors independently associated with poor outcome. Chi-squared tests were used to compare outcomes between groups.

Results: RH and LH patients were well-matched for age, gender, weight, BMI, and preoperative laboratory values (Table). In contrast, outcomes for RH were generally worse than LH, including mean red blood cell transfusions (1.5 vs. 0.3 units), postoperative length of stay (9 vs. 7 days), 30-day major morbidity (MM) rate (24.5% vs. 17.9%), and 30-day mortality rate (2.3% vs. 0.6%), all p<0.01.

Table (mean values)	Right	Left	p-value
Patients (n)	388	156	--
Age (yrs)	53	52	0.76
BMI (kg/m ²)	27.8	26.9	0.52
Bilirubin (g/dL)	1	1	0.88
SGOT (g/dL)	24	26	0.77
Hct (%)	34	35	0.23
Major Morbidity (%)	24.5	17.9	0.001
Mortality (%)	2.3	0.6	0.0001

Conclusions: Analysis of the recent multi-institutional NSQIP experience indicates that the current morbidity and mortality rates for left hepatectomy are significantly lower than for right hepatectomy. These data suggest that, when adequate in size for transplantation, left liver allografts would be safer for living donation.

Abstract# P-247

ADULT LIVING DONOR LIVER TRANSPLANTATION USING RIGHT LOBE WITH HALF MIDDLE HEPATIC VEIN. Xiangcheng Li, Xuehao Wang, Feng Zhang, Cunming Liu. *Liver Transplantation Center, Jiangsu Province Hospital, Nanjing, China*

Introduction:

Hepatic venous outflow is one of importance in adult living donor liver transplantation. Right lobe graft with middle hepatic vein (MHV) assured fluent outflow of graft, but it may partially impair outflow of Segment 4 in donor, so how to balance the donor's safety and graft outflow is still controversial. We performed one case of right lobe graft with modified middle hepatic vein in our center.

Methods:

Liver size and vascular anatomy were assessed by computed tomography (CT) scan. During harvest MHV, we remained donor's left hepatic vein(LHV) and the outflow of segment 4 intact. We utilized recipient's hepatic vein as an interposition jump graft to do a venoplasty with right hepatic vein on the back table. Right inferior accessory hepatic veins were preserved for subsequent anastomosis to the inferior vena cava of the recipient.

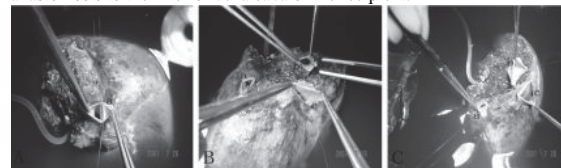


Figure A. modify right inferior accessory hepatic veins.

Figure B. recipient's hepatic vein trunk was anastomosed to donor's half MHV.

Figure C. anastomosed recipient's hepatic vein trunk to half MHV then do venoplasty with right hepatic vein on the back table.

a. right inferior accessory hepatic veins.

b. half middle hepatic vein.

c. right hepatic vein.

Results:

We examined the donor and recipient immediately during the operation with ultrasound, the results were satisfied. We still remain follow up with them (18 months). The donor's condition is good, and the recipient's liver function is normal, the graft's outflow is no obstructive.

Conclusion:

Using right lobe with half middle hepatic vein is an option for Adult living donor liver transplantation. Recipient's hepatic vein trunk or portal vein could be one of the alternative materials for middle hepatic vein reconstruction of modified right lobe graft in the area of cadaveric organ shortage.

Abstract# P-248

CLINICAL RELEVANCE OF ADAPTING PORTAL VEIN FLOW IN LIVING DONOR LIVER TRANSPLANTATION. Yongjun Chen, Baiyong Shen, Chenghong Peng, Hongwei Li. *Surgery, Ruijin Hospital, Jiaotong University, Shanghai, China*

Background: Adult-to-adult living donor liver transplantation can shorten the time that patients wait for surgery, which has been accepted by all. But if the patients who have cirrhosis with severe portal hypertension are transplanted with a small graft, the prognosis is difficult to predict. The mechanism of small-for-size injury is usually caused by continuous portal hypertension and high-flow reperfusion on the sinusoid of a small graft. There is also an important factor in increasing emphasis. That is the impact of the inflow modulation on the graft. In the face of portal hypertension, even if the

graft is the best quality, the recipient has the possibility of a SFSS. But the measurement and research in this area is really limited.

Objective: This study, which is focus on the hemodynamic changes after reperfusion of the graft, can provide useful information to clarify the SFSS injury mechanism, so as to further improve the results of small size graft transplantation.

Methods: From June 2006 to December 2008, 35 patients who underwent ALDLT were included in this study, 33 patients were men and 2 was woman (range, 18-66 years; median age, 39 years). 35 recipients were divided into 2 groups: In group 1 ($n = 24$), we didn't regulate the portal vein flow; In group 2 ($n = 11$), we reduced the portal vein flow by splenic artery ligation. There were several criteria for splenic artery ligation during operation: GRWR < 1 %, or based PVP of recipient > 20 mmHg (27 cmH₂O).

Conclusions: The results showed that there was significant difference between two groups in decline of PVP after splenic artery ligation, but there was no significant difference between two groups in PVF and (rPVF-dPVF)/GW. In addition, the splenic artery ligation can significantly reduce spleen volume, the spleen volume decreased by 30 % after three months, while the spleen volume almost unchanged in another group. Splenic artery ligation can significantly reduced early PVP after the operation, and also reduce the occurrence of SFSS. The relationship between PVF and PVP was affected by many factors, and there was no obvious correlation.

Abstract# P-249

REGENERATION OF SEGMENT IV IN LEFT LOBE REMNANTS: ANALYSIS OF OUTFLOW OBSTRUCTED TERRITORIES IN COMPUTED TOMOGRAPHY DATA.

Andrea Schenk¹, Milo Hindennach¹, Arnold Radtke², Massimo Malagò³, Christoph E. Broelsch², Sonja Kinner⁴, Tobias Schroeder⁴, Heinz-Otto Peitgen¹. ¹Fraunhofer MEVIS, Bremen, Germany; ²General and Transplantation Surgery, University Hospital Essen, Essen, Germany; ³Surgery, University College London, London, United Kingdom; ⁴Diagnostic and Interventional Radiology and Neuroradiology, University Hospital Essen, Essen, Germany

BACKGROUND

In live donor liver transplantations, middle hepatic vein (MHV) tributaries are ligated in graft or remnant and induce the risk of hepatic venous congestion, decreased regeneration and delayed recovery of liver function. We studied local liver regeneration and the formation of intrahepatic venous collaterals by computer-supported evaluation of hepatic veins and dependent territories in pre- and postoperative multiphase computed tomography (CT) data.

METHODS

Computer-assisted analysis of preoperative CT data was performed including three-dimensional reconstruction of liver and vascular systems. Right grafts including the MHV were resected virtually and potentially outflow obstructed tributaries were identified. CT images of the regenerating remnant at day 10 as well as 3, 6 and 12 months post transplantation was analyzed, aligned and displayed simultaneously with preoperative images and 3D reconstructions. Vascular growth, local volume regeneration and formation of collaterals were evaluated for 16 donors.

RESULTS

Eleven of 16 donors (69%) developed collaterals between MHV tributaries and draining veins of the left lobe. The connecting veins were not found in the first postoperative scan but were visible in the CT data 3 months after LDLT. No formation of collaterals was found in five donors with small outflow obstructed territories. Growth of segment IV was decreased compared to that of left lateral segments independent of collateral formation. Local growth analysis showed that outflow obstructed regions of segment IV regenerated to a lesser extend than regions without venous congestion e.g. regions that are partially drained by IVa tributaries originating from the left hepatic vein.

CONCLUSIONS

Software-assisted analysis of CT data gives additional details about regeneration of segment IV and allows for a reliable detection of hepatic vein collaterals in computed tomography data.

Abstract# P-250

SIMULTANEOUS LIVING DONOR KIDNEY AND LIVER TRANSPLANTATION: RESULTS OF DONORS.

Tarkan Ünek¹, Hüseyin Astarcioğlu¹, Tufan Egeli¹, Sedat Karademir¹, İbrahim Astarcioğlu¹, Hüseyin Gülay¹, Mert Akan², Sevdâ Özkardesler², Seymen Bora¹, Çigdem Arslan¹. ¹Department of Surgery Division of Hepatopancreatobiliary Surgery and Liver Transplantation, Dokuz Eylül University School of Medicine, Izmir, Turkey; ²Department of Anesthesiology and Reanimation, Dokuz Eylül University School of Medicine, Izmir, Turkey

Simultaneous liver and kidney transplantation is performed in patients having renal and liver failure or metabolic disease such as primary hyperoxaluria. Living donor transplantation is almost compelled due to restricted organ donations. There is no adequate information about simultaneous liver and kidney donors.

Between December 2001 and June 2008, 5 simultaneous liver and kidney transplantations from living donors have been performed in Dokuz Eylül University Hepatopancreatobiliary Surgery Unit. All donors were females at the average age of 27,4 (19-36). Average weight and BMI were 59,7 (49-76) and 23,57 (18,44-29,32) respectively. 2 of the donors were mothers of patients, 1 of them was daughter, 1 sister and 1 wife. 4 patients had primary hyperoxaluria and 1 patient had chronic hepatitis B accompanying idiopathic chronic renal failure. Right donor hepatectomy with right donor nephrectomy was performed in 3 donors. Left donor hepatectomy with right donor nephrectomy was performed in 1 donor and left donor lobectomy with right donor nephrectomy was performed in 1 donor. Average operation time was 598,6 (340-1065) minutes. Except the first donor administered 1 unit of erythrocyte suspension, blood transfusion did not be necessary. None of the donors needed intensive care postoperatively. Averagely they were discharged on postoperative day 8,4 (6-10). Any complications were determined in donors during the follow up of averagely 34,8 (6-96) months. In all of the donors liver function tests involving ALT, AST, GGT, ALP, total bilirubin, direct bilirubin, albumin, and INR got normalized on averagely postoperative day 6. Average creatinin clearance measured in postoperative 6th month and 1st year were 86,36 (67-121,6) ml/min and 86,24 (66-120) ml/min respectively.

Simultaneous liver and kidney transplantation from the same living donor is to be considered to have a lot of risks but when restricted organ donations are taken into account; simultaneous liver and kidney transplantation in living donor can be performed without increased donor morbidity and mortality.

Abstract# P-251

THE RECONSTRUCTION OF THE VEINS AT LIVING RELATED LIVER TRANSPLANTATION.

Oleg G. Kotenko, Denis A. Fedorov, Alexander V. Grinenko, Alexey O. Popov, Alexander A. Korshak, Andrey V. Gusev. *Liver Transplantation and Surgery, Institute Surgery and Transplantology, Kiev, Ukraine*

Introduction. Transplantation of a part of a liver from the alive donor allows expanding opportunities of cadaveric transplantation and to lower mortality in a waiting list. Feature of living related liver transplantation (LRLT) is deficiency of functional weight of a graft in adult and autovenous a plastic material for performance of vascular reconstruction.

Aim. Aim was studying efficiency of venous reconstruction at LRLT.

Materials and methods. 63 patients with end stage liver diseases received LRLT from August 2003 till December 2008, there were 36 adults (52,4 %) and 30 (47,6 %) patients in the pediatric age group. From 26 patients with biliary atresia in 1 case took place agenesis of the portal vein, in 1 case – congenital fibrosis of the portal vein.

Results. From 63 LRLT venous reconstruction was made at 52 patients. From 7 patients with a portal vein thrombosis at right lobe LRLT in 5 cases has executed thrombectomy with the subsequent imposing portoportal anastomosis. In 2 cases due to degenerate changes of a wall portal vein it was resected and reconstructed. At 1 case dual LRLT portal vein resection and the subsequent Y-shaped autovenous plasty portal vein has made due to portal vein thrombosis. At left lateral section LRLT in 2 cases with congenital portal vein fibrosis portal vein reconstruction in recipient has made with donor's left ovarian vein. In other 2 cases cavaportal transposition was made. For this purpose suprarenal part of inferior vena cava was anastomosed with left portal vein of a graft. Cavaportal transposition used in one case of right lobe LRLT at the patient with viral liver cirrhosis and total portal veins system thrombosis. In 8 cases adults LRLT right lobe harvested with middle hepatic vein.

Conclusion. Venous reconstructions of a grafts allows to expand indications to donation parts of a liver from the alive donor, to made LRLT of patients with a portal vein thrombosis which were considered unpromising earlier and to provide adequate graft function.

Abstract# P-252

DONOR SURGICAL AND PERIOPERATIVE COMPLICATIONS IN 409 LIVING DONOR LIVER TRANSPLANTATIONS ACCORDING TO THE CLAVIEN CLASSIFICATION ADAPTED FOR LIVE LIVER DONORS.

Chao-Long Chen, Allan Concejro, Chin-Hsiang Yang, Chih-Chi Wang, Shih-Ho Wang, Yueh-Wei Liu, Chee-Chien Yong, Bruno Javan. *Liver Transplant Program, Chang Gung Memorial Hospital-Kaohsiung Medical Center, Kaohsiung, Taiwan*

Objective: The application of an internationally accepted and validated classification to evaluate complications in live donor liver transplantation avoids incoherence and confusion in interpreting data. The Clavien Classification of Surgical Complications Adapted for Live Liver Donors is advocated by the proponents of the Vancouver Forum on the Care of Live Donors in 2006. Our aim is to present our institutional donor complications and safety profile using this classification.

Methods: From June 1994-September 2008, we performed 409 donors underwent live liver donor operation. The records of these donors were prospectively collected in a regularly updated database and analyzed retrospectively. The perioperative period was defined as within 90 days of surgery.

Results: There were 233 right lobe and 173 left-sided donor hepatectomies. There was no living donor mortality in this series. There were 4 aborted surgeries due to a small remnant donor liver, a recipient who had gastrointestinal miliary tuberculosis diagnosed at operation, a recipient who had occult gastrointestinal malignancy detected at operation, and a hemodynamically unstable recipient. The overall complication rate was 12% (49/409). The complication rate for right lobe donors was 12.4% (29/233) and was 9.3% (16/172) for left lobe donors ($p < 0.05$). The number of patients with complications was: grade I-19, grade IIa-7, grade IIb-18, grade IIc-4, grade III-1, grade IVa-0, and grade IVb-0. The most common surgical complication (intraoperative and postoperative) was biliary in origin. Stratification of donor outcome based on era of donation showed that there were more complications during the second 200 donors than the first 200 because there were more right lobe hepatectomies during the second 200 donors and there were more grade I complications.

Conclusion: The Clavien Classification adapted for live liver donors advocated in the Vancouver Forum 2006 is simple and informative. It serves as a common tool for quality assessment in living donor liver surgery.

Abstract# P-253

USING THE DUODENUM TO RECONSTRUCT THE BILIARY SYSTEM IN LIVE DONOR LIVER TRANSPLANTATION IS SUPERIOR TO A ROUX-EN-Y. J. Campsen, M. Zimmermann, S. Mandell, M. Wachs, T. Bak, I. Kam. *Transplant Surgery, University of Colorado, Aurora, CO, USA*

Introduction: Bile duct reconstruction during live donor liver transplantation (LDLT) is usually performed by a choledochocholedochostomy (CC) or a Roux-en-Y hepaticojejunostomy (HJ). Direct anastomosis of the bile duct to the duodenum (hepaticoduodenostomy-HD) is another option for biliary reconstruction. This technique has been used with good outcome for conventional biliary surgery and at our center for cadaveric liver transplant. We now provide evidence that HD is a equivalent to or possibly superior to HJ in LDLT recipients. **Methods:** From 2002 to October 2008 a total of 70 adult first time LDLT were performed at the University of Colorado Health and Science Center. We performed CC in 30 patients and choledocoenterostomy in the remaining 40 patients. Seven of the 40 choledocoenterostomy patients were reconstructed with a HD and the rest were HJ. We compared the 7-HD to 25-HJ during this time (all re-transplants of HJ were excluded - $n = 8$)

Results: Patient characteristics between both groups (age, MELD score, warm and cold ischemic times, and disease etiology) were similar. Mean follow-up times in the HD and HJ groups were 11.2 and 61.4 months, respectively. In the HD group all patients are alive and none have required re-transplant. There were no bile leaks or strictures in the HD group. The only complication in the HD group was cholangitis (1 - 14%) which was successfully treated with anti-biotics and endoscopic stent removal. In the HJ group there were 3 (12%) - strictures, 4 (16%) - bile anastomotic leaks, 4 (16%) - cholangitis, and 3 (12%) - enteric bleeds. **Conclusions:** We have shown that HD is a superior

alternative to HJ biliary anastomosis when a CC can not be performed. This new approach offers the advantage of post-operative access to the biliary system by endoscopy, and reduces enteric complications.

Abstract# P-254

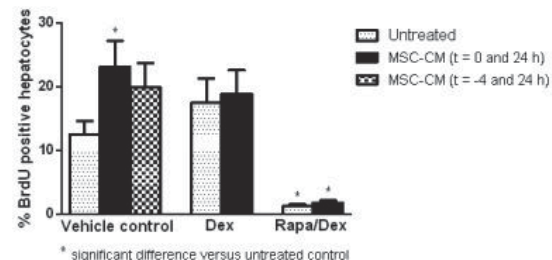
ACCELERATION OF LIVER REGENERATION BY MESENCHYMAL STEM CELL-DERIVED TROPHIC FACTORS IN THE CONTEXT OF IMMUNOSUPPRESSION.

Suomi M. Fouraschen¹, Jeroen de Jonge¹, Qiuwei Pan², Herold J. Metselaar², Hugo W. Tilanus¹, Luc J. van der Laan¹. ¹Depts. of Surgery, Erasmus MC, Rotterdam, Netherlands; ²Gastroenterology & Hepatology, Erasmus MC, Rotterdam, Netherlands

Living-donor liver transplantation (LTx) is an alternative for post-mortal LTx, but rapid regeneration is required to warrant sufficient liver function in both donor and recipient. Liver regeneration is driven by hepatocyte proliferation and supported by local stem cells. Recent evidence suggests that trophic factors produced by bone marrow mesenchymal stem cells (MSC) protect against lethal hepatic failure in rats. The aim of our study is to investigate the effects of liver MSC-derived trophic factors on liver regeneration in mice after 2/3 partial hepatectomy (PH) and determine the effect of immunosuppression.

C57BL/6 mice were subjected to a 2/3 PH and treated with concentrated conditioned medium of human liver MSC (MSC-CM) starting at time of resection ($t=0$ and 24 h) or by pre-treatment ($t=-4$ and 24 h). In addition some animals were treated with dexamethason (Dex), alone or in combination with rapamycin (Rapa/Dex), or with PBS as vehicle control. Animals were sacrificed at $t=48$ h and hepatocyte proliferation was determined by immunohistochemical staining for BrdU.

The percentage of BrdU-positive hepatocytes showed a significant increase in mice treated at $t=0$ and 24 h with MSC-CM versus the untreated vehicle control group ($p=0.03$; fig.). Pre-treatment with MSC-CM showed a similar trend, although this did not reach statistical significance. Treatment with Dex had no effect on hepatocyte proliferation in both the control and MSC-CM treatment group. On the other hand, treatment with the combination Rapa/Dex significantly reduced the regenerative response compared to the vehicle control group, both in the untreated and MSC-CM group ($p=0.004$ and $p=0.002$). In this group treatment with MSC-CM had no beneficial effect. Our results show that treatment with MSC-CM can accelerate hepatocyte proliferation and seems most effective when given at time of resection and in the absence of mTOR inhibitors. This treatment represents a new therapeutic strategy to stimulate liver regeneration.



Abstract# P-255

PLATELET TRANSFUSION IS AN INDEPENDENT FACTOR RELATED WITH HUMAN LIVER REGENERATION IN LIVING DONOR LIVER TRANSPLANTATION.

Joohyun Kim, Kyung-Suk Suh, Taehoon Kim, Woo Young Shin, Nam-Joon Yi, Kuhn Uk Lee. *Surgery, Seoul National University Hospital, Seoul, Republic of Korea*

Although liver regeneration is fundamental in living donor liver transplantation (LDLT), major factors affecting liver regeneration during early post-transplantation period have not been investigated well. Recently, the role of platelets as a contributor to liver regeneration has been suggested. The aim of this study is to identify the major factors affecting liver graft regeneration during the early post-transplantation period. Eighty-seven recipients of adult-to-adult LDLT using right liver grafts were retrospectively analyzed. Liver regeneration was assessed by volumetry based on the computed tomography (CT) performed between the 9th and the 11th postoperative day. We investigated the relationship between clinical variables and the liver graft regeneration rate, and a multiple regression analysis was conducted for the significant factors in

the univariate analysis. The mean graft weight at the time of surgery was $722.9 \text{ g} \pm 109.7$, and the mean graft volume assessed by follow-up CT was $1042.2 \text{ mL} \pm 155.6$. The mean liver graft regeneration rate was $45.9\% \pm 22.3$. The graft regeneration rate correlated inversely with graft-to-recipient weight ratio (GRWR, $r=-0.406$, $P<0.001$) and directly with portal flow velocity ($r=0.307$, $P=0.004$) as well as with the splenic index ($r=0.282$, $P=0.009$). Moreover, both the total amount ($r=0.293$, $P=0.006$) and the duration ($r=0.26$, $P=0.015$) of platelet transfusion were significantly associated with the graft regeneration rate. The stepwise regression analysis indicates that GRWR ($\beta=-33.124$, $P=0.001$), the total amount of platelet transfusion ($\beta=0.771$, $P=0.012$), and the splenic index ($\beta=-0.010$, $P=0.049$) were independently associated with the graft regeneration rate. In conclusion, the relationship between platelet transfusion and the liver graft regeneration rate in LDLT suggests that platelets play a significant role in human liver regeneration.

Abstract# P-256

PATHOLOGICAL DESCRIPTION OF NATIVE LIVER IN HIV-HCV COINFECTED PATIENTS TRANSPLANTED FOR HEPATOCELLULAR CARCINOMA – A COMPARATIVE STUDY WITH HCV MONOINFECTED PATIENTS. E. Vibert, M. R. Ghigna, R. Adam, D. Azoulay, D. Castaing, D. Samuel, C. Guettier, J. C. Duclos-Vallee. *Centre Hepato-Biliaire, AP-HP Hopital Paul Brousse, Villejuif, France; Departement de Pathologie, AP-HP Hopital de Bicetre, Villejuif, France*

Liver transplantation (LT) for hepatocellular carcinoma (HCC) in HIV-HCV coinfecting patients, have shown in our preliminary results, a higher rate of drop-out and of early fatal recurrences of HCC in comparison with HCV mono-infected patients.

AIM: To evaluate exhaustively and to compare the native liver between these 2 groups including new prognostic pathological features.

METHODS: Conventional pathological features of the native liver (type and number of macronodules) and tumoral features (number, diameter, vascular invasion, satellite nodule, Edmonson grade, tumoral necrosis rate) were analyzed by two pathologists blindly to HIV status in 21 HIV+/HCV+ and 53 HIV-/HCV+ patients transplanted for HCC from 2003 to 2007 in our centre. Tumoral expression of hepatic progenitor cell molecules traditionally reported with poor prognosis for HCC (EpCAM, CK7 and CK19) were also assessed by immunohistochemistry in 12 HIV+ patients and 35 HIV- patients.

RESULTS: Between HIV+ and HIV-, the mean numbers of regenerative (0.33 ± 0.65 vs 0.54 ± 1.16 , $p=0.56$), low-grade (0.27 ± 0.64 vs 0.31 ± 0.84 , $p=0.87$) and high-grade (0.24 ± 0.42 vs 0.31 ± 0.84 , $p=0.87$) macronodules in the liver were similar between the 2 groups. For demonstrated HCC, no significant differences between HIV+ and HIV- were noted concerning the number of nodule(s) (2.0 ± 1.6 vs 3.1 ± 3.5 , $p=0.23$), the maximal diameter of nodule(s) ($30 \pm 19 \text{ mm}$ vs $29 \pm 15 \text{ mm}$, $p=0.88$), the sum of nodule diameters ($45 \pm 32 \text{ mm}$ vs $54 \pm 47 \text{ mm}$, $p=0.46$), the presence of satellite nodules ($8/15$ vs $24/53$, $p=0.69$), the microvascular invasion ($7/15$ vs $22/53$, $p=0.3$), the mean of tumoral necrosis ($35\% \pm 32\%$ vs $42\% \pm 37\%$, $p=0.50$) and the Edmonson grade (2.9 ± 0.8 vs 2.8 ± 0.5 , $p=0.56$). No difference was noted for tumoral expression of EpCAM ($4/11$ vs $5/35$, $p=0.10$), CK7 ($8/12$ vs $17/34$, $p=0.31$) and CK19 ($3/12$ vs $6/35$, $p=0.55$).

CONCLUSIONS: Pathological findings of the native liver of HIV+/HCV+ transplanted for HCC seem similar to that of HCV mono-infected patients. Other parameters as immunodeficiency statement must be studied to explain the higher potential of tumoral progression before and after LT in HIV/HCV coinfecting patients.

Abstract# P-257

LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA: A PATHOLOGICAL-BASED ANALYSIS.

Josep Martí, Carlo Sposito, Josep Fuster, Joana Ferrer, David Calatayud, Raquel Garcia-Roca, Santiago Sanchez, Constantino Fondevila, Alejandro Forner, Jordi Bruix, Josep Maria Llovet, Miquel Navasa, Antoni Rimola, Juan Carlos Garcia-Valdecasas. *Liver Transplant Unit, Hospital Clinic i Provincial, Barcelona, Spain*

INTRODUCTION:

Liver transplantation (LT) is considered the best therapeutic option in patients with decompensated liver cirrhosis and early hepatocellular carcinoma (HCC). Although organ shortage and tumour progression beyond conventional criteria are major drawbacks, excellent results are achieved in LT for HCC. The aim of this study was to evaluate the short and long term

outcome of patients with HCC undergoing cadaveric LT according to the fulfilment of Milan and UCSF criteria by the pathological characteristics of the explanted liver.

PATIENTS AND METHODS:

From 1989 to 2007, 307 patients diagnosed of HCC and liver cirrhosis were included on the waiting list for cadaveric LT in our centre, with 266 patients finally undergoing LT. Pathological study of the explanted liver included number of nodules, lobar distribution, largest diameter of nodules, the presence of capsule, liver capsule invasion, the differentiation degree and the presence of micro or macrovascular invasion. Median follow-up was 52 months (1-218 months).

RESULTS:

Twenty (7.5%) patients had HCC recurrence with a median disease-free survival of 25 months. Three and 5-year survival were 79.4% and 71.4% respectively. At the pathological analysis of explanted liver 3 groups of patients were identified: 182 (68%) patients fulfilled Milan criteria, 22 (8%) patients were beyond Milan/ UCSF in, and 62 (23%) patients did not meet UCSF criteria. Five-year survival and disease-free survival (DFS) of the 3 groups were: 75.8% and 97%, 65% and 82.5%, and 60.2% ($p<0.05$) and 76.5% ($p<0.001$) respectively. Pathological analysis of explanted liver showed that patients beyond Milan criteria did not fulfil the criteria mainly because of having more than 3 nodules (48 patients, 57%), having 2 or 3 nodules larger than 3cm (24 patients, 28%), presence of vascular invasion (7 patients, 8%) and having a nodule larger than 5cm (5 patients, 6%).

CONCLUSIONS:

Excellent results are associated to restrictive criteria when indicating LT for HCC. Although expanding the indications for LT in HCC patients decrease patient survival and DFS, a selected subgroup of patients that might benefit from the expansion (Milan out/UCSF in) only show a trend for this worse patient survival and DFS.

Abstract# P-258

THE SURVIVAL BENEFIT OF LIVER TRANSPLANTATION IN PATIENTS WITH HEPATOCELLULAR CARCINOMA.

Alessandro Vitale¹, Anna Chiara Frigo², Francesco Grigoletto², Francesco D'Amico³, Patrizia Burra⁴, Davide F. D'Amico³, Umberto Cillo³. ¹Istituto Oncologico Veneto, IRCCS, Padova, Italy; ²Unità di Biostatistica ed Epidemiologia, Padova, Padova, Italy; ³Unità di Chirurgia Epatobiliare e Trapianto Epatico, Padova, Italy; ⁴Divisione di Gastroenterologia, Padova, Italy

Background. There are no studies evaluating the survival benefit of liver transplantation (LT) with respect to alternative therapies (AT) for patients with hepatocellular carcinoma (HCC).

Methods. The present study evaluated data from a prospective database collection on HCC patients listed for LT ($n=135$). Short-mid-term survival benefit was calculated by comparing the mortality rates of transplanted patients to mortality rates of patients in the waiting list.

A Markov prediction model was then created to estimate the long-term survival benefit of LT (gain in life expectancy). Long-term survival rates of the LT group were calculated by using the metroticket website calculator (<http://89.96.76.14/metroticket/calculator/>).

Results. In the short-mid-term analysis, the survival benefit of LT was strongly related to response to AT: the ratio between LT and non transplant patient-years mortality rates, in fact, was significantly lower ($61.26/232.41$) in HCC patients with a poor response than in those ($49.87/16.44$) with a good response.

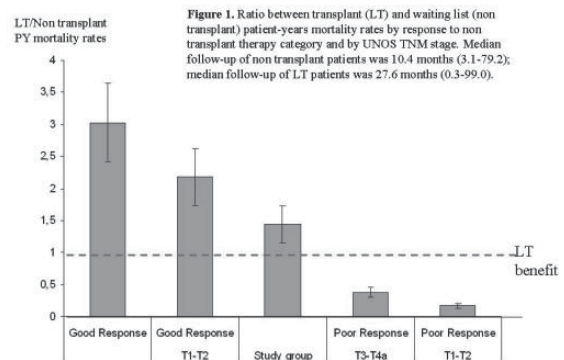
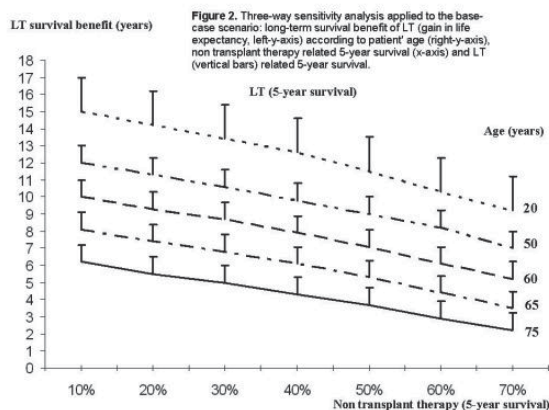


Figure 1. Ratio between transplant (LT) and waiting list (non-transplant) patient-years mortality rates by response to non-transplant therapy category and by UNOS TNM stage. Median follow-up of non-transplant patients was 10.4 months (3.1-79.2); median follow-up of LT patients was 27.6 months (0.3-99.0).

In the long-term analysis, the gain in life expectancy of LT with respect to AT was 6.115 years (base-case analysis). Applying the calculated range (metroticket website) of LT 5-year survival (52%-68%), 5-year survival perspective after AT and patient age were the main determinant of gain in life expectancy.



Conclusions. When the survival benefit endpoint is applied to the complex field of LT for HCC, patient age and effectiveness of AT resulted as crucial prognostic tools both for patient selection and prioritization.

Abstract# P-259

CYBERKNIFE THERAPY FOR ADVANCED PRIMARY TUMORS OF THE LIVER. Kush K. Goyal¹, Douglas Einstein², Charles Kunos², Deepojt Singh³, Christopher Siegel¹, Juan Sanabria¹. ¹*Surgery, University Hospitals Case Medical Center, Cleveland, OH, USA;* ²*Radiation Oncology, University Hospitals Case Medical Center, Cleveland, OH, USA;* ³*Medicine, University Hospitals Case Medical Center, Cleveland, OH, USA*

Background and Purpose: More than 100,000 individuals are diagnosed with primary tumors of the liver every year in USA. Less than 20% of those lesions are amenable to definitive surgical management due to advance local disease or a medical condition. Alternative therapies, i.e. TACE, RFA have limited response and no significant impact on patient survival. Gamma radiation has been shown to be very effective in the treatment of brain tumors with more than 60% response rates. This form of therapy has been limited in abdominal neoplasms, due to the implicit tumor movement that occurs during the respiratory cycle. The development of a tracking system of endoscopically/laparoscopically placed fiducial markers has provided a technique for locking on the neoplasm by a computer controlled Robotic arm that delivered gamma radiation (Cyberknife). We report on our initial experience with Stereotactic Radiosurgery (CK) for patients with malignant tumors of the liver who were not candidates for surgical resection or transplantation.

Methods: Our first ten consecutive patients receiving CK as part of the treatment for non-resectable and non-transplantable hepatocellular carcinoma (HCC) or intrahepatic cholangiocarcinoma (IHC) were reviewed over a median follow-up of 6 months under an approved IRB protocol.

Results: 80% of patients experienced a Grade III/IV local response to CK with a mean decrease in maximum diameter from 7.9 ± 4.9 cm to 5.5 ± 2.3 cm and a mean total tumor volume reduction of 44%. Two patients had a local recurrence distant from the radiation field. Thirty percent of patients were readmitted to the hospital for medical complications. No complications attributable to fiducial placement or CK treatment were observed.

Conclusion: Our initial experience shows CyberKnife radiosurgery to be a safe and effective local treatment modality for non-resectable/non-transplantable primary liver neoplasms. Further follow-up is ongoing to assess the role of CK in the downstage management of these malignancies.

Abstract# P-260

LIVER TRANSPLANTATION FOR EXPANDED HEPATOCELLULAR CARCINOMA. Hamdi Karakayali¹, Gokhan Moray¹, Sinasi Sevmis¹, Nurten Savas², Ugur Yilmaz², Figen Ozcay³, Adnan Torgay⁴, Mehmet Haberal¹. ¹*General Surgery and Transplantation, Baskent University, Faculty of Medicine, Ankara, Turkey;* ²*Gastroenterology, Baskent University, Faculty of Medicine, Ankara, Turkey;* ³*Pediatrics, Baskent University, Faculty of Medicine, Ankara, Turkey;* ⁴*Anesthesiology, Baskent University, Faculty of Medicine, Ankara, Turkey*

Various criteria for liver transplantation have been reported for patients with hepatocellular carcinoma (HCC). Although the Milan criteria are often used to determine which patients will benefit from liver transplantation, many centers have their own criteria for patient selection. In this study, we aimed to evaluate the results of liver transplantation in patients with HCC beyond the Milan criteria. Between January 2004 and January 2008, 35 patients with preoperatively diagnosed or incidental HCC underwent liver transplantation at our center. In 20 of these 35 patients, the tumors were beyond the Milan criteria. We analyzed these 20 patients retrospectively. Sixteen were males and 4 were females (mean age, 41.6 ± 20.5 years [range, 12-64 years]). Seven of the 20 grafts were from cadaveric donors, and 13 were from living-related donors. Five patients had neoadjuvant chemoembolization, 2 had percutaneous ethanol injections, and 3 had combined chemoembolization and percutaneous ethanol injections before transplantation. None of our patients received adjuvant chemotherapy. According to the Tumor size-lymph Nodes-Metastases staging system, 2 patients had stage III, and the remaining 18 patients had stage IVA1 carcinoma. The number of tumors was < 5 in 2 patient, 5 to 10 in 9 patients, and > 10 in 9 patients. The largest tumor size was 11 cm. At the time of this writing and with a mean follow-up period of 25.1 ± 15.9 months (range, 2-49 months), 17 patients are well and exhibit excellent graft function. Remaining 3 patients died 7, 15, and 23 months after transplantation because of recurrence of HCC, HCC, and sepsis, respectively. The longest graft survival in the study subjects is 49 months. There have been 5 tumor recurrences, which occurred 3, 4, 24, 26, and 29 months after liver transplantation, respectively. Three of these 5 patients are still alive with good functioning grafts. In conclusion, liver transplantation provides long patient and disease-free survival, even in patients with HCC that exceeds the Milan criteria.

Abstract# P-261

INCIDENCE AND OUTCOME OF UPPER AERODIGESTIVE TUMORS AFTER LIVER TRANSPLANTATION. Carlos Jimenez-Romero, Alejandro Manrique, Elia Marques, Francisco Colina, Jorge Calvo, Alvaro Garcia-Sesma, Patricia Ortega, Felix Cambra, Enrique Moreno. *Surgery Abdominal Organ Transplantatón, Hospital Doce De Octubre, Madrid, Spain*

Introduction. The aim of this study is to analyze the incidence, and outcome of patients who develop de novo upper aerodigestive (UAD) tumors after liver transplantation.

Patients and Methods. This study was performed in a sample of 925 adult recipients who survived more than two months after transplant: 559 patients (60.43%) underwent OLT for non-alcoholic cirrhosis (N-AC), and 366 (39.56%) for alcoholic cirrhosis (AC).

Results. Overall incidence of de novo tumors was 15.24% (141 tumors in 127 patients): 9.30% (52 tumors) in N-AC group, and 24.31% (89 tumors) in AC group ($P < 0.001$). Twenty-nine patients (3.13%) developed 30 UAD tumors: 28 patients in AC group and one patient in N-AC group ($P < 0.001$). There were 26 males and 3 females. Mean age at OLT was 50.3 ± 7.4 years, and mean time from OLT to tumor diagnosis was 64.8 ± 42.7 months (range, 7-176). Twenty-five patients (86.2%) were smokers before OLT. Tumor location was: floor of the mouth in 6 patients, soft palate in 1, tongue in 5, tonsil in 2, pharynx in 1, esophagus in 6, and larynx in 9. Treatment comprised surgical resection in 25 patients with complementary chemotherapy and/or radiation therapy in 8 patients, and chemo- and radiation therapy alone in 3 patients. At present, 10 patients are alive: 8 (27.6%) of these without recurrence.

Conclusions. De novo UAD tumors develops almost exclusively in alcoholic cirrhotic and smoker patients and have very poor prognosis in spite of radical treatment.

Abstract# P-262

PROGRESSION OF HEPATOCELLULAR CARCINOMA BEFORE LIVER TRANSPLANTATION: DROPOUT OR LIVER TRANSPLANTATION? Alberto Brolese¹, Alessandro Vitale², Giacomo Zanus¹, Patrizia Boccagni¹, Daniele Neri¹, Nela Srsen¹, Francesco D'Amico¹, Enrico Gringeri¹, Francesco E. D'Amico¹, Patrizia Burra³, Davide F. D'Amico¹, Umberto Cillo¹.

¹Unità di Chirurgia Epatobiliare e Trapianto Epatico, Padova, Italy;

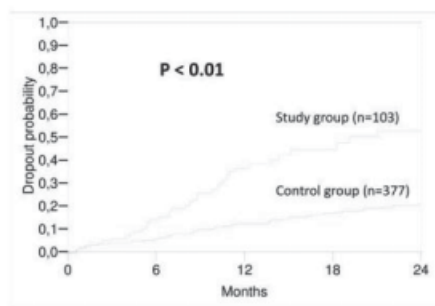
²Istituto Oncologico Veneto, IRCCS, Padova, Italy; ³Divisione di Gastroenterologia, Università di Padova, Padova, Italy

Background-Aims. Tumor progression before liver transplantation (LT) is the main cause of dropout from the waiting list (WL) of patients with hepatocellular carcinoma (HCC). The aim of this study is to show the strict correlation between adopted dropout criteria and dropout / intention-to-treat survival rates of WL-HCC patients.

Methods. Study period: 2000-2007. Dropout criteria: macroscopic vascular invasion, metastases, and poorly-differentiated tumor. Adult patients with benign chronic liver disease enlisted for primary LT in the same period represented the control group.

Results. Dropout probability of the study (n=128) vs. the control group (n=377) was similar: 12% at 1-year in both groups (p=n.s.). Intention-to-treat survival curve of the HCC group overlapped with that of the benign group (5-year survival rates were 73% and 71% respectively, p=n.s.). At the moment of listing, 103 study group patients were within the Milan criteria (MC): among these patients, 29 (28%) had tumor progression beyond MC before LT. Simulating the dropout of these 29 patients at the moment of tumor progression diagnosis, we compared the dropout probability of the 103 patients within MC with that of the control group. As a result, the 1, 2-year dropout rates became 37% and 53% in the study group, now significantly higher than that if the controls (p<0.01).

Figure 1. Kaplan Meier dropout probability in the study and control groups simulating the adoption of Milan criteria to decide waiting list inclusion and dropout of HCC patients.



Conclusion. HCC patients in the WL have significantly higher dropout rates than patients with benign cirrhosis when too restrictive radiologic dropout criteria are used. The adoption of criteria more related to tumor biological aggressiveness decreases dropout risk of HCC patients without impairing their intention-to-treat survival rates.

Abstract# P-263

CAN WE APPLY UCSF CRITERIA BY PRE-TRANSPLANT RADIOLOGIC IMAGING AS SELECTION CRITERIA FOR LIVER TRANSPLANTATION IN HEPATOCELLULAR CARCINOMA? Gi Hong Choi, Myoung Soo Kim, Man Ki Ju, Soo Jin Kim, Dong Jin Joo, Jin Sub Choi, Yu Seun Kim, Soon Il Kim. Department of Surgery and The Research Institute for Transplantation, Yonsei University College of Medicine, Seoul, Republic of Korea

Despite the high sensitivity of pre-transplantation radiologic study, an adequate correlation between the radiologic and pathologic stage of hepatocellular carcinoma (HCC) has not been obtained. The objective of this study was to verify the clinical validity of selection criteria evaluated by pre-transplant radiologic study. Fifty-one recipients with HCC who underwent liver transplantation from September 2005 to May 2009 were retrospectively reviewed. All recipients took dynamic liver computed tomography (CT) at least 1 month before transplantation and reviewed by same radiologist. We compared pre-transplant radiologic stage with explanted liver pathologic findings. Grouped by pre-transplant criteria of HCC for liver transplantation,

39 recipients (76.5%) met Milan criteria and 4 recipients (7.8%) were over UCSF criteria. Eight recipients (15.7%) were grouped as over Milan/below UCSF. Pre-transplant radiologic stage was underestimated in 21/51 (41.2%) and overestimated in 12/51 (23.5%). When compared accuracy of pre-transplant radiologic staging between below Milan and over Milan/below UCSF group, 13 among 39 (33.3%) recipients of below Milan group were under-estimated, while 6 among 8 (75.5%) recipients of over Milan/below UCSF group were under-estimated (p=0.047). Such disparities between pre-transplant radiologic staging and explanted liver pathology were mainly caused by increasing of tumor number (9/39; 23.1%) in below Milan group, but by vascular invasion (4/8; 50.0%) in over Milan/below UCSF group. We could obtain total tumor necrosis in 5 recipients by pre-transplant trans-arterial chemoembolization (TACE). However, Pre-transplant TACE did not have significant influence on down-staging from radiologic to pathologic stage (p=0.535) means that pre-transplant radiologic staging is inclined to do not meet pathologic staging in HCC over Milan criteria. Therefore, the application of UCSF criteria that are defined by pre-transplant radiologic findings as patient selection criteria for liver transplantation is not desirable.

Abstract# P-264

POST-TRANSPLANT LYMPHOPROLIFERATIVE DISORDERS (PTLD) IN ADULT LIVER TRANSPLANTED PATIENTS WITH IMMUNOLOGICAL DISEASES. Tim Zimmermann¹, Vuk Tripkovic¹, Maria Hoppe-Lotichius², Thomas C. Wehler³, Stefan Biesterfeld⁴, Ana Paula Barreiros¹, Peter R. Galle¹, Gerd Otto², Marcus Schuchmann¹. ¹1st Department of Medicine, Hepatology, University Mainz, Mainz, Germany; ²Transplantation Surgery, University Mainz, Mainz, Germany; ³3rd Department of Medicine, Hematology, University Mainz, Mainz, Germany; ⁴Institute of Pathology, University Mainz, Mainz, Germany

Background: Long term immunosuppression and therapy of acute rejections result in a 20-120-fold increased risk to develop Non Hodgkin lymphoma (NHL). Since time and grade of immunosuppression after liver transplantation (LT) are associated with the development of posttransplant lymphoproliferative disorders (PTLD), we aimed to identify risk factors in PTLD-patients with immunological diseases who received immunosuppressive treatment before LT.

Methods: We analyzed retrospectively 430 patients liver transplanted between 1998 and 2008.

Results: PTLD was diagnosed in 11/430 patients (2.6%). PTLD in patients with immunological diseases (n=6) occurred at a significantly younger age (49.5±4.7 years) compared to patients without autoimmune history (n=5; 60.6±5.1 years; p=0.006). Patients receiving immunosuppressive therapy before transplantation had a significantly increased risk for late PTLDs (6/8; p=0.028): AIH (2/6), PSC with ulcerative colitis (1/6), ulcerative colitis (1/6), bronchial asthma (2/6). All six patients were immunosuppressed with azathioprine before and/or after LT. Patients who received azathioprine after LT showed a higher risk for PTLD (72/430: 16.7%; p=0.017). PTLD was more frequent in patients who received steroids due to immunological diseases before LT (48/430: 11.2%; p<0.0001).

Conclusion: Liver transplanted patients with immunological diseases who received immunosuppressive therapy before LT are at particular high risk to develop PTLD at young ages.

Abstract# P-265

LIVING DONOR LIVER TRANSPLANTATION FOR ADVANCED HEPATOCELLULAR CARCINOMA: BEYOND MILAN CRITERIA. Dong-Goo Kim, Keung-Keun Lee, Jung-Hyun Park. Surgery, Catholic University of Korea, Seoul, Korea

Purpose: Milan criteria has known to be a gold standard on the selection criteria of hepatocellular carcinoma (HCC) in liver transplantation. But there have been many debates on extension of selection criteria for HCC from Milan criteria. This study was to evaluate the possibility of expanding the indication in living donor liver transplantation (LDLT) for HCC beyond the Milan criteria without compromising patient's survival. **Material and Methods:** The 52 patients who underwent LDLT beyond Milan criteria from Oct., 2000 to May, 2008 at Department of Surgery, Catholic University of Korea were reviewed retrospectively. We evaluated the survival data according to various factors, prognostic factors for survival and compared survival between our new criteria and Milan criteria. **Results:** The mean age was 56 years old and male was predominant (92.3%). Any tumor size and any level of serum AFP but no tumor number were influenced disease free survival and patient survival. The prognostic factor affecting to disease free

survival included serum AFP level, tumor size, vascular invasion, tumor cell differentiation and pretransplant treatment and the prognostic factors affecting to survival included serum AFP level, tumor size, vascular invasion and tumor cell differentiation on univariate analysis. In multivariate analysis, AFP (200 ng/ml), tumor size (7cm) and vascular invasion had significant influenced on survival and disease free survival. So according to our new criteria (size, <7cm, AFP, <200 ng/ml), 88.1% of our patients were included compare to 63.6% in Milan criteria. The survival, meet two criteria was comparable to survival on Milan criteria (63.7% on our news criteria and 78.2% on Milan criteria on 5 years survival rate). Survival on 3, 5 years who was meet one criteria was 44% and 29.3% and survival who was over 2 critria was 0% on 3, 5years. Conclusion: Tumor size, <7cm and AFP, <200ng/ml appeared the useful cut-off value in beyond Milan criteria. Analysis according to this criteria showed acceptable survival outcome. Further verification by large volume or prospective study is required for proposal of the new our criteria.

Abstract# P-266

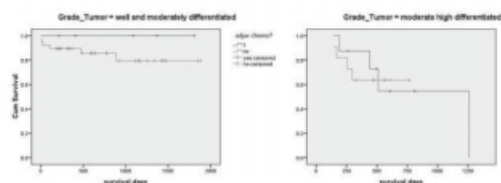
SHORT AND LONG TERM SURVIVAL BENEFITS OF ADJUVANT CHEMOTHERAPY IN POST OLT PATIENTS WITH HCC. Alejandro Mejia, Reem Ghalib, Cheryl Levine, Joann Cheah, Praveena Lammata, Abdullah Mubarak, Parvez Mantry, Jeffrey Weinstein, Edward Dominguez, Tiffany Anthony, Stephen Cheng. Liver Institute at Methodist Dallas, Dallas, TX, USA

Aim: To compare survival rates of post OLT HCC patients who underwent adjuvant chemotherapy (CTX) with patients without CTX according to tumor characteristics.

Methods: This is a retrospective study of patients who received OLT for HCC since 2003. As part of our clinical protocol, all the patients with HCC were offered CTX if their explant pathology revealed vascular invasion, viable tumor, cholangiocellular features or if their tumor exceeded Milan criteria.

Results: 63 patients were included with a mean age at transplant of 60.4 years. Mean survival days were 684.8 ($\pm$ 512). Death occurred in 4/13 (31%) patients who received CTX and in 10/50 (20%) without CTX ($p=0.46$). Kaplan Meier curves revealed improved 1 year survival for those with adjuvant chemotherapy. Death occurred in 3/7 (43%) with vascular invasion and 11/55 (20%) without vascular invasion ($p=0.18$). Patients without vascular invasion revealed improved survival with CTX at 1 year. Vascular invasion patients showed no survival benefit at 1 year with CTX. Death occurred in 3/20 (15%) with well differentiated tumors (grade 1-2), 3/23 (13%) with moderately differentiated tumors (grade 2-3), and 8/19 (42%) with moderately high differentiated tumors (grade 3-4; $p=0.05$). Survival curves in the well and moderately differentiated tumor groups showed improvement with CTX. Survival in those with moderately high differentiated tumors had improvement with CTX for the first 1 year followed by similar rates.

Survival Curves of Post OLT HCC Patients With and Without Adjuvant Chemotherapy by Grade of Tumor



Conclusions: OLT patients in the CTX group with high risk tumors such as moderate to highly differentiated features appear to have better 1 year survival rates compared to the no CTX group. However, longer survival differences were not achieved suggesting overall poor tumor characteristics. Until better pretransplant prognostic factors are established, adjuvant CTX may be a safe alternative to improve survival in high risk HCC groups. The use of newer oral agents may be an alternative to standard CTX and deserves further study.

Abstract# P-267

USING RADIOFREQUENCY ABLATION OR PERCUTANEOUS ETHANOL INJECTION TO DESTROY HEPATOCELLULAR CANCERS (HCC) PRIOR TO LIVER TRANSPLANT IMPROVES PATIENT SURVIVAL EVEN WITH T3 CANCERS. Anthony Sebastian, Shi-Feng Li, Vivek Kohli, Yi Huang, Yong Ye, Ahmet Gurakar, Sajid Jalil, Harlan Wright. Chief, Abdominal Transplant Division, Nazih Zuhdi Transplantation Institute, Oklahoma City, OK, USA

Background: Radiofrequency ablation (RFA) or percutaneous ethanol injection (PEI) is offered to patients with HCC while awaiting liver transplant (LT) to slow tumor progression, and reduce dropouts and hopefully reduce recurrence after LT.

Methods: Eighty-one HCC patients received LT at our center from 1999-2008. While awaiting LT, patients received RFA or PEI (when RFA was not possible) or none if ablation was refused. Fifty-eight patients met Milan Criteria for HCC; 40 of them received RFA or PEI (Group MMC-RP) and 18 had no pretransplant ablative therapy (Group MMC-No). Twenty-three patients had HCC beyond Milan Criteria i.e. T3 HCC's. 14 of them received RFA or PEI (group BMC-RP) and 9 of them had no pretransplant ablative therapy (Group BMC-No). Outcome measures included tumor-free survival (recurrence or death were classified as failure). The chi-square test was used for comparisons, Kaplan-Meier method was used for calculating survival. Survival curves were compared using the log-rank test. All statistical tests were two-tailed. Differences were considered significant at $P < 0.05$.

Results: For HCC patients that met Milan Criteria, 1 (2.5%) patient in group MMC-RP and 2 (11.1%) patients in group MMC-No had HCC recurrence ($p = 0.2248$). The 1, 3 and 5 year survival were 89.2%, 86.0% and 86.0% for MMC-RP; and 92.8%, 74.3% and 74.3% for MMC-No ($p = 0.9941$). For those that had HCC beyond Milan Criteria i.e. T3 cancers, no patient in group BMC-RP i.e. the ones that got ablative therapy and 3 (33.3%) patients in group BMC-No, i.e. the ones that did not get any ablative therapy had HCC recurrence ($p = 0.0474$). The 1 and 3 year survival were 92.8% each for BMC-RP; and 59.2% and 29.6% for BMC-No ($p = 0.0036$). Histopathology evaluated the percentage of histologic tumor necrosis. More than 50% necrosis of HCC were observed in all patients. Of 6 that developed recurrent HCC, only one had RFA but had only 50% necrosis. No HCC recurrence was observed in patients with more than 80% HCC necrosis.

Conclusions: RFA or PEI offered to the patients with T3 cancers larger than Milan Criteria HCC while awaiting LT may reduce HCC recurrence and improve patient survival after LT. Achieving >80% necrosis after ablation was associated with no recurrence after LT.

Abstract# P-268

BRINGING BACK HCC IN MILAN CRITERIA WITH AN AGGRESSIVE DOWNSTAGING BEFORE LIVER TRANSPLANTATION. AN EFFECTIVE STRATEGY?

Alessandro Giacomoni, Andrea Lauterio, Abdallah Slim, Stefano Di Sandro, Vincenzo Pirota, Iacopo Mangoni, Luciano De Carlis. Niguarda Hospital, Milano, Italy

Introduction. Milan criteria still remain effective in transplanting patients with hepatocellular carcinoma (HCC). On the other hand the choice of giving a new liver to patients with HCC out of Milan criteria but treated with an aggressive downstaging able to bring back the tumor within them is still controversial.

Methods. From January 1st 2000 to December 31st 2007, 179 patients with HCC have been transplanted in our Unit. Among them 109 patients were "Milan in" while on waiting list and also at time of transplantation (group A). All of them but 16 underwent one or more downstaging procedures such as liver resection, radiofrequency ablation (RF) and/or transarterial chemoembolization (TACE). Among the patients out of Milan criteria while on waiting list, 12 became "Milan in" after the same kind of aggressive downstaging and were finally transplanted (group B). The final number of HCC nodules, their dimensions and their histological grading at time of transplantation have been determined on the explanted livers histology. Fifty eight out of 179 patients transplanted for HCC did not match any of these 2 groups and they are not considered in this analysis.

Results. Data have been retrospectively analyzed. With a median follow-up of 41.2 months the cumulative overall patients survival rate 3 years after transplantation is 82.8% for group A and 91.7% for group B (p -value= ns). Five years after transplantation the cumulative patients overall survival rate is 77.2% for group A and 91.7% for group B (p -value=ns). As far as histologic grading is concerned in group A we found: 19 (17.4%) G3, 49 (44.9%) G2,

16 (14.6%) G1, 15 (13.7%) complete necrosis; in group B: 4 (33.3%) G3, 6 (50%) G2, 0 (0%) G1, 2 (16.6%) complete necrosis. In group A 10 histological grading are not available.

Conclusions. An aggressive tumor downstaging throughout liver resection, repeated RF and/or TACE able to bring back within Milan criteria patients with HCC who where out of the criteria prior to liver transplantation is an effective strategy. It offers the same long term survival rate showed by transplanted patients for HCC that have always been inside the Milan criteria while on waiting list for liver transplantation.

Abstract# P-269

EVALUATION OF SIROLIMUS AND/OR CELECOXIB TO PREVENT HEPATOCELLULAR CARCINOMA IN LIVER TRANSPLANT RECIPIENTS: A PILOT STUDY.

Laura S. Michalski, Kellie Bennett, Holly Kramer, John Brems. *Pharmacy, Loyola University Medical Center, Maywood, IL, USA; Pharmacy, Sullivan University College of Pharmacy, Louisville, KY, USA; Department of Preventative Medicine, Loyola University Medical Center, Maywood, IL, USA; Surgery, Loyola University Medical Center, Maywood, IL, USA*

Introduction: Recently, there is data using sirolimus (SRL) in liver transplantation (OLT) to possibly prevent hepatocellular carcinoma (HCC). SRL has been found to have antiproliferative properties both in vivo and in vitro, making it a viable option for patients with HCC. Additionally, the use of celecoxib in patients with carcinoma has been studied in vitro and in some animal models. Cyclooxygenase-2 inhibitors not only inhibit the proliferation of hepatoma cells, but they also induce apoptosis. The purpose of this retrospective review was to evaluate patients who were given SRL and/or celecoxib post transplantation to help prevent HCC recurrence. **Methods:** Between 2/98 and 3/08, 41 patients underwent OLT at Loyola University for HCC. Two patients were lost to follow up. The remaining 39 patients were divided into 2 separate groups. Cases received SRL and/or celecoxib along with standard immunosuppressive regimen post transplantation (n=18) and the control group received neither SRL nor celecoxib (n=21). SRL patients started 1 month post OLT with a trough level of 4-12 ng/mL. Once the SRL is started, the tacrolimus dose is cut in half and titrated to a trough level of 4-6 ng/mL. Patients with normal renal function were started on celecoxib 100 mg twice daily. All transplant recipients received mycophenolate mofetil, steroid taper, and daclizumab induction. **Results:** There were no significant differences in demographics between groups. Between cases and controls median patient survival in months was 64 vs. 63 and median graft survival in months was 64 vs. 58 [p=0.9 for both comparisons]. There were no acute rejection episodes. Median length of time in months for SRL was 21 and for celecoxib was 15. There was significantly higher amount of patients that received chemoembolization in cases vs. controls, 63% vs. 23% [p=0.01]. Only 1 patient in Group A had HCC recurrence at 3 months post OLT; however, SRL was started one year after HCC recurrence. **Conclusion:** The use of sirolimus and/or celecoxib is a safe and possibly effective method to prevent HCC in liver transplant recipients. Larger clinical trials are needed to support this conclusion.

Abstract# P-270

LIVER TUMORS IN CHILDREN: A SINGLE CENTER EXPERIENCE.

Mercedes Martinez¹, Steven J. Lobritto¹, Darrell J. Yamashiro¹, Dominique Jan², Jean Emond². *¹Pediatrics, Morgan Stanley Children Hospital of New York, Columbia University, New York, NY, USA; ²Surgery, College of Physicians and Surgeons, Columbia University, New York, NY, USA*

Introduction: Liver tumors comprise about 1% of malignancies in children. Significant morbidity and mortality occur in affected patients due to the heterogeneity of presentation, variable response to chemotherapy and recurrence after surgery. We present a single center retrospective review of the management and outcomes of children with hepatic tumors.

Materials and Methods: We reviewed 39 charts of the 42 patients treated between 1997 to 2008 at our center. We included patients 18 years and below with a histologically confirmed diagnosis of primary liver cancer. Patients were classified according to histology. Their demographics, surgical procedures and outcomes were investigated and compared.

Results: We treated 42 children with liver tumors in a 10-year period including 19 hepatoblastoma (HB), 6 (hepatocellular carcinoma (HCC), 8 sarcomas (5 embryonal sarcoma, 1 leiomyosarcoma, 1 angiosarcoma and 1 spindle cell sarcoma), and 6 with benign tumors. Mean age at presentation for HB was 30 months (2-132 months) and treatment following at least 2 cycles of

chemotherapy included 14 major hepatectomies and 5 liver transplants (OLT), (4 primary and 1 for recurrent disease). Survival was 89.5% with median follow up of 4.7 years (1-10 years). Mean age of presentation for the HCC was 133 months (58-220 months) and treatment included 3 major resections, 3 primary and 2 secondary OLT. Survival was 50%, 2 with primary OLT and 1 resection with follow-up less than 1 year. Mean age of presentation for the 8 sarcoma patients was 64.3 months (9-188 months) and treatment included only surgical resection. The overall survival was 62.5 %, with a mean follow up of 4.5 years (1.7-8 years). 3 of 5 patients with embryonal sarcoma died. **Conclusion:** Long-term survival with hepatic malignancy in children seems related to tumor type, extent of disease, respectability at presentation and response to systemic therapy. It remains unclear whether primary or secondary OLT is superior for extensive tumors that are initially unresectable but are later down-staged by chemotherapy. Survival of patients with extensive sarcomas is poor when resected with a positive margin. A multi-center trial seems warranted to investigate the optimal timing of surgical resection and OLT.

Abstract# P-271

SEQUENTIAL TACE AND RFA IMPROVES POST LIVER TRANSPLANT OUTCOMES IN PATIENTS WITH HCC.

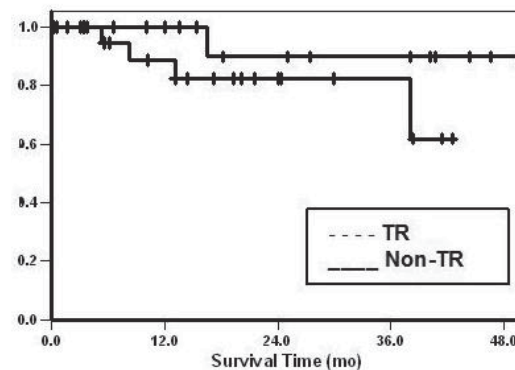
Thomas A. Aloia¹, John A. Goss², David Michel¹, Nadine Haykal¹, Joseph Galati¹, Ahmed O. Gaber¹, R. M. Ghobrial¹. *¹Department of Surgery, The Methodist Hospital, Houston, TX, USA; ²Department of Surgery, Baylor College of Medicine, Houston, TX, USA*

Background: For liver transplant (LT) patients (pts) with hepatocellular carcinoma (HCC), individual local tumor-directed therapies have failed to show a survival benefit. The purpose of our study was to compare the outcomes of HCC pts treated with single modalities to those treated with a combined regimen of adriamycin transarterial chemoembolization (TACE) and radiofrequency ablation (RFA).

Methods: Of the 263 pts transplanted at our institution between 2004 and 2008, 44 pts (17.1%) had a known pre-LT diagnosis of hepatocellular carcinoma. For all medically and anatomically feasible cases, pts were treated pre-LT with TACE followed by RFA. To determine the efficacy of this strategy, multiple clinical and treatment factors were compared to explant tumor necrosis rates and disease-free survivals.

Results: Of the 44 HCC pts, 19 (43.2%) received both TACE and RFA (TR group). The remaining 25 pts were treated with TACE alone (20 pts), ablation alone (2 pts), or observation pre-LT (3 pts)(non-TR group). Pts in the TR and non-TR groups were similar for median tumor number (1 vs. 1 tumor, p=0.952), largest tumor diameter (3.4 vs. 2.6 cm, p=0.837), and maximal aggregate tumor diameter (3.6 vs. 3.6 cm, p=0.601). In the liver explant, TR pts demonstrated higher rates of significant (>80%) tumor necrosis (68.4% vs. 32.0%, p=0.05) and complete tumor necrosis (42.1% vs. 20.0%, p=0.05). 4-year disease-free survivals were longer for patients treated with TR (90% vs. 62%, p=0.19) and for those with complete tumor necrosis (100% vs. 69%, p=0.14).

Conclusions: The survivals observed in the combined modality group (4 yr: 90%) are superior to historical benchmarks, demonstrating the efficacy of this approach. The combination of TACE and RFA appears to improve survivals by enhancing pre-transplant HCC tumor destruction.



Abstract# P-272

HEPATOCELLULAR CARCINOMA: RESULTS OF LIVER TRANSPLANTATION IN A SINGLE BRAZILIAN CENTER.

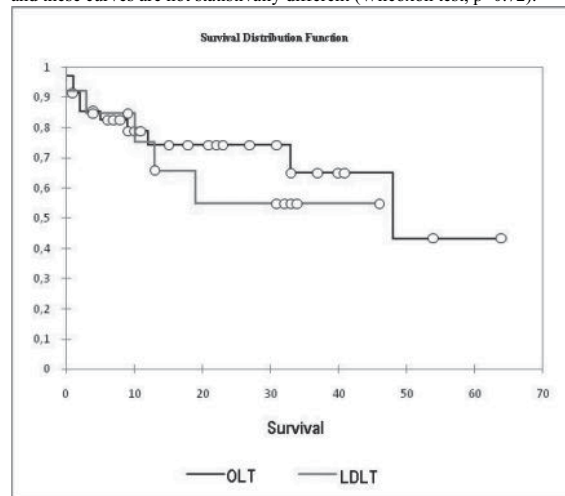
Ana Carolina Gonzalez, Joyce Roma, Luciana Agolia, Pollyana Oliveira, Cassia Guedes, Marcelo Enne, Elizabeth Balbi, Alexandre Cerqueira, Jefferson Alves, Jose Manoel Martinho, Lucio Pacheco-Moreira. *Liver Transplantation Unit, Bonsucesso General Hospital, Rio de Janeiro, Brazil*

Background - Hepatocellular carcinoma (HCC) is the fifth most common neoplasm worldwide and the fourth most common in mortality. For patients with Child-Pugh B/C cirrhosis whose HCC fulfilled the Milan criteria (MC), liver transplantation (LT) is widely accepted as the treatment of choice.

Aim - The objective of this study was to evaluate the survival rate of patients with HCC treated by LT in a single center, comparing the results between live donor LT (LDLT) and orthotopic LT (OLT).

Patients and Methods - From Aug/2003 to Mar/2008, we performed 272 LT in our centre. Forty-nine patients (18%) had the diagnosis of CHC. In thirty-six patients (73.5%), deceased donor grafts were used, and in the other thirteen (26.5%), live donor LT were performed. Outcomes were compared in patients who were transplanted using grafts from deceased and living donors. The transplanted patients were followed for 25.9 months $\pm$ 18.0 SD (median was 21 months). Statistical analysis was performed using Wilcoxon test, and $p < 0.05$ was considered statistically significant.

Results - The mean survival time of patients transplanted using grafts from deceased and living donors were 35.4 ± 3.7 , and 23.4 ± 4.7 months, respectively ($p > 0.05$). The Kaplan-Meier survival curve is presented below, and these curves are not statistically different (Wilcoxon test, $p = 0.72$).



Abstract# P-273

FIVE YEAR FOLLOW-UP OF HEPATOCELLULAR CARCINOMA TREATED WITH LIVER TRANSPLANTATION UNDER MILAN CRITERIA.

Andrés Valdivieso¹, Jorge Ortiz de Urbina¹, Javier Bustamante², Miguel Montejo¹, Jose R. Fernandez³, Mikel Gastaca¹, Patricia Ruiz¹, Javier Gonzalez², Alberto Ventoso¹, Milagros Testillano², Maria J. Suarez². ¹HPB Surgery and Liver Transplant Unit, Hospital Cruces, Bilbao-Baracaldo, Vizcaya, Spain; ²Gastroenterology Department, Hospital Cruces, Bilbao-Baracaldo, Vizcaya, Spain; ³Infectious Disease Unit, Hospital Cruces, Bilbao-Baracaldo, Vizcaya, Spain

Aim: Evaluating the results of liver transplantation under Milan criteria considering the preoperative down staging, and comparing the results according to pathologic data and underlying disease.

Methods: From February 1996 to December 2007, we have treated 176 patients with hepatocellular carcinoma (HCC) and cirrhosis by means of liver transplantation, with a follow-up of 1844 days.

The main underlying diseases were: hepatitis C virus cirrhosis (50.5%) and alcohol cirrhosis (37%). Average time on the waiting list was 122 days, without any preference. While on the list, 109 patients (62%) were treated by TACE, PEI and/or RF

Results: In the explanted liver, Milan criteria were confirmed in 73.5% of cases, while 14% fulfilled San Francisco criteria and 12.5% were out of the

former criteria. Tumor recurrence appeared in 15 patients. The average time of recurrence was 23.4 months. Recurrences in liver and/or adrenal gland were resected in 5 patients. Overall survival after recurrence was 19 months but survival after resection was 38 months versus 9 months for patients without resection. Only one resected patient stays alive after 66 months.

Hospital mortality was 2.25%. Overall mortality was 27%. Tumor recurrence represented 8.5% of mortality. According to pathologic criteria, mortality due to tumor recurrence was 36.5% for patients out of San Francisco criteria, but only 4.5% and 4% for patients under Milan and San Francisco criteria, respectively.

Survival at 1, 5 and 10 years was 94%, 80% and 73%. Patients with alcoholic cirrhosis had better survival than HCV cirrhotic patients at 5 and 10 years (84.5% and 81.5% versus 75% and 64% respectively).

CONCLUSIONS: Liver transplantation is an excellent treatment for HCC under Milan criteria. However, if the explanted liver shows tumor exceeding San Francisco criteria, mortality was considerably increased. Consequently, exceeding Milan criteria preoperatively will be probably associated to worse outcome. HCC on HCV cirrhosis has worse survival than on alcoholic cirrhosis. Higher survival after tumor recurrence could be expected when resection is possible.

Abstract# P-274

15 YEARS OF EXPERIENCE IN SPLIT LIVER TRANSPLANTATION. LIVER TRANSPLANT UNIT OF "12 OCTOBER" UNIVERSITY HOSPITAL, MADRID, SPAIN.

Yiliam Fundora, Almudena Moreno, Juan C. Meneu, Baltasar Pérez, Manuel Abradelo, Alberto Gimeno, Carlos Jiménez, Enrique Moreno. *Digestive Surgery and Abdominal Organ Transplant Unit, 12 Octubre University Hospital, Madrid, Spain*

Aim: Describe the selection criteria and the characteristics of the donors for split of the liver and the recipients. Compare the results between the types of grafts, *in situ* vs *ex situ* splitting and urgent or not urgent transplant.

Method: We performed a prospective study, between 1991 to August 2006, we performed 984 liver transplant, 31 adult and 17 children underwent split liver transplantation. Donors considered ideal were chosen for this procedure. A couple of recipients must be selected according to the donor's weight, in order to provide the necessary liver parenchymal mass to both recipients. **Statistics:** We used program SPSS 10.0 for Windows. **Results:** We used 25 donors for 48 recipients split liver transplantation. The mean of the age was 31.3 ± 16 yo. The nineteen of them was male (75%). The main cause of death was craniocerebral trauma (52.1%). The mean of body weight was 66.2 ± 18 kg. Nine donors (37.5%) was from our hospital (*in situ* = 6). The mean of ICU time was 45 ± 7 hours. **Adults recipients:** The only one adult patient received a LLS graft developed thrombosis of the portal vein after SSFS ($p = 0.01$). He was an only one patient, in our experience, that received a graft with GRWR less than 1. When compared the results by technique of division of the liver graft (*ex situ* vs *in situ*) did not obtained statistically differences. Nevertheless when divided the sample between urgent or not urgent transplantation, we obtained statistically differences about the incidence of acute respiratory insufficiency, portal thrombosis and need to retransplantation. Actuarial survival and graft recipient per year was 67 and 63% respectively. **Pediatrics recipients:** A 64.7% less than a year. Over 50% were transplanted on an urgent status ($n = 10$). Thrombosis of the hepatic artery were in five cases (29.4%) and three of portal vein thrombosis (17.6%). Three patients had an anastomotic fistula of biliodigestiva. Actuarial survival of graft and recipient was 53 and 55% a year. **Conclusions:** Liver transplantation using grafts from split expanding the pool of donors. In adults the selection of recipients in stable condition can improve the morbidity and mortality. Transplantation in non-emergency situation showed better results.

Abstract# P-275

MANAGEMENT OF PORTAL AND SPLANCHNIC VEIN THROMBOSIS IN PATIENTS AWAITING LIVER TRANSPLANTATION (LT).

Marco Senzolo¹, Cecilia Ferronato¹, Patrizia Boccagni², Daniele Gasparini³, Diego Miotto⁵, Maria Teresa Sartori⁴, Umberto Cillo², Patrizia Burra¹. ¹Department of Surgical and Gastroenterological Sciences, University Hospital, Padua, Italy; ²Hepatobiliary and Transplant Unit, University Hospital, Padua, Italy; ³Interventional Radiology Unit, General Hospital, Udine, Italy; ⁴Clinica Medica II, University Hospital, Padua, Italy; ⁵Radiology Section, University Hospital, Padua, Italy

Background/aims: portal vein thrombosis (PVT) is reported in about 8% of candidates for LT and its extension may jeopardize the outcome of

surgery or contraindicate LT. The aim of the study was to prospectively evaluate an integrated treatment algorithm comprehending the use of transjugular intrahepatic portosystemic shunt (TIPS) when anticoagulation was contraindicated or failed to treat PVT in candidates for LT. **Methods:** patients with previous or occurring PVT and/or splenic vein thrombosis while awaiting LT since February 2007 were included. All patients underwent screening for prothrombotic disorders. Anticoagulation was always considered and contraindicated when high risk varices despite prophylaxis or stabilized presence of cavernous transformation with recanalization were present. TIPS was indicated when there was concomitant presence of severe portal hypertensive complications, progression of thrombosis or anticoagulation was contraindicated. **Results:** 12 patients with PVT and/or splenic vein thrombosis were included: 8 males, mean age $\pm$ SD 56,25 $\pm$ 5 yrs; 11 cirrhosis, 1 Budd Chiari syndrome (BCS), 8 had partial PVT, 1 isolated superior mesenteric vein thrombosis at the time of listing for LT; 3 patients developed de novo PVT while awaiting LT. Prothrombotic systemic disorders or local risk factors were identified in 5/12 patients (40%). Anticoagulation was initiated in 8 patients whereas in 4 it was contraindicated. 4/8 (50%) amongst anticoagulated patients had recanalization (2 partial, 2 total), whereas 2 of the non-anticoagulated patients had thrombosis progression in all splenic vein requiring evaluation for liver and intestine transplantation. TIPS was performed in 6 patients: 3 in whom anticoagulation was contraindicated and 2 who had thrombosis progression and 1 with BCS and acute PVT. LT was performed in 4 patients without complications. **Conclusions:** an aggressive algorithm to treat PV/splenic vein thrombosis in candidates for LT, including anticoagulation and TIPS seems effective to avoid PVT progression and allow LT without complications.

Abstract# P-276

LIVER TRANSPLANTATION SURVIVAL RATES FOR FAMILIAL AMYLOIDOTIC POLYNEUROPATHY: A 15-YEAR EXPERIENCE AT A SINGLE CENTER IN BRAZIL.

Fabricio G. Souza, Maira S. C. dos Santos, Thomsom M. Palma, Rafael Pecora, Leonardo R. Ferraz, Margareth P. Lallee, Carlos E. S. Baia, Eloisa H. D. Quintela, Ana Olga N. G. F. Mies, Ana Sueli C. Zan, Osvaldo I. Pereira, Sergio Mies, *Liver Unit, Instituto Dante Pazzanese de Cardiologia, Sao Paulo, SP, Brazil*

Introduction: Familial Amyloidotic Polyneuropathy (FAP) is a rare autosomal dominant hereditary disorder, caused in most cases by a substitution of valine for methionine at position 30 of transthyretin (TTR) gene, leading to more insoluble amyloid fibrils than wild types. The disease is characterized by a fatal progressive sensorimotor neuropathy with autonomic dysfunction. As the liver is the major source of TTR protein, transplantation must be considered the definitive treatment. We report our 15-year experience in comparison to worldwide survival rates.

Results: From April 1993 to December 2008, liver transplantation (LTx) for FAP represented 5.2% of the total amount of procedures (54/1030) in our Unit. From the 54 FAP cases, 14 (25%), 12 (22%), 23 (42%) and 1 (1.8%) had grade I, II, III and IV, respectively, of sensorimotor dysfunction. Of these, 47 had a 5-year follow-up. The mean survival rates at 1-, 3- and 5-years were respectively: 75.5, 70.7 and 68%

Discussion: Several reports worldwide have shown different survival rates in LTx for FAP. Some variables such as age at the time of LTx, age at the onset of the disease, nutritional status and duration of disease before transplantation play a major role at the outcome. The awareness of such influencing factors had improved the survival rates, as recently reported, when compared to data from the last decade. Previous Brazilian data, although a smaller sample than now reported, showed a poor outcome at 5-year (58%). The FAP World Transplantation Registry reported an overall 5-year survival rate of 75%. A recent published data from a Swedish group showed a 5-year survival over 90%. Although the Brazilian survival rates are slightly below the world rates, it may reflect the severity of the disease before transplantation. As the MELD score was only established in Brazil in 2006, the progression of FAP at the waiting list may played an essential role at the survival rates.

Conclusion: More noticeable than absolute rates, our data show an apparent improvement at survival rates after LTx for FAP in Brazil. That fact is due to the progressive knowledge of the disease and the large experience acquired by the group.

Abstract# P-277

PREGNANCY FOLLOWING LIVER TRANSPLANTATION: A 20 YEAR EXPERIENCE. Rachel H. Westbrook, Andrew D. Yeoman, Kosh Agarwal, Varuna Aluvihare, John G. O'Grady, Matthew Bowles, Mohamed Rela, Nigel D. Heaton, Michael A. Heneghan. *Institute of Liver Studies, King's College Hospital, London, United Kingdom*

Introduction: Reports of pregnancy in liver transplant (LT) patients have favourable outcomes and our knowledge and management of associated risks is improving. We report a review of all pregnancies in LT recipients at our centre from 1988 to 2008 with emphasis the optimal management for the above clinical situations.

Results: 108 pregnancies occurred in 80 LT recipients. Median age at conception was 26 years and median interval between LT and conception was 53 months (range 1 – 239). There were 77 live births, 17 spontaneous abortions, 12 planned terminations, 1 molar pregnancy and 1 intrauterine death. Maternal complications during pregnancy included renal failure (n = 9, 8%), hypertension (n = 27, 25%) and pre eclampsia (n = 16, 15%). Seventy six patients were on tacrolimus, 31 on cyclosporine and 1 on mycophenolate. Patients on cyclosporine had a statistically higher incidence of graft rejection during pregnancy (P = 0.04) and were more likely to be on dual therapy with either a second immunosuppressive agent (P < 0.001) or prednisolone (P < 0.001). The choice of immunosuppression had no significant effect on pregnancy induced hypertension, pre-eclampsia or fetal birth weight. There were 15 cases of acute rejection, 14 responded to immunosuppression augmentation, including 4 who required pulsed methyl prednisolone. One patient required ITU and 1 developed decompensated liver disease. In this group, there were 12 live births, 2 terminations of pregnancy and 1 miscarriage. Acute rejection in pregnancy did not have a significant effect on birth weight (2806g vs. 2650g). Risk of rejection was significantly higher in patients conceiving within 12 months of LT (p<0.006). No maternal deaths occurred during pregnancy although there were 4 subsequent deaths at a median of 16 months post delivery. Of these, 3/4 patients had acute rejection during their pregnancy. The mean gestational period was 36 weeks, six babies required neonatal ITU care and one has delayed developmental milestones. No congenital abnormalities were reported.

Conclusion: Overall, pregnancy following LT has a favourable outcome however it still is not without risks to the mother and the allograft. The potential risks and likely outcomes should be discussed openly with all LT patients in order to maximise the likely hood of a successful outcome for the mother, graft and fetus.

Abstract# P-278

OUTCOME OF LIVER TRANSPLANTATION FOR THE TREATMENT OF HAEMOPHILIA. Satoshi Yokoyama, Adam Bartlett, John O'Grady, Mohamed Rela, Nigel Heaton. *Institute of Liver Studies, King's College Hospital, London, United Kingdom*

Background: Prior to routine screening of blood products many haemophiliacs were infected with hepatitis C virus (HCV), and have subsequently developed end-stage liver disease. We report our experience of liver transplantation (LT) in these patients.

Patients and Methods: Patients transplanted from 1994 to date were identified retrospectively. Patient demographics, pre-, intra- and post-operative details, and outcome were documented.

Results: Of 3800 LT performed, 13 were performed for haemophilia A, 4 for haemophilia B and 1 for factor X deficiency. All were male, with a median age of 52 years (range 26-59), all were HCV-RNA positive and 5 (28%) were HIV-RNA positive. Four patients had hepatocellular carcinoma (HCC). 16 patients received a whole liver, of which 2 were non-heart-beating, and 2 received a right lobe split graft. Median intra-operative blood loss was 4.2L (0.8 to 12L), and all received coagulation factor support. Postoperatively coagulation was unsupported by 72 hours in all recipients. Two patients (11%) had postoperative bleeding, one of which, a subdural bleed, was fatal. At a median follow-up of 90 months, 8 patients, 4 of who were HIV positive, have died from sepsis (1), bleeding (1) and HCV recurrence (6). The median survival of patients with and without HIV co-infection was 26 and 64 months (p=0.011).

Conclusions: LT in patients with haemophilia cures the coagulation disorder, and in the absence of HIV-HCV co-infection is association with excellent patient survival.

Abstract# P-279

IMPACT OF ORTHOTOPIC LIVER TRANSPLANTATION IN SEVERE HEPATOPULMONARY SYNDROME: A SINGLE-CENTER EXPERIENCE. José C. Chaman, Pedro M. Padilla, Carlos F. Rondon, Eduardo G. Anchante, Felix A. Carrasco, Fernando M. Bobadilla. *Transplant Department, Guillermo Almenara National Hospital, ESSALUD, Lima, Peru*

Background: Hepatopulmonary syndrome (HPS) is a pulmonary complication in patients with chronic liver disease, characterized by arterial deoxygenation, and intrapulmonary vascular dilatation in the absence of primary cardiac or pulmonary diseases. Orthotopic liver transplantation (OLT) frequently results in resolution of HPS but high mortality has been reported in patients with severe pretransplantation hypoxemia. **Aim:** To describe the outcome of patients with HPS after OLT. **Methods:** In our center, from 2000 to 2008, we have performed 50 OLT in (41 adults, 9 children). 4 of them (8%) with HPS: 3 adults (1 autoimmune hepatitis and 2 NASH cirrhosis) and 1 children (cholesteryl ester storage disease cirrhosis). The diagnosis of HPS in all cases was based on arterial blood gases analysis in both supine and sitting positions while inhaling room air, and after exposure of hyperoxic mixture. Injection of technetium-99m-labeled Macroaggregated Albumin (MAAG) in the peripheral vein for lung scanning with quantitative uptake in the brain, and Contrast-enhanced transthoracic echocardiography with saline was also performed. We describe four patients with progressive and severe hypoxemia who underwent successful OLT. **Results:** Four patients (M:F, 3:1), with a median age of 31.75 years (range 15-58). MELD score 19.8 (range 15-26), PaO₂ 45.25 (range 32-55) mmHg, alveolar-arterial oxygen gradient 69.25 mmHg, while breathing room air. MAAG uptake in the brain was 72% (range 64-76). The median duration of postoperative mechanical ventilation was 11 days (range, 1-31) and ICU stay 13.5 days (range 7-31). The overall mortality was 25% (1/4), and corresponded to the patient with the worst degree of severity of HPS (pO₂ 32, MAAG 76%) and the highest MELD (26). The other three patients surviving the perioperative period (median follow up 28 months: range 15-50) are asymptomatic, with normalization of their oxygenation parameters. **Conclusions:** Liver transplantation was a successful treatment for HPS. The overall mortality in severe HPS was higher to reported in non-HPS patients, and was related to the worse degree of severity of HPS and higher MELD score.

Abstract# P-280

DE NOVO SYSTEMIC TRANSTHYRETIN AMYLOIDOSIS 9 YEARS AFTER DOMINO LIVER TRANSPLANTATION (DLT)-CASE REPORT AND SCREENING OF LITERATURE.

Ana-Paula Barreiros¹, Rosa Walz^{1,2}, Christian Geber³, Frank Birklein³, Peter R. Galle¹, Gerd Otto². ¹Johannes Gutenberg University Mainz, ¹Department of Internal Medicine, Mainz, Germany; ²Johannes Gutenberg University Mainz, Department of Transplant Surgery, Mainz, Germany; ³Johannes Gutenberg University Mainz, Department of Neurology, Mainz, Germany

Due to graft shortage livers from FAP patients are used as a Domino graft for another patient assuming that it takes several decades until clinical symptoms due to amyloid accumulation emerge. We now report on a case of de novo systemic amyloidosis in a 75-years old lady 9 years after DLT.

The patient underwent DLT at 65 years of age for hepatocellular carcinoma (HCC) exceeding the Milan criteria in hepatitis C cirrhosis. Transarterial chemoembolisation (TACE) was performed before liver transplantation. During treatment progressive cachexia and increasing B-symptomatic occurred. Therefore, finally DLT was considered in this patient.

The posttransplant course was uneventful. In 2006 the patient described progressive dysesthesia in the lower extremities. Immunosuppression was switched from calcineurin inhibitor to mTOR inhibitor. Other reasons for neuropathy were excluded. A rectal biopsy at this time was free from amyloid deposition. In 2007, neurological symptoms further deteriorated: burning pain and progressive sensory loss at the lower limbs occurred. In March 2008 amyloid deposition was detected in the gastrointestinal wall reflecting de novo FAP in this patient.

Literature screen revealed two single case reports: in the first patient subclinical cutaneous TTR-amyloid deposition occurred, in the second patient dysesthesia of the lower limb eight years after DLT was described. Interestingly, in our patient as well as in the second reported patient, neuropathic symptoms occurred after comparable intervals after DLT (8 vs. 9 years) and the indication for DLT was HCC with underlying hepatitis C cirrhosis in both patients.

In conclusion onset of FAP-associated neuropathic symptoms may occur significantly earlier in DLT patients than in the natural course of FAP patients. Graft shortage and increasing death rates on the waiting lists prompt alternative approaches to provide grafts. DLT is a feasible technique and may, therefore, be justified. Nevertheless, our data reinforces the need for additional caution and meticulous follow-up programs.

Abstract# P-281

HISTIDINE-TRYPTOPHAN-KETOGLUTARATE SOLUTION VS. UNIVERSITY OF WISCONSIN SOLUTION FOR DECEASED DONOR LIVER TRANSPLANTATION: ANALYSIS OF UNOS DATABASE.

Gurkan Tellioglu¹, Bijan Eghtesad¹, Joan M. Alster², David Yao¹, Songhua Lin², John Fung¹.

¹Transplantation Center, Cleveland Clinic, Cleveland, OH, USA;

²Quantitative Health Sciences, Cleveland Clinic, Cleveland, USA

Purpose: This study aims to evaluate the impact of the organ preservation solutions (OPS) (Histidine-Tryptophan-Ketoglutarate (HTK) vs. University of Wisconsin (UW) solution) on the outcome of adult deceased donor liver transplantation (DDLT) using the Scientific Registry of Transplant Recipients (SRTT) database.

Patients and Methods: We considered only adult first liver-only transplants from 2002-2006. We included only those for whom both flush and storage solutions were the same. Risk-unadjusted graft survival was estimated nonparametrically by the method of Kaplan and Meier, and parametrically by a multiphase hazard decomposition method.

Results: The data set included 20,908 patients, 17,559 (84%) with UW and 3349 (16%) with HTK solutions. Mean follow-up was 2.9 ± 1.5 years (3.0 ± 1.5 years for UW and 1.9 ± 1.0 years for HTK). Our analysis found an early phase (EP) shortly after DDLT followed by a constant phase (CP) of hazard for graft failure. Significant predictors of graft failure in the EP after DDLT include the following recipient factors: older age, race either White or Black, portal vein thrombosis, higher last creatinine and last MELD for the transplant (tx) candidacy, on life support just prior to tx, and previous kidney tx. Significant donor factors in the EP are race other than White, donation after cardiac death (DCD) and higher donor risk index (DRI). OPS did not appear as a statistically significant predictor of graft failure. The final model was rerun with OPS added. OPS was not statistically significant (p=.06, EP; p=.2, CP). Hospital death, rate of re-tx within 14 days of initial tx and rate of relisting within 30 days of tx were similar (p>0.6).

Conclusion: Organ preservation with HTK has increased significantly since 2002 in the United States whereas UW (84%) remains the most utilized OPS. This study has demonstrated that HTK produces similar graft and patient survival outcomes compared to UW. Further analysis is needed to possibly identify particular subgroups of recipients and donors for whom a particular OPS is of benefit.

Abstract# P-282

LIVER TRANSPLANTATION IN HIV POSITIVE PATIENTS: COMPARISON WITH A MATCHED HIV NEGATIVE POPULATION.

Umberto Baccarani, Gian Luigi Adani, Marcello Tavio, Dario Lorenzin, Angela Londero, Francesco Bragantini, Chiara Comuzzi, Anna Rossetto, Federico Pea, Vittorio Bresadola, Davide Nicolini, Andrea Risaliti, Pierluigi Viale. *Transplantation, University, Udne, Italy*

HIV positivity is no more a contraindication to liver transplantation (LT) due to efficacy of antiretroviral therapy; hepatic failure emerged as a major cause of death among HIV+ individuals due to co-infection with HCV or HBV. The aim of this study is to analyze LT in HIV+ patients compared with a matched HIV negative case-control group. From 2004 to 2008, 27 HIV+ patients submitted to LT were compared with 23 HIV- patients matched for age (45, range 39-58 vs 50, range 37-57), gender, HCV (HCV+ 70% vs 61%) and HCC (40% vs 39%). The immunosuppressive regimen consisted of calcineurin inhibitor associated with steroids usually discontinued within 6 months from the transplant. Tacrolimus was used respectively in 75% and 74% of cases in HIV+ and HIV- patients respectively, while cyclosporine accounted for 25% and 26% of cases (p=0.935). Results (HIV+ vs HIV-): the median waiting list time was 3 months for both groups (p=0.83). MELD was 17 (range 7-32) vs 17 (range 8-29) (p=0.80). Donor age was 46 (range 19-73) vs 55 (range 17-75) (p=0.45). No differences were found for cold ischemia time (45796 vs 46395 p=0.83), duration of transplantation (38984 vs 39281 p=0.91) and units of blood transfused (5, range 0-25 vs 3, range 0-28, p=0.44). The ICU and the total hospital stay did not differ between the HIV+ versus negative group (53 versus 52 (p=0.45) and 189 versus 167

days ($p=0.64$). The median follow-up was 21 months (range 2-47) and 29 months (range 3-39) for HIV and non-HIV ($p=0.93$). Biopsy-proven acute rejection was diagnosed in 2 (10%) and 5 (21.7%) cases respectively in the HIV and non-HIV group ($p=0.298$). The estimated 1, 2 and 4 years patients and grafts survival were respectively 90%, 82.5% and 82.5% for HIV+ versus 100%, 94% and 79% for HIV- ($p=0.64$), and 95%, 87% and 87% for HIV+ versus 95%, 89% and 82% for HIV- ($p=0.89$). Regarding HCV recurrence the median grading and staging score, at the latest liver biopsy performed during the follow-up, was respectively 3 (range 2-6) versus 3 (range 1-5), ($p=0.201$) and 1 (range 0-4) versus 1 (range 0-6), ($p=0.515$) for HIV positive and negative cases. We suggest that LT in HIV+ patients, with a pre-transplant CD4 count >200 has similar medium term results than a matched HIV negative population.

Abstract# P-283

DONOR INFLUENCE ON OUTCOME IN PATIENTS UNDERGOING LIVER TRANSPLANTATION FOR PBC.

Dietmar A. Jacob, Ulf P. Neumann, Marcus Bahra, Peter Neuhaus. *Abdominal, Visceral and Transplant Surgery, Universitaetsmedizin Berlin, Charité Virchow Clinic, Berlin, Germany*

Risk factors for recurrence of primary biliary cirrhosis and long-term survival after liver transplantation have been extensively investigated, whereas donor specific influence has been deficient analyzed. In particular, histological data of donor organs do not exist so far. Because of the increasing use of old donor livers, their impact on long-term survival might be more and more important for the future. Donor data of 121 patients and histological findings of 69 donor liver grafts were assessed according to preoperative status and criteria as inflammation, fibrosis, fatty degeneration, and necrosis. These findings were correlated with the histological and clinical course up to 20 years after OLT. Actuarial survival of all 121 patients after 5, 10 and 15 years was 90%, 87%, and 88%, and graft survival 95%, 93% and 88%, respectively. Retransplantation was performed for 13 patients (11%) and PBC recurrence was diagnosed by protocol biopsies in 18 Patients (15%). Univariate analysis could identify a longer stay on intensive care units (ICU) above 7 days ($p<0.02$), a hypotensive periode about 60 minutes ($p<0.03$) and the administration of red blood cells ($p<0.04$) as risk factors for death. Whereas, grafts from donors with liver fibrosis ($p<0.03$), fatty degeneration ($p<0.04$) and cell hydrops ($p<0.04$) leads to a significant higher risk for PBC recurrence. However, multivariate analysis of donor data showed only a significant increased risk for death in patients with a longer stay on ICU ($p=0.034$) and administration of red blood cells ($p=0.035$). Log rank analysis revealed a significant decreased survival for patients with prolonged hypotensive periode ($p=0.01$), administration of epinephrine ($p=0.02$) and red blood cells ($p=0.04$). A number of risk factors for outcome in PBC patients after liver transplantation have been identified. Univariate analysis show that donor histology might play an additive effect in disease recurrence, especially the grade of inflammation, fibrosis and fatty degeneration. Therefore, larger series of donor histology should follow. In addition, prolonged intensive care hospitalization for donors should be avoided.

Abstract# P-284

20 YEAR-EVOLUTION OF LIVER TRANSPLANTATIONS IN EUROPE. REPORT OF THE EUROPEAN LIVER TRANSPLANT REGISTRY (ELTR).

R. Adam¹, V. Karam¹, V. Delvart¹, J. Buckels², J. O'Grady³, J. Klempnauer⁴, D. Castaing⁵, P. Neuhaus⁶, N. Jamieson⁷, ELITA⁸. ¹AP-HP Hopital Paul Brousse, Villejuif, France; ²The Queen Elizabeth Hospital, Birmingham, United Kingdom; ³Royal Free Hospital, London, United Kingdom; ⁴ELITA, Groningen, Netherlands; ⁵Medizinische Hochschule Hannover, Hannover, Germany; ⁶Charité-Campus-Virchow Klinikum, Berlin, Germany; ⁷Addenbrooke's Hospital, Cambridge, United Kingdom; ⁸ELTR Committee, Villejuif, France

From 1988 to 2007 the ELTR has cumulated data on 76797 grafts transplanted in 68931 patients at 138 centers from 25 countries. Results: One year (yr) patient survival has continually improved, most recently reaching 87%. Five-yr survival was 71% for patients and 63% for grafts. Forty-eight percent of post-LT mortality occurred within 6 months of LT. Cirrhosis was the most frequent indication (58%) followed by cancer (13%), cholestatic diseases (11%), and acute hepatic failure (9%). Patient survivals at 5 yrs were 72% for cirrhosis, 63% for acute hepatic failure and 57% for cancer ($p<0.001$) with a gain in 2-yr survival of respectively 10%, 15% and 20% between the period 1990-1994 and 2004-2007. In cirrhotic patients, 5-yr survival was better for primary biliary cirrhosis (79%) than for

alcoholic (74%) or virus-related cirrhosis (71%) ($p<0.001$). Survival with Hep B was better than with Hep C (74% vs 66% at 5 yrs, $p<0.01$) and co-infection with B+C was associated with even better survival (82% - $p<0.001$). The 5-yr survival in pediatric recipients was 79%. For retransplantation, graft survival in electively operated patients for 2nd and 3rd LT (53% and 46%, respectively) was better than that observed in urgently operated patients: 42% and 34%, respectively ($p<0.001$). Alternative procedures (AP) to full size cadaveric transplant (FSCT) were increasingly used during the last 10 yrs accounting for 17% of all LT in 2007. Among AP, split liver grafts (SL) represented 46%, living donor grafts (LD) 37%, reduced liver grafts (RL) 12%, and domino transplants (DT) 6%. In increasing order of survivals, 5-yr graft survival rates were 55% for DT, 57% for RL, 62% for SL, 64% for FSCT, and 70% for LD ($p<0.001$).

Conclusion: Over time, refined indications, improved surgical technique, and more effective immunosuppression have lead to 10 to 20% gain in survival according to indication. Alternatives to conventional LT are increasingly used with LDLT achieving the best outcome.

Abstract# P-285

PATIENTS WITH HEPATOCELLULAR CARCINOMA BEYOND MILAN CRITERIA: SHOULD WE TACE OR LIVER TRANSPLANT?

Jong Man Kim, Choon Hyuck David Kwon, Jae-Won Joh, Ju Ik Moon, Mill Jae Shin, Jae Min Chun, Gum O. Jung, Jae Berm Park, Gyu-Seong Choi, Sung-Joo Kim, Suk-Koo Lee. *Department of Surgery, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, Republic of Korea*

Background and Aim

Small sized HCC within Milan criteria is indicated to liver transplantation. Down staging in HCC, exceeding Milan criteria is controversial. Currently, the patients with unresectable, above Milan criteria HCC are treated with palliative trans-arterial chemoembolisation(TACE). The aim of the study is to compare the outcome between initial TACE and LT in unresectable, above Milan criteria HCC.

Method

From 1997 to 2007, 12 patients who had liver transplantation, and 86 patients, underwent TACE for unresectable, above Milan criteria HCC, were studied. Inclusion criteria were single tumor ≤ 6.5 cm or multiple tumors (≤ 5 mass), each tumor ≤ 5 cm on basis of initial radiologic findings. Exclusion criteria were double primary cancers, old age (>60 yrs), vascular invasion, and extrahepatic spread. All patients had cirrhosis. Survival rate was calculated using the Kaplan-Meier method.

Result

There was no significant difference between the two groups in sex, age, hepatitis virus, ALT, creatinine, tumor size, tumor numbers, and AFP. LT group had lower hemoglobin, platelet, albumin, GGT and higher Child-Turcotte-Pugh(CTP) score, INR, bilirubin, AST, ALP, BUN than TACE group in univariate analysis. Prognosis factors of survival in multivariate analysis were liver transplantation, GGT, and AFP. It was statistically significant that LT group had better survival curve than TACE group. Incidence of death in LT group were 3 cases(25%) which were due to 1 posttransplant lymphoproliferative disease(PTLD), 1 intracranial hemorrhage due to HTN, and 1 colorectal cancer. Recurrence cases were 2 cases (16.7%), and median time of recurrence was 13.5 months. The 1 yr, 3 yrs, and 5 yrs survival rate were 100%, 88.9%, and 76.2% in LT group, and 85.6%, 45.6%, and 21.4% in TACE group.

Conclusion

Management of unresectable HCC which exceeds Milan criteria should not only include palliative treatment such as TACE. Patients with a single mass under 6.5cm, 5 masses smaller than 5cm without vascular invasion should be given an option to receive LT, albeit the increased recurrence rate, since in offers a substantial better survival compared to TACE.

Abstract# P-286

CONFRONTATION OF SURVIVAL BEFORE AND AFTER THE INTRODUCTION OF MELD IN BRAZILIAN PATIENTS ON THE WAITING LIST OF LIVER TRANSPLANTATION.

Rogério Soares Castro, Tiago Pereira Sevã, Jazon Romilson Almeida, Ilka Santana Boin, Elza Cotrim Soares, Leonardo Monici Trevisan. *Gastroenterology, UNICAMP, Campinas, Sao Paulo, Brazil*

Aim: To exam if the insertion of MELD like criteria of organs allocation reduced the patient's mortality on the waiting list of liver transplantation.

Methods: We analyzed patients on waiting list for liver transplantation in Hospital Das Clínicas – UNICAMP and divided in two groups: Group A- patients on the waiting list 1 year before the MELD's introduction in Brazil and Group B – patients on the waiting list 1 year after the MELD's introduction. To compare the survival of patients in each group we used Kaplan Meir and long-rank test.

Results: We studied 295 patients in group A and 240 in group B and analyzed the survival 3,6,9 and 12 months after the patient's inclusion on the waiting list of liver transplantation.

In group A, survival in 3,6,9 and 12 months were 95.6%,90.5%, 84.9% e 69.6% respectively and in group B 95.7%, 92.1%, 85.3% e 83.3%, respectively so we didn't find statistical differences between two groups(log-rank: $\chi^2=2.35$; GL=1; P=0.125).

Conclusion: Patient's survival on the waiting list for liver transplantation didn't change 1 year after the introduction of the MELD.

Abstract# P-287

WILSON'S DISEASE AS AN INDICATION TO LIVER TRANSPLANTATION – A SINGLE CENTRE EXPERIENCE.

Krzysztof Zieniewicz, Waldemar Patkowski, Tadeusz Wroblewski, Pawel Nyckowski, Rafal Paluszkiwicz, Krzysztof Dudek, Piotr Remiszewski, Marcin Kotulski, Mariusz Grodzicki, Magdalena Urban, Marek Krawczyk. *Dept. of General, Transplant & Liver Surgery, Medical University of Warsaw, Warszawa, Poland*

Liver transplantation (LTx) is the only causal therapy for the patients with Wilson's disease (WD) and in fulminant course of the disease is a life saving procedure. Indications to LTx include failure of medical treatment to improve either liver or neurological function, fulminant liver failure (FLF) and decompensated cirrhosis.

The first LTx for WD was reported by Dubois et al. in 1971.

The aim of the study was to review the indications and results of LTx in this group of recipients.

Material & methods: retrospective analysis of clinical records of 38 patients with WD out of 685 patients (5.5%) transplanted in the period 1995-2008. Demographics: 30 women:8 men, mean age 30.4 (range 18-52). Mean MELD 35 (range 9-52). 25 pts (66%) were transplanted in emergency settings for FLF with coma (UNOS 1 and 2A) and renal insufficiency requiring haemodialysis in perioperative period (SLEDD – 9 pts) or more recently albumin dialysis with the use of Prometheus device – 7pts preoperatively. 27 pts (71%) were transplanted with piggy back technique, 13 pts – with classical technique with veno-venous bypass (including 3 reLTx) and 1 – right liver lobe from living donor. In 4 cases AB0 non-identical LTx was performed, 3 pts AB0 - incompatible and 1 - AB0 - compatible.

Results: Overall mortality was 24% (9 pts). All but one, were young women (mean age 27) operated on in emergency settings for FLF. Death occurred on 1st-3rd postoperative day. Mean survival period was 58 months (range 1 – 122). Morbidity was as high as 70%. 3 patients underwent reLTx. 29 pts (76%) are alive in good general condition, 1 with late portal thrombosis.

Conclusion: Liver transplantation provides an effective therapeutic option for the patients with Wilson's disease, however in emergency LTx for FLF the results are still poor.

Abstract# P-288

PRE-TRANSPLANT RECIPIENT ICU AND VENTILATOR DEPENDENCY DOES NOT PREDICT FUTILITY OF LIVER TRANSPLANTATION IN PATIENTS WITH END-STAGE CHRONIC LIVER DISEASE.

Markus Selzner, Arash Kafshi, Nazia Selzner, Paul D. Greig, Mark S. Cattra, Les Lilly, George Therapondos, Lesley E. Adcock, Ian D. McGilvray, Gary A. Levy, Eberhard L. Renner, David R. Grant. *Multiorgan Transplant Program, Toronto General Hospital, Toronto, ON, Canada*

Criteria to predict the outcome of liver transplantation in end stage chronic liver disease (ESLD) patients who are ventilated in an ICU prior to transplant have not been defined. **Aim:** To compare the short and long-term outcome of ICU vs. non-ICU bound ESLD patients undergoing OLT. **Methods:** Between 01/1997 and 03/2008 991 patients with ESLD underwent OLT at our institution. At the time of OLT, 34 patients with ESLD with chronic liver disease were intubated and ventilated in an ICU. 957 patients with chronic liver disease who underwent OLT from a non-ICU setting (515 males; mean age 51 years) served as a control group. We analyzed complications within 3 months post OLT (Clavien score), early postoperative graft function as assessed by routine biochemistry (INR, bilirubin, alk phos), episodes of infections and rejection, length of post-OLT ICU and total hospital stay, and

graft and patient survival. **Results:** Overall patient and graft survival were not significantly different in ICU vs non-ICU bound ESLD patients (1-, 3-, and 5-year patient survival 79% vs. 91%, 79% vs. 84%, 71% vs. 80%, p=0.06; 1-, 3-, and 5-year graft survival: 79% vs. 89%, 71% vs. 82%, 71% vs. 78%; p=0.14). At day 3 post-OLT, ICU (compared to non-ICU) bound recipients had an increased serum creatinine (186 vs. 126mmol/L, p=0.0001), bilirubin (155 vs. 59 mmol/L, p=0.001), and INR (1.9 vs. 1.6 p=0.07). Compared to non-ICU bound patients, more ICU bound patients required renal replacement therapy post OLT (23% vs. 5%, p=0.0001), but the incidence and severity (Clavien score) of biliary (bile leaks, strictures) or vascular complications (bleeding, hepatic artery thrombosis), and rejection episodes were similar. The overall incidence of infectious complications was higher in ICU bound vs. non-ICU bound patients (35% vs. 18%, p=0.02) due to UTI (15% vs. 4%, p=0.02) and pneumonia (10% vs. 3% vs. p=0.07). The median length of hospital stay was 15 days in non-ICU bound compared to 46 days in ICU bound patients (p=0.002). **Conclusion:** OLT achieves an acceptable long-term survival in selected ICU bound patients with ESLD. ICU dependency and intubation/ventilation alone do not predict futility of OLT in ESLD patients.

Abstract# P-289

OUTCOMES OF SIMULTANEOUS LIVER KIDNEY TRANSPLANT ARE NOT AFFECTED BY PRE-TRANSPLANT DONOR SPECIFIC ANTIBODIES.

S. I. Hanish, M. Samaniego, G. Levenson, A. M. D'alessandro, L. A. Fernandez. *Transplant Surgery, University of Wisconsin Hospital and Clinic, Madison, WI, USA*

Since the adoption of the MELD system in 2002, the number of simultaneous liver-kidney transplants (SLK) has increased by 4 fold. A recent registry-based study questioned the equity of using kidneys in this patient(pt) population due to poor outcomes; moreover, recent data by our institution has shown that in patients with Donor Specific Antibody(DSA) Class I and II luminex MFI levels > than 100 and 500 respectively, there is an increased risk of antibody mediated rejection(AMR) and graft(TX) lost. We investigated the kidney and liver graft outcomes in our SLK patients and determined if pre-transplant DSA affected graft outcomes.

A retrospective review of all SLK (n=43) were compared to all KTA (n=1283) performed at our center from 1/1/2000 to 7/1/2008. 7/43 SLK pts had PRA >20% and had class I DSA>100 and/or class II DSA >500 compared to 287 highly sensitized kidney transplant recipients(KTA). Donor and recipient characteristics were similar. All CDC/NIH crossmatches were negative in the KTA group v. 2 positive in the SLK group. All patients received steroids, MMF, and calcineurin inhibitors. There were 348(27%) graft failures in the KTA group v. 6(17%) in the SLK group. 1 and 3 year graft survival was not different between KTA and SLK (87 v. 87% and 75 v. 76%, p=0.47). Pt survival was also not different among the 2 groups at 1 and 3 years (93 v. 89%, and 85 v. 78%, p=0.74). In the highly sensitized cohort, the incidence of DGF was significantly less in the SLK v. KTA group (7.5 v. 33%, p<0.001). Freedom from biopsy proven acute rejection (AR) was no different in the sensitized SLK v. that of the non-sensitized KTA cohort (80 v. 68%, p=0.55). There was no difference in the incidence of either ACR or AMR in either SLK cohort. The overall incidence of liver graft cellular rejection was 13%. No liver allografts nor kidney allografts in the SLK cohort were lost due to AMR or ACR.

SLK does not disadvantage the expected outcomes as derived from kidney transplant alone. Moreover, in highly sensitized patients, the presence of the liver allograft may be protective. Clearly, pre-transplant DSA may be of little import regarding short-term allograft function. The SLK results mimic the results of low risk of KTA patients regardless of PRA. SLK is a lifesaving intervention in patients with both liver and kidney failure and should be pursued when appropriate.

Abstract# P-290

EXCELLENT OUTCOME AFTER LATE RETRANSPLANTATION OF THE LIVER DURING THE LAST DECADE.

Wojciech G. Polak, Paul M. J. Peeters, Koert P. de Jong, Marieke T. de Boer, Aad P. van den Berg, Henkjan J. Verkade, Rene Scheenstra, Elizabeth B. Haagsma, Herman G. D. Hendriks, Maarten J. H. Slooff, Robert J. Porte. *Department of Surgery, Division of Hepatobiliary Surgery & Liver Transplantation, University Medical Center Groningen, Groningen, Netherlands*

The need for late retransplantation (RTx) grows in parallel with better long-term survival after liver transplantation. RTx is the only solution for late graft failure but it has been associated with inferior outcome compared to

the primary transplantation. In contrast to early RTx for primary graft non- or dysfunction, late RTx is traditionally considered a challenging procedure because of massive perihepatic adhesions, recurrent portal hypertension, and effects of long-term immunosuppressive medication. The present study analyzes the results of late RTx at our institution during the last decade. Outcome parameters were patient and graft survival, morbidity, and operative parameters. Between January 1995 and June 2008, 56 patients underwent late RTx (>1 year after the first transplant). The main cause of late RTx was non-anastomotic biliary strictures (32%). The median time period between the initial transplant and late RTx was 5.9 years (range 1.1-18.2 years). Overall 1-, 3- and 5-years patient survival after RTx was 86%, 84%, and 78%, respectively. Overall graft survival at the same time points was 70%, 66% and 60%, respectively. Median blood loss during RTx was 5.4 l (0.4-65.0) and median RBC transfusion was 6.5 units (0-44). Five patients (9%) did not require any RBC transfusion. Postoperative complications occurred in 75% of the patients and among them infectious complications were the most common (39%). In univariate analyses, the following variables were significantly associated with mortality after RTx: the need for a second or third RTx, pretransplant Child-Pugh score, surgical technique (conventional technique versus piggy back), posttransplant ICU stay, intubation time, septic complications, and the need for reinterventions. However, after multivariate Cox regression analysis only septic complications remained as a significant independent predictor of patient survival. In conclusion, excellent short- and long-term survival can be obtained after late RTx of the liver. Postoperative sepsis is the main risk factor for poor outcome, indicating that adequate antimicrobial prophylaxis and microbiological surveillance are of great importance after late RTx.

Abstract# P-291

A RECIPIENT'S PREOPERATIVE SODIUM, OBESITY AND PERIOPERATIVE TRANSFUSIONS PREDICTS RENAL DYSFUNCTION AFTER LIVER TRANSPLANTATION IN PATIENTS WITH NORMAL RENAL FUNCTION PRIOR.

Richard Gilroy¹, Erik Schadde², Ryan Taylor¹, Chris Wilbert⁴, Neal Peterson⁴, Greg Isaac⁴, James Kindscher³. ¹Dept. of Medicine, Kansas University Medical Center, Kansas City, KS, USA; ²Dept. of Surgery, KUMC, Kansas City, KS, USA; ³Dept. of Anesthesia, KUMC, Kansas City, KS, USA; ⁴School of Medicine, KUMC, Kansas City, KS, USA

Purpose: Examine for factors involved with the development of renal dysfunction in liver transplant (OLT) recipients with normal preoperative creatinine(Cr).

Methods: Using data from the most recent 244 OLTs, 128 patients had normal renal function (Cr ≤1.5 mg/dL) on the day of transplant, after exclusions. Of these, 24 patients developed dysfunction, defined as both a doubling of preoperative Cr and a value >1.5 mg/dL on postoperative day three. Cases were then date matched with two controls who did not develop dysfunction. Using electronic medical and anesthesia records and UNOS information, data were collected on three parameters: donor, recipient, and perioperative events, and analyzed using Microsoft Excel, SAS and MDRD6.

Results: Mean Day 3, 7 and 30 Cr were 3.2±1.6, 2.1±1.5, 1.3±0.5 mg/dl in the dysfunction group versus (Vs) control 1.3±0.5, 1.2±0.4, and 1.2±0.3 mg/dl. The organ donors had similar characteristics and donor risk index between groups and no variables showed a significant difference. Recipient demographics were similar aside from BMI where a significant difference between dysfunction and control groups appears (32.0 Vs 27.4 respectively p=0.001). Recipient preoperative serum sodium was significantly lower in the dysfunctional arm (mean: 132.8 Vs 135.6, p=0.036). Of note, recipient diabetes and MELD score were not different between groups. Perioperative transfusion was more frequent and with greater volume in the dysfunctional group (3.1±/-3.1 vs. 1.3±/-1.5 bags, p=0.001) with no other predictors identified. By day 30 both groups showed the same mean Cr and Cr clearance.

Conclusions: Though many donor qualities, recipient characteristics and perioperative factors might be considered predictors of OLT morbidity, recipient preoperative serum sodium and BMI, and operative volume of blood transfused predicts postoperative renal dysfunction in patients with normal serum creatinines. Important to these data is identifying that renal dysfunction appears transient, although longer follow-up is required. In addition validation of sodium as a predictor of post-OLT renal dysfunction is warranted.

Abstract# P-292

THE CONTRIBUTION OF PRE- AND POST-LIVER TRANSPLANT TOBACCO USE TO OUTCOMES. Andrea DiMartini, Paulo Fontes, Mary Amanda Dew, Michael de Vera. *Psychiatry and Surgery, University of Pittsburgh, Starzl Transplant Institute, Pittsburgh, PA, USA*

The potential for smoking and smoking-related problems in transplant patients cannot be underestimated. Previously we found that compared to the US population for which the prevalence of smoking is 21% -23%, liver transplant (LTX) candidates were far more likely to be smokers (~ 70%). Thus we began a prospective longitudinal study of post-LTX tobacco use (smoked and smokeless) in a cohort of 208 patients transplanted for alcoholic liver disease. In a subset of 115 participants we additionally collected detailed data on their pre-LTX smoking histories. While smoking histories are commonly expressed in terms of pack-years, we also created pre-LTX lifetime smoking trajectories. Group-based trajectory models are designed to identify clusters of individuals following a similar progression in behavior over time. Using this statistical approach we present our tobacco use outcomes and analyze these pre-LTX smoking trajectories against medical outcomes of interest.

From the pre-LTX smoking histories we identified 4 smoking trajectories from the lowest group (average < ½ pack per day over 35 years) to the heaviest group (>1 to 1.5 packs per day over 45 years). One year after transplant 53% are using nicotine (92% smokers, 12% chewed tobacco). Most smoked daily (92%), increased their consumption over time and quickly became nicotine dependent. 43% smoked less than 1/2 pack/day, 52% smoked ½ to 1 pack/day, and 5% smoked >1 pack/day. Of those who chewed tobacco, all chewed daily (2-3 cans per day). When examining the pre-LTX smoking trajectories we found that the group with the heaviest pre-LTX smoking trajectory was more likely to be older, had smoked longer pre-LTX and was more likely to resume smoking post-LTX.

Curiously we discovered no survival differences between smokers and non-smokers (controlling for MELD at LTX and hepatitis C). Additionally neither pre-LTX pack years or smoking trajectories was associated with poorer survival. Post-LTX only smoking at the highest level (more than 1 pack per day), was associated with greater early mortality post-LTX. Nevertheless we have had 5 smokers die from lung cancer and 3 others are now living with lung or oropharyngeal cancer. Additionally those who died from recurrent hepatitis C were more likely to be smokers. Given these mixed findings we will discuss the concept of the robust smoker and the contribution of tobacco use to post-LTX outcome and survival.

Abstract# P-293

OUTCOME OF TRANS-JUGULAR INTRAHEPATIC PORTOSYSTEMIC SHUNT (TIPS) FOLLOWING LIVER TRANSPLANTATION. Mohammad Al-Freah, Rizwan Mahmoud, Matthew Foxton, Julia Wendon, Michael Heneghan, John O'Grady, Pauline Kane, John Karani, Mohammed Rela, Nigel Heaton. *Hepatology, Institute of Liver Studies, London, Denmark Hill, United Kingdom*

Aim: To assess clinical and demographic variables influencing short term survival of patients undergoing TIPS with and without a history of liver transplantation (LT). **Method:** Retrospective analysis of 110 patients undergoing TIPS at our centre from 1998 – 2007. **Results:** 115 TIPS were performed in 110 patients; 5 patients had 2 procedures, 106 were performed pre-LT and 72 were (68%) male. The median age was 50 (17–77 years). Median MELD score was 12 (6–37). Etiology was viral hepatitis in 9 (8.5%); alcoholic liver disease (ALD) in 61 (57.5%); Budd-Chiari syndrome (BCS) in 12 (11.3%) and other in 24 (22.7 %). The indication for TIPS was acute variceal bleeding in 26 (24.5%), recurrent variceal bleeding in 17 (16%), ascites in 45 (42.5%), BCS in 12 (11.3%) and other in 6 (5.7%). Nineteen patients underwent LT following TIPS at a median 170 days (3–372 days). Factors associated with undergoing LT were an indication for TIPS of recurrent variceal bleeding (HR=3.2; 95% C.I. 1.0–10.1; p=0.049) and etiology of BCS (HR=4.1; 95% C.I. 1.1–14.7). These factors remained significant in multivariate analysis. Five patients (3 female, 2 male) had TIPS post LT with median MELD score of 16 (12–19). Indication for TIPS was ascites due to recurrent disease in 3 patients; acute variceal bleeding in 1 and recurrent variceal bleeding in 1. No patient underwent retransplantation following TIPS. The 30-day, 90-day and 1-year survival was 60%, 40% and 0% compared to 78%, 68% and 57% in those who had TIPS pre-LT. Death cause in post-LT group was cardiac in 2, sepsis in 2 and intra cranial bleed in 1. In all patients, factors associated with worse survival on univariate Cox-regression model were an etiology of post-LT (HR=11.0, 95% C.I. 2.5–48.1, p=0.001); MELD (HR=1.1, 95% C.I. 1.0–1.1, p<0.001); indication of acute

variceal bleeding (HR=3.6, 95% C.I. 2.0–6.3, $p<0.001$). In multivariate analysis, post-LT etiology (HR=29.6; 95% C.I. 5.8–149.8, $p<0.001$), ALD (HR=4.9; 95% C.I. 1.3–17.5, $p=0.015$), other etiology (HR=6.3; 95% C.I. 1.6–24.6, $p=0.008$), MELD (HR=1.1; 95% C.I. 1.0–1.1, $p<0.001$) and indication of acute variceal bleeding (HR=2.2; 95% C.I. 1.1–4.5, $p=0.023$). **Conclusion:** Patients who have had TIPS post LT have poor early and late survival. Careful consideration should be given to the use of TIPS in this population.

Abstract# P-294

PATIENTS WITH PREOPERATIVE HEPATORENAL SYNDROME (HRS) HAVE COMPARABLE LONG-TERM OUTCOMES AFTER LIVE-DONOR LIVER TRANSPLANTATION (LDLT). Siu Ho Kenneth Chok, Chung Mau Lo, Kwok Chai Kelvin Ng, See Ching Chan. *Department of Surgery, University of Hong Kong Medical Centre, Queen Mary Hospital, Hong Kong SAR, Hong Kong*

Background: The aim of this retrospective review was to determine whether preoperative hepatorenal syndrome (HRS) was associated with poor postoperative outcomes after live donor liver transplantation (LDLT). **Methods:** A total of 307 adult patients (age ≥ 18) who had LDLT done from July 1994 to December 2007 were included in the analysis. The median follow-up period was 55 months.

Results: 285 patients received right lobe liver grafts with middle hepatic vein, 2 of the right lobe grafts were without middle hepatic vein. The remaining 20 patients received left lobe liver grafts. 47 patients (15.3%) had preoperative hepatorenal syndrome. There was significantly more patients with pre-operative HRS developed post-operative complications ($p=0.006$), in which, development of intra-abdominal collection ($p=0.001$), chest infection ($p=0.02$) and wound infection ($p=0.05$) had significantly higher rate when compared to patients without HRS. There was significantly more patients with preoperative HRS died during the hospital stay ($p=0.001$). Also, median day of stay in Intensive Care Unit (ICU) was significantly longer in patients with HRS (10 days vs. 4 days, $p<0.001$). The renal function test was comparable in patients with or without pre-operative HRS at post-operative one year ($p=0.079$). The overall survival after excluding the hospital mortality did not have statistical significant difference (log-rank test, $p=0.84$).

Conclusion: Patients with HRS had more early postoperative complications and hospital mortality. However, the long term survival outcomes and renal function were not affected by the presence of HRS.

Abstract# P-295

CHRONIC KIDNEY DISEASE POST LIVER TRANSPLANTATION. Jeyamani Ramachandran, Libby John, Rajiv Juneja, Amit K. Dutta, Richard Woodman, Alan J. Wigg. *Gastroenterology and Hepatology, Flinders Medical Centre, Adelaide, South Australia, Australia; Surgery, Flinders Medical Centre, Adelaide, SA, Australia; Nephrology, Flinders Medical Centre, Adelaide, SA, Australia; Gastrointestinal Sciences, Christian Medical College, Vellore, Tamilnadu, India; Medicine, Flinders Medical Centre, Adelaide, SA, Australia; Gastroenterology and Hepatology, Flinders Medical Centre, Adelaide, SA, Australia*

Background

Chronic kidney disease (CKD) is well known complication post liver transplantation (LT).

Aims

1. To determine the incidence of various stages of CKD in the post LT population of the South Australian Liver Transplant Unit (SA LTU)
2. To identify risk factors for development of CKD
3. To assess the impact of CKD on survival

Methods

Retrospective study of patients who underwent LT in the SA LTU from its beginning to March 2008. Patients with follow up less than 6 months, second transplants and those with incomplete records were excluded. CKD was staged according to Kidney Diseases Outcome Quality Initiative Guidelines using their most recent stable Glomerular Filtration Rate (GFR). GFR was calculated using the equation developed by the Modification of Diet in Renal Disease study (MDRD). Twenty five relevant pre and post LT variables were examined for possible association with CKD by univariate and binary logistic regression analysis. Kaplan-Meier survival analysis, log rank test and Cox regression analysis were performed to evaluate survival data.

Results

Overall 130 patients, 86 men and 44 women with a mean age of 48.4 years (Range 16–66) were studied. Mean follow up was 5.2 years (Range 0.6–15.10). The point prevalence for each stage of CKD based on last stable GFR was: stage 1–16 (12.4%), stage 2–49 (37.7%), stage 3–56 (43%), stage 4–4 (3.1%), Stage 5–5 (3.8%). Severe CKD (stage 4 & 5, GFR < 30 ml/min) was significantly associated with mortality ($p<0.001$, odds ratio=5.62). Risk factors associated with severe CKD on multivariate analysis were hepatitis C infection, pre LT diabetes and low 1 year GFR. There was no reduced patient survival associated with the large group of moderate CKD (stage 3, GFR $< 60 > 30$ ml/min) when compared to stages 1 and 2 CKD. Low 1 year GFR was a significant predictor of moderate CKD.

Conclusions

1. Severe CKD was strongly associated with mortality.
2. Low GFR at 1 yr, pre LT diabetes and hepatitis C infection predicted severe CKD.
3. Moderate CKD which was very common post LT was not associated with an increased risk of mortality.

Abstract# P-296

ECONOMIC AND CLINICAL OUTCOMES ANALYSIS COMPARING PREEMPTIVE VERSUS INTRAOPERATIVE FACTOR VIIa ADMINISTRATION DURING ORTHOTOPIC LIVER TRANSPLANTATION (OLT). Jenna L. Scheffert¹, Nicole A. Weimert¹, Neha Patel¹, David J. Taber¹, Brianne L. Dunn¹, Angelo Lin², John E. McGillicuddy², Michael G. Hughes², Charles F. Bratton², Kenneth D. Chavin², Prabhakar K. Baliga². ¹Department of Pharmacy, Medical University of South Carolina, Charleston, SC, USA; ²Division of Transplant Surgery, Medical University of South Carolina, Charleston, SC, USA

Purpose: The aim of this study was to determine the clinical and economic outcomes of preemptive versus intraoperative factor VIIa administration during OLT.

Methods: This was an analysis of costs and clinical outcomes of OLT patients that received factor VIIa preoperatively (preemptively) compared to intraoperatively. All adult liver patients transplanted between 1/00 and 9/08 that received factor VIIa either immediately prior to or during transplantation were analyzed.

Results: Between 1/00 and 9/08, 63 patients received factor VIIa within 3 days of transplant date, of which 27 (43%) and 14 (22%) received factor VIIa preemptively and intraoperatively, respectively. There was no difference in patient characteristics between the two groups (Table 1). Clinical and economic outcomes are shown in table 2. Clinical outcomes including thrombotic and hemorrhagic events, as well as patient and graft survival were similar between groups. Blood product usage and costs were higher in the intraoperative group. Total blood product use cost savings was approximately \$17,000 per patient in the preemptive group.

Patient Characteristics	Preemptive Factor VIIa (n=27)	Intraoperative Factor VIIa (n=14)	P-value
Age in years (mean $\pm$ SD)	45 $\pm$ 14	47 $\pm$ 14	0.63
Female	12 (44%)	8 (57%)	0.67
African-American	5 (19%)	5 (36%)	0.23
Extended-criteria donor	3 (11%)	1 (7%)	1.00
Creatinine clearance < 30 ml/min	3 (11%)	1 (7%)	1.00
MELD (mean $\pm$ SD)	22 $\pm$ 11	20 $\pm$ 9	0.56
Fulminant Hepatic Failure	6 (22%)	1 (7%)	0.39

Clinical and Economic Outcomes	Preemptive Factor VIIa (n=27)	Intraoperative Factor VIIa (n=14)	P-value
Median total blood products (range)	43 (2–129)	82 (0–307)	0.123
Total blood product cost (mean $\pm$ SD)	\$10,252 $\pm$ 7,646	\$28,050 $\pm$ 22,020	0.005
Greater than 40 total blood products used	14 (52%)	11 (79%)	0.176
OR time in min (mean $\pm$ SD)	389 $\pm$ 44	402 $\pm$ 104	0.728
Primary Graft Non-Function	0 (0%)	2 (14%)	0.110
Hepatic Artery Thrombosis	1 (4%)	1 (7%)	1.00
Other thromboembolic complications	1 (4%)	1 (7%)	1.00
Any post-op bleeding event	4 (15%)	2 (14%)	0.673
Severe post-op bleeding event	1 (4%)	2 (14%)	0.265
30-day graft survival	24 (89%)	10 (71%)	0.203
30-day patient survival	25 (93%)	10 (71%)	0.137
ICU length of stay in days (mean $\pm$ SD)	4 $\pm$ 3	11 $\pm$ 10	0.234
Hospital length of stay in days (mean $\pm$ SD)	17 $\pm$ 15	21 $\pm$ 20	0.585
Overall hospital stay cost (mean $\pm$ SD)	\$130,958 $\pm$ 75,751	\$184,089 $\pm$ 101,046	0.539

Conclusions: Patients who receive factor VIIa immediately prior to OLT have similar clinical outcomes as those who receive it during transplantation, but with significant cost reductions in total blood product usage.

Abstract# P-297

SINGLE CENTER EXPERIENCE WITH VALGANCICLOVIR (VGC) PROPHYLAXIS IN ADULT ORTHOTOPIC LIVER TRANSPLANT (OLT) RECIPIENTS. Curtis D. Holt¹, Kiran Dhanireddy¹, Sammy Saab¹, Theodore Sievers¹, Sherilyn Gordon-Burroughs¹, Jhonny Hong¹, John Duffy¹, Douglas Farmer¹, Christopher Jones¹, Fady Kaldas¹, Emad Asham², Ronald Busuttill¹. ¹Surgery, UCLA Medical Center, Los Angeles, CA, USA; ²Surgery, University of Texas Medical Branch, Galveston, TX, USA

Background: CMV results in significant direct and indirect effects. VGC appears to offer the best option for prevention of CMV infection or disease in high sero-risk solid organ transplant recipients yet is not approved for CMV prophylaxis in liver transplant recipients. **Purpose:** To determine the efficacy and safety of IV ganciclovir followed by oral VGC prophylaxis in all CMV serological risk groups following OLT. **Methods:** All patients who underwent OLT from January 2005 to December 2007 and received oral VGC for at least 10 weeks were included for analysis. Patients received IV ganciclovir 6mg/kg/day for their hospital stay followed by VGC 900mg once daily for a total of 100 days post transplant. All patients received tacrolimus based immunosuppression (tacrolimus, mycophenolate mofetil, and prednisone) per institutional protocol. T cell depleting agents were not used in this study population. **Results:** One hundred eighty eight patients (n=188) were identified and included for analysis. Donor and recipient CMV serological status were as follows: D+/R+ (49%); D+/R- (21%); D-/R+ (20%); and D-/R- (10%). Overall, CMV infection and disease occurred in 12% (22/188) and 3% (5/188) of patients, respectively. In the D+/R- group, 28% (11/40) had CMV infection and 7.5% (3/40) had CMV disease. In the D+/R+ group 9% (8/93) had CMV infection and 2.2% (2/93) had CMV disease. The remaining cases of CMV infection occurred in the D-/R+ serological risk group. The median time to onset of CMV disease was 146 days following OLT (range 23-374 days) with the majority of cases occurring following cessation of VGC prophylaxis. No patient required discontinuation of VGC for adverse effects (GI, leukopenia or thrombocytopenia). **Conclusions:** IV ganciclovir followed by oral VGC 900 mg once daily was a safe and effective prophylactic strategy in OLT recipients. High-risk patients (D+/R-) may require either a longer duration of prophylaxis (>100 days) or routine CMV PCR monitoring to minimize disease occurrence. Due to the low incidence of CMV infection and disease in the low serological risk groups, lower dosages (450 mg QD) of VGC could be used, but additional studies are required.

Abstract# P-298

THE EFFECTS OF ANTIVIRAL DRUGS ON REGENERATION IN CIRRHOTIC LIVERS: A STUDY OF STATS, INTERLEUKINS AND KI-67. Hale Kirimlioglu¹, Abuzer Dirican², Faik Tatli², Burcu Aydin¹, Sezai Yilmaz², Vedat Kirimlioglu². ¹Pathology, Inonu University Medical School, Malatya, Turkey; ²General Surgery, Inonu University, Malatya, Turkey

Signal transducers and activators of transcription (STAT) family play critical roles in liver. Interleukin-6 (IL-6) plays an important role in liver regeneration and protection against the liver injury. IL-6 and IL-10 induce mainly the activity of STAT3 in the liver. The study aimed to show the effects of STATS and ILs on liver regeneration in cirrhosis.

Total hepatectomy materials of the 45 cirrhotic patients undergone to liver transplantation (LTx) due to chronic HBV hepatitis, are recruited in our study and sorted into 3 groups (n=15) according to the medication taken prior to LTx. Group A received Lamivudine, Group B Adefovir and Group C either interferon or interferon + ribavirin. STATS 1, 2, 3, 5, 5a, 5b, IL-6, IL-10 and Ki-67 (MIB-1) are worked out immunohistochemically. The expressions of STATS and ILs were shown in table 1.

Table 1

	Lamivudine	Adefovir	INF/INF+R
STAT1	↑	↑	↑
STAT2	↑↑↑	↑↑	↑
STAT3	↑↑↑	↑	↑↑↑
STAT5a	↑	↑↑	↑↑↑
STAT5b	↑↑↑	↑↑↑	↑↑↑
IL-6	↑↑↑	↑	↑
IL-10	↑↑	↑↑	↑

The patients with high MELD scores used Lamivudin therapy demonstrated highest STAT3, IL-6 expression and low STAT1 expression suggesting best effect on hepatocyte regeneration and metabolism.

Concerning the Ki67 proliferation indices, highest levels and lowest levels were found in Group A and in Group C respectively.

There was a reverse relation concerning the STAT-5a and STAT-2 expression where as STAT-5a expression was found to be at most in group C and least in group A. IL-10 expression was lowest in group C, no difference was found between group A and B which suggested their possible effect on liver regeneration.

The effects of these drugs did not correlate with our previous study conducted on healthy rat livers suffered from partial hepatectomy. However, the livers studied in this recent study are cirrhotic and it is thought that, the status of healthy or cirrhotic livers might have caused this miscorrelation. In liver, STATS have many functions such as antiviral defense, liver regeneration, inhibition of the ischemia-reperfusion injury. STAT and its effect on IL expression in cirrhotic patients, taking different medication may play a pivotal role in the liver regeneration and immunomodulation after LTx. These must be taken into consideration in the patient follow-up and further studies are necessary to illuminate the effect of these drugs.

Abstract# P-299

LIVER TRANSPLANTATION FOR ACUTE LIVER FAILURE.

Gokhan Moray¹, Hamdi Karakayali¹, Figen Ozcay², Adnan Torgay³, Beyhan Demirhan⁴, Gulnaz Arslan³, Mehmet Haberal¹. ¹General Surgery and Transplantation, Baskent University, Faculty of Medicine, Ankara, Turkey; ²Pediatrics, Baskent University, Faculty of Medicine, Ankara, Turkey; ³Anesthesiology, Baskent University, Faculty of Medicine, Ankara, Turkey; ⁴Pathology, Baskent University, Faculty of Medicine, Ankara, Turkey

BACKGROUND: The only proven therapy for patients who are unlikely to recover from acute liver failure (ALF) is liver transplantation. Therefore, recognition and urgent referral to a transplant center is extremely important.

OBJECTIVE: In this study, we evaluated 25 ALF patients who had undergone liver transplantation (LT) at a single center during a 6-year period.

METHODS: The reasons for transplantation for the 25 ALF patients were 5 hepatitis A; 6 non-A, non-E hepatitis; 2 autoimmune hepatitis; 7 fulminant Wilson's disease; 1 Amanita phalloides (mushrooms) poisoning; 1 cytomegalovirus virus infection; and 3 hepatitis B. Eleven were female and 14 male and the mean age was 12 ± 8 years (range, 16 months to 30 years). Two patients received whole liver graft from deceased donor, remaining 23 received segmental liver grafts from living-donor.

RESULTS: All of the patients recovered from hepatic coma the day after transplantation except five. Overall 3 patients died at the 3rd, 3rd, 7th, 17th, 58th, and 79th postoperative days due to four brain death, adult respiratory distress syndrome, and sepsis with multiorgan failure, respectively. Nineteen patients (74%) are healthy at a range of 2 to 72 months' follow-up.

CONCLUSION: Worldwide experience with living-donor LT for ALF is limited but when it is required, living-donor LT is the only option for ALF in the countries with low organ donation rates. In such situations, preparation of the donor in a limited time is a major problem. At our center, we have been able to decrease this time interval to approximately 3 hours including the liver biopsy of the donor.

Abstract# P-300

MEDICAL PROCEDURES IN PATIENTS WITH CHRONIC LIVER DISEASE: THROMBOCYTOPENIA AND TRANSFUSION USE. M. P. Curry¹, N. H. Afdhal¹, R. S. Brown, Jr.², R. Odeh-Ramadan², R. Reddy³, F. Poordad⁴, T. D. Schiano⁵, M. R. Charlton⁶, S. B. Han⁷, D. Theodore⁸, K. Grotzinger⁸, J. Ishak⁹, K. Payne⁹. ¹Beth Israel Deaconess Medical Center (MC), Boston, MA, USA; ²Columbia U MC, New York, NY, USA; ³U Pennsylvania, Philadelphia, PA, USA; ⁴Cedars-Sinai MC, Los Angeles, CA, USA; ⁵Mount Sinai Sch of Medicine, New York, NY, USA; ⁶Mayo Clinic, Rochester, MN, USA; ⁷David Geffen Sch of Medicine at UCLA, Los Angeles, CA, USA; ⁸GlaxoSmithKline, Collegeville, PA, USA; ⁹United BioSource Cooperation, Nashua, NH, USA

Aim: To elucidate the impact of thrombocytopenia (TCP) in the management of patients (pts) w/chronic liver disease (CLD) in need of invasive procedures. **Methods:** A retrospective chart review (6/1/04- 5/31/06) of pts with CLD, bridging fibrosis, and cirrhosis from 10 liver centers (7 US; 3 non US) was conducted. A total of 840 pts are planned for complete enrollment. 3 cohorts were: (1) pts w/liver transplant evaluation (LTE), (2) pts on liver transplant (LT) list/no transplant & (3) pts w/LT. Demography, platelet (PLT) counts and medical/surgical procedures were collected. Procedures were not limited to those recommended for LTE. Pts were categorized by PLT counts (<50K, 50-

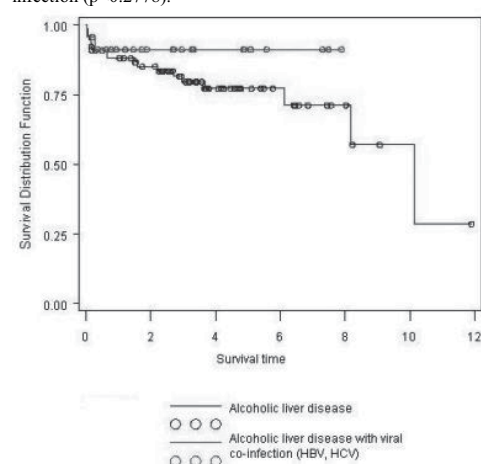
80K, >80-100K and >100K) nearest to the procedure date. The proportion of pts w/procedures in ea. group was compared. **Results:** Interim results from 489 US pts are presented; procedures were not reported in 80 pts. Mean age, 54 y; 63% male. 409 pts had 737 procedures, 528 (71%) were GI related. Among GI procedures, 18% were percutaneous abdominal drainage, 16% were endoscopy of small intestine, 13% were colonoscopy. Among pts with procedures, 87% had a GI related procedure. ~50% of GI procedures were performed in pts with PLT>100K vs 10% in pts with PLT<50K (Table). Overall a high proportion (29%) of procedures had transfusion within 4 d prior or 2 d after the procedure. ~25% pts w/GI procedures and PLT<50K had transfusions vs 13% w/procedures and PLT>100K (Table). **Conclusions:** GI procedures were frequently performed in pts with CLD; fewer procedures and more transfusions were observed in pts with low PLTs.

	PLT count closest to procedure in / μ L			
	<50K	50-80K	80-100K	>100K
GI Procedures, (N= 528) n(%)	51(10)	116(22)	76(14)	255(48)
Transfusions (4 days prior/2 days after GI procedure), % (n/N)	26 (11/42)	23(25/107)	20 (14/71)	13(32/253)

Abstract# P-301

SURVIVAL OUTCOMES OF PATIENTS AFTER LIVER TRANSPLANTATION FOR ALCOHOLIC LIVER DISEASE AND HBV/HCV CO-INFECTION. Oskar Kornasiewicz, Krzysztof Dudek, Rafał Stankiewicz, Marek Krawczyk. *Department of General, Transplant and Liver Surgery, Medical University of Warsaw, Warsaw, Poland*

BACKGROUND: Alcoholic liver disease (ALD) is a common and controversial indication for liver transplantation. It has been suggested that patients transplanted for alcoholic liver disease who had viral (HBV/HCV) co-infections have had worse outcomes. **OBJECTIVE:** To evaluate the outcome of 1, 3 and 5 years patient's survival after liver transplantation for alcohol-induced end stage liver disease. The additional objective of this study was to evaluate the impact of viral co-infection (HBV/HCV) on the outcome of 1, 3 and 5 years survival after transplantation for ALD. **PATIENTS AND METHODS:** A retrospective study was performed in patients who underwent liver transplantation for ALD. The patients were divided into 2 groups. The survival of ALD patients and the patients with combination of ALD and viral infection were compared using Log-Rank test. A total of 663 liver transplantations were performed between 1997 and 2008 at the Department of General, Transplant and Liver Surgery. 105 (15.8%) individuals were enrolled in the study. 26 (24.7%) ALD patients with viral co-infection were compared with a control group of patients of 79 (75.3%) patients with end stage alcoholic liver disease. **RESULTS:** Overall survival in patients with ALD was 91.6%, 79.6%, and 73.2% at 1, 3 and 5 years, respectively, with a median follow-up of 3.1 years. 1-year and 3-year survival rate were 91% respectively in a group of patients with ALD and viral co-infection with the median follow up 2.3 years. There was no difference in survival between patients with ALD and ALD with presence of viral hepatic infection ($p<0.2778$).



CONCLUSIONS: Alcoholic liver disease is a good indication for liver transplantation and the survival of patients is very satisfactory. Even in patients with coexistent viral infection the survival rate has not been changed ($p<0.2778$). It suggests that in patients with alcoholic cirrhosis, survival has not been differed by viral cause.

Abstract# P-302

THE MELD SCORE IN FRANCE: THE OTHER SIDE OF THE COIN: A MATCHED CASE CONTROL STUDY OF POSTOPERATIVE MORTALITY BEFORE AND AFTER THE ESTABLISHMENT OF THE MELD SCORE. Barbara J. Alkofer¹, Laurence Chiche¹, Alain Bessodes², Desiré Samba², Vincent Lepennec³, Ephrem Salame¹. ¹Hepatobiliary Surgery and Transplantation, CHU Caen, Caen, France, Metropolitan; ²Intensive Care and Anesthesia, CHU Caen, Caen, France, Metropolitan; ³Radiology Department, CHU Caen, Caen, France, Metropolitan

The Model for End stage Liver Disease (MELD) score, as a mean to determine the priority to liver transplantation, was first used in the USA in 2002 but more recently in France, in March 2007. Its aim was to balance regional disparities created by the previous allocation rules, which were based on local priorities with no concern on patient disease. An initial evaluation clearly showed a reduction of waitlist dropouts, transplantation deaths and futile transplantation.

To determine if the MELD score allocation system provided these positive results on liver transplantation outcomes, we performed a matched case-control study comparing post operative mortality before and after the onset of the MELD score, in our department.

From 1995 to 2008, 355 liver transplantations were performed in our center, by two experienced transplant surgeons using a standardized technique. After March 2007, 70 liver transplantations were performed at our institution. 50 patients were matched 1:1 with 50 patients who underwent a liver transplantation from 2005 to 2007. The match was done according to recipient age, sex, body mass index, CHILD PUGH score and cause for transplantation. The main endpoint was to analyze the in hospital mortality. Post operative mortality was also compared to our global in hospital mortality rate after liver transplantation in our institution.

Main indications for liver transplantation were hepatocarcinoma and cirrhosis due to alcohol abuse. Post operative mortality was significantly higher in the MELD Score time with a very high rate of 14% whereas before the use of the MELD score it was of only 4% ($p<0.05$).

This in hospital mortality rate is also significantly higher than our global in hospital mortality rate of 2.8% and compared to the literature mortality rate after liver transplantation of 5 to 10%.

To conclude, this matched case control study shows that the use of the MELD allocation system in our department did not allow an improvement in mortality after liver transplantation. Moreover, it lead to a very high increase of post operative mortality.

Abstract# P-303

PORTAL FLOW-BASED VIABILITY TESTING OF POST-TRANSPLANT LIVER FUNCTION. Marek J. Pacholczyk¹, Beata Lagiewska¹, Maciej Kosieradzki¹, Leszek Adadynski¹, Gajusz Gontarczyk¹, Janusz Trzebicki², Wojciech Lisik¹, Dariusz Wasiak³, Andrzej Chmura¹. ¹General and Transplantation Surgery, Warsaw Medical University, Warsaw, Poland; ²Anaesthesia and Intensive Care, Warsaw Medical University, Warsaw, Poland; ³Surgical and Transplantation Nursing, Warsaw Medical University, Warsaw, Poland

Studies of factors responsible for early liver graft function were conducted in our institutions. Aim of the study was to identify most simple and useful test for predicting early liver graft function.

Methods. Fifty-six livers were classified as transplantable based on routine donor demographics, hemodynamics and biochemistry as well as macroscopic assessment by the surgeon on retrieval. Moreover, portal, arterial and parenchymal hepatic blood flow as well as HE histology, ketone index, bile acids chromatography, arachidonic acid metabolites were also studied. Post-transplant early liver function was categorized based on modified Neuhaus classification (2 points assigned for each of: bile output <50ml/d, AST>1800 IU/L, ALT>1600 IU/L, INR>1.7 despite plasma infusions, poor initial function (PIF) was diagnosed with score >6).

Results. Of 56 patients, only 4 had PIF. No primary nonfunction was seen. Neither histology, nor biochemical tests proved useful in prediction of this complication. Of multiple methods of flow assessment, portal blood flow (PF) 30 minutes after reperfusion was the most reliable factor. It differed significantly between good (GF) and poor initial function groups.

Portal flow 30 minutes after reperfusion

	GF	PIF	p<
PF (L/kg/min)	1.74±0.6	1.05±0.44	0.04

PF showed significant, strong correlation with good liver graft function (R=0.677). It was also a significant predictive factor of early liver function in logistic regression model (model p=0.002). The model predicted graft function correctly in 94.4% of cases.

Conclusions. Portal blood flow is sensitive and reliable factor for prediction of early liver graft function, however clinical criteria applied so far allow for safe liver transplantation at minimal risk of nonfunction for the recipient. Supported by Ministry of Science and Higher Education 2P05C07226 study grant.

Abstract# P-304

IMPACT OF PREOPERATIVE RENAL DYSFUNCTION ON LIVING DONOR LIVER TRANSPLANTATION. Dong-Goo Kim, Keung-Keun Lee, Jung-Hyun Park. *Surgery, Catholic University of Korea, Seoul, Korea*

Purpose: Renal insufficiency is common in patients before and after liver transplantation. Impaired pretransplant renal function is known to be a poor prognostic indicator for survival as well as posttransplant renal disease. Postoperative renal failure has potentially negative impact on graft and patient survivals. This study was to analyze the influence of preoperative renal dysfunction on the postoperative renal function, hospital mortality and survival. **Materials and Methods:** The 331 patients who underwent the living donor liver transplantation from May, 1996 to Jan, 2008 at department of Surgery, Catholic University of Korea were reviewed retrospectively. The patients were divided 3 groups according to creatinine clearance ratio(CCR): mild dysfunction group (CCR, >70 ml/min, n=275), moderate dysfunction group (CCR, 40 ml/min – less than 70 ml/min, n=41) and severe dysfunction group (CCR, less than 40ml/min, n=15). **Results:** The incidence of preoperative dialysis was 4 patients (26.6%) in moderate dysfunction, 11 patients (73.4%) in severe dysfunction group and The incidence of posttransplant dialysis were 5 patients (22.1%) in mild dysfunction, 8 patients (36.4%) in moderate dysfunction, 9 patients (40.9%) in severe dysfunction. The patients with severe dysfunction were required longer dialysis than other group without significance (6.6±5.8day in normal group, 10.3±19.0 in moderate dysfunction, 25.6±19.1 days in severe dysfunction). The serial change of mean serum creatinine in severe dysfunction group was significantly higher than that in other groups (P<0.05) and the incidence of renal dysfunction (serum creatinine, >1.5mg/dl) on severe dysfunction group was higher than that on other groups until postoperative 3 months (P<0.001). The hospital stay were not significant different among each groups. The operative mortality was increased according to preoperative renal dysfunction without significance (5.8% in mild dysfunction group, 13.3% in severe dysfunction) and 5 years survival rate in severe dysfunction was significantly worse than that in other groups (41.7% in severe dysfunction group, 73% in moderate dysfunction group, P=0.013). **Conclusion:** Preoperative renal dysfunction was an important prognostic factor on posttransplant renal impairment and also influenced on the mortality or patients survival.

Abstract# P-305

PRE-TRANSPLANT TROPONIN LEVELS HELP TO PREDICT LONG-TERM POST-TRANSPLANT CARDIAC EVENTS. Kymerly Watt, Elizabeth Coss Zevallos, Rachel Pedersen, Ross Dierkhising, Michael Charlton. *Gastroenterology/Hepatology, Mayo Clinic, Rochester, MN, USA*

Background: Cardiac disease is a common cause of death both early and late post transplant. Due to longer lead-time, pre-existing risk factors for cardiac disease prior to liver transplant may better predict cardiovascular events post transplant. **Aim:** To determine if pre transplant risk factors and/or serum markers (troponin (TN) or c-reactive protein (CRP) are predictive of cardiovascular events following liver transplant. **Methods:** TN and CRP were measured using serum prospectively obtained prior to transplant in 236 consecutive patients (≥18 yrs) who received a liver transplant during December 1998- December 2001. Pretransplant recipient variables analyzed included age, MELD score, gender, history of cardiovascular disease (CVD), smoking, diabetes (DM) and hypertension (HTN). Cardiovascular events (including coronary artery disease, myocardial infarction, congestive heart failure, cerebral vascular events) were collected over a 6-9 year followup (median 7.8 years). **Results:** Of the 236 patients, 58% were male and mean age of 51 years (range 19-70). 61% had a history of smoking, 22% diabetes, 19% hypertension, 26% had an elevated TN (>0.07 ng/ml), 64% had CRP >0.8 mg/L, and 17% had pre-existing cardiac disease. 56 cardiac

events occurred during the followup period. Risk factors of first cardiac event include age in decades (HR 1.38, p=0.027), DM (HR 2.39, p= 0.001), prior CVD (HR 4.34, p<0.0001), and TN >0.07 (HR 1.94, p=0.03). Combining these factors increased the risk with TN and prior CVD (HR 5.34, p=0.0001) or TN with DM (HR 2.90, p=0.006). Multivariate analysis confirms these variables as independent risk factors for post transplant cardiac events (see table). Pre-transplant factors including gender, HTN, previous smoking, CRP and MELD scores were not predictive of post transplant cardiac events.

Multivariate analysis

	HR	CI	Pvalue
Age in decades	1.46	1.05-2.02	0.02
Diabetes	1.87	1.04-3.35	0.04
Prior CVD	4.49	2.43-8.32	<0.0001
Troponin >0.07ng/mL	2.04	1.11-3.76	0.02

Conclusion: Pre-transplant elevated troponin levels with or without diabetes or a history of cardiovascular disease is strongly associated with the occurrence of post transplant cardiac events, even over the long term. Studies into aggressive management of cardiovascular risk factors before and after transplant are warranted.

Abstract# P-306

MASS MEDIA INFLUENCY IN ORGAN DONATION IN SAO PAULO, BRAZIL. Wellington Andraus, Mauricio A. Barros, Vinicius R. Santos, Rodrigo B. Martino, Roberto Meirelles, Antonio Roberto Teixeira, Estela R. R. Figueira, Fabio F. Makdissi, Andre C. Oliveira, Flavio Galvao, Luiz A. C. D'Albuquerque. *Gastroenterology, Sao Paulo University School of Medicine, Sao Paulo, Brazil*

INTRODUCTION: It is remarkable how media is important in people lives and decisions. The choices are made regarding the information basis that comes from mass media. Television, radio, newspapers and now internet produce the principal source of information and this has indeed a great influence in transplant organ donation.

AIM: The aim of this study is to analyze the effect of media coverage of one case of murder in liver donation and transplants in one liver transplant center in Sao Paulo, Brazil.

MATERIAL AND METHOD: A 15-y.o. girl was kidnapped by her boyfriend and kept arrested for 3 days. The media showed all the negotiation which ended with the death of the young girl. We analyzed the repercussion in liver donation and liver transplantation in Sao Paulo after as the case was highly showed by mass media.

RESULT: This case was highly showed by mass media and promoted a national repercussion. The young girl donated all organs and the recipients were showed and interviewed. The number of cadaveric liver donation in Sao Paulo was of 34.4 (±5.36) per month in 9 months before and 56 (±2.83) per month in 2 months after the event (p=0.004). The number of cadaveric liver transplant in Clinical Hospital at Sao Paulo University was 4 (±1.41)/month and went to 14 (±2.83)/month (p<0.001).

CONCLUSION: Some authors have already highlighted the negative effect of mass media in organ transplant, with sensationalists programs, sometimes producing myths about organ donation. However, this case illustrates the power of mass media in the general population opinion and options. We should work together and use this in favor of our patients.

Abstract# P-307

PAIRED EXCHANGE LIVING DONOR PEDIATRIC LIVER TRANSPLANTATION FOR GRAFT-SIZE MISMATCH.

Ifikhar Khan, Zahid Arain, Ahmed Elgohary, Hammood Hebhi, Sami Wali, Atef Bassas. *Prince Sultan Liver Transplant Unit, Riyadh Military Hospital, Riyadh, Saudi Arabia*

The utility and benefits of organ transplantation can be increased only if the gap between organ demand and supply be narrowed. The increased demand for organs has led the transplant community to innovate new ways to increase the organ donation. Kidney exchange between pairs for blood group incompatibility or cross-match positivity has been established. Paired exchange of liver for ABO-incompatibility has also been proposed. If recipients are children, graft volume becomes an additional barrier for donors with healthy but disproportionate livers. We report a case of paired exchange of liver allografts from living donors for pediatric recipients for graft-size mismatch. Paired exchange is more of an ethical and logistic problem rather than a technical one. Ethics of adult paired exchange can not be applied without modification if the recipients are children. Both pairs should be operated simultaneously to respect the right of the donors to decide not to participate in the exchange until the moment of surgery. Paired exchange

will increase only a small number of donated livers. It should be used as a resource for donation of last resort. However, this may be the only solution for some families and in some geographic areas.

Abstract# P-308

INDICATING LIVER TRANSPLANTATION FOR FULMINANT HEPATIC FAILURE. THE APACHE III SCORE IS SUPERIOR TO MELD SCORE AND KINGS COLLEGE HOSPITAL CRITERIA. Panagiotis Fikatas, Frank Ulrich, Ji Eun Lee, Sascha Chopra, Andreas Pascher, Olaf Guckelberger, Gero Puhl, Ulf Neumann, Peter Neuhaus, Johann Pratschke. *General, Visceral and Transplantation Surgery, Charité-Campus Virchow, Berlin, Germany*

Whilst the MELD score and the King's College Hospital (KCH) criteria are accepted evaluation models in patients with fulminant hepatic failure (FHF), the impact of the APACHE III score on outcome after orthotopic liver transplantation (OLT) has not been defined yet. Aim of this study is to compare these early indicators for liver transplantation and investigate their predictive efficacy.

Patients and Methods

The study included 111 patients with FHF, listed for OLT between 1996 and 2007. MELD score, KCH criteria and APACHE III score were retrospectively defined for the day of listing for transplantation.

Results

We divided the cohort according to the 1-year outcome. Group 1 consisted 11 patients who were taken from transplant waiting list due to improving clinical condition and 73 patient who survived OLT. The nonsurvivors group (group 2) included 11 patients who died while waiting for a suitable graft and 16 patients who died after transplantation. In Group 1 compared to group 2 the mean MELD score was 32±8 vs. 34±7 and the APACHE III was 61±17 vs. 75±21, respectively. In group 2 the KCH criteria were positive in 56% of the cases. The ROC analysis revealed that compared to MELD score and KCH criteria, the APACHE III score was a better indicator of prognosis in patients with FHF (AUC: 0.66, 0.55 and 0.83 respectively).

Conclusion

This study is the first that shows that the APACHE III score is superior to MELD score and the KCH criteria in accessing prognosis in patients with FHF.

Abstract# P-309

LIVER TRANSPLANTATION AND MORBID OBESITY: A MULTI-CENTER STUDY. Hosein Shokouh-Amiri¹, Santiago R. Vera², Ahmad O. Gaber³, Reza Mehrzad², Nosratollah Nezakatgoo², Robert McMillan¹, Hany M. Dabbous¹, Doria Cataldo⁴, Dinesh Ranjan⁵, Gazi B. Zibari¹. *¹Transplant Surgery, Willis-Knighton/Louisiana State University Health Sciences Center, Shreveport, LA, USA; ²Department of Surgery, Methodist University Hospital, Transplant Institute, Memphis, TN, USA; ³Department of Surgery, Methodist Hospital Research Institute, Houston, TX, USA; ⁴Transplant Surgery, Jefferson Medical College, Thomas Jefferson University Hospital, Philadelphia, PA, USA; ⁵Transplant Surgery, University of Kentucky Medical Center, Lexington, KY, USA*

Introduction: Patients with morbid obesity (BMI>40kg/m²) are being referred for liver transplantation. Reports have suggested increased early morbidity and mortality for obese patients undergoing liver transplantation. The aim of this study was to evaluate several centers experiences transplanting livers into patients with morbid obesity (BMI>40kg/m²). **Method:** A retrospective, IRB approved, chart review of first deceased donor liver transplant at four centers (1 & 2 actively and 3 & 4 sporadically transplanting morbidly obese patients) from 1992 to 2006 was undertaken. There were 633 patients in centers 1 and 2. 34 patients were in Group I (BMI>40), 48 patients with BMI>35-<40 (II), 123 patients with BMI>30-<35 (III) and 428 patients with BMI<30 (IV). Perioperative mortality, length of stay, 1 and 5 years patient and graft survival were measured. In centers 3 and 4, there were 8 patients with BMI>40kg/m² among 980 liver transplants. **Results:** Demographics and MELD were similar in all groups. Five patients from Group I died within 3 months, all with high MELD. Similar 3 month mortality was found in all groups. Length of stay was similar in all. There was a correlation between MELD and length of stay independent of BMI. One and five year patient survival were similar in all (83% and 77% vs 81% and 73% vs 84% and 74% vs 84% and 74% respectively in Groups I, II, III and IV). In center 3 and 4, long term results were similar among all groups. **Conclusion:** Outcomes

of liver transplantation are not adversely affected by severe morbid obesity, therefore; morbid obesity alone should not be considered a contraindication for liver transplantation.

Abstract# P-310

IDENTIFICATION OF NEW DONOR VARIABLES ASSOCIATED WITH GRAFT SURVIVAL IN A SINGLE-CENTER LIVER TRANSPLANT COHORT. Otmane Nafidi¹, André Roy², Denis Marleau¹, Marc Bilodeau¹. *¹Medicine, CHUM, Montréal, QC, Canada; ²Surgery, CHUM, Montréal, QC, Canada*

In face of the shortage of available organs, a wider range of livers are now considered for orthotopic liver transplantation (OLT). **Objective:** To determine graft variables associated with graft survival in our liver transplant program cohort. Between 1990 and 2008, 788 OLT were performed. We retrospectively studied 634 grafts excluding re-transplantation, fulminant liver failure and living-related donors. Variables associated with 1 and 5-year graft survival were identified using the Cox Proportional-hazards regression model.

Results: The donors were 45.2±0.7 years; had a BMI of 25.3±0.2 Kg/m²; haemoglobin of 107.8±2.1 g/L and PO2/FiO2 of 302±6. There was a history of cardiac arrest in 17 (2.7%); procurement was from outside of the regional allocation center in 27 (4.3%) and >30 % macrosteatosis was present in 20 (3.1%). Livers were considered marginal in 42.2% according to literature criteria. The recipients were of 52.5±0.4 years; had mean CHILD score of 9.58±0.09 and MELD score of 16.2±0.3. 46 had evidence of significant renal dysfunction (7.3%). Combined liver-kidney transplantation was performed in 15 (2.4%). Mean waiting time was 9.4±2.8 months. There were no ABO mismatch. Liver grafts were reduced for size in 5 (0.8%) and were considered inadequate on gross appearance in 16 (2.52%). Mean cold ischemia time was 502±7 min. Packed red blood cells (PRBC) were transfused in 330; frozen fresh plasma (FFP) in 288. Five years after OLT, 413 (65.1%) patients were alive with functional graft, 5 (0.8%) were alive with graft dysfunction; 57 (9.0%) were re-transplanted; 72 (11.4%) died from graft dysfunction and 87 (13.7%) died with a functional graft. One-year graft survival was 78.2%: this was independently associated with 1) graft appearance (p<0.001), 2) donor PO2/FiO2 (p=0.013) and 3) donor haemoglobin level (p=0.013). Five-year graft survival was 71.1 % and was significantly associated with 1) graft appearance (p<0.001), 2) donor PO2/FiO2 <300 mmHg (p=0.002), 3) donor haemoglobin level (p=0.002), 4) recipient renal failure (p=0.034), 5) PRBC (p=0.005) and 6) FFP transfusions (p=0.032). None of the so-called marginal donor criteria were found to be independently associated with graft survival.

Conclusions: Gross graft appearance, presence of donor lung diffusion abnormality and donor haemoglobin levels were found to be significantly associated with 1 and 5-year liver graft survival.

Abstract# P-311

A NOVEL PSYCHOSOCIAL RISK MODEL IDENTIFIES PATIENTS AT-RISK FOR POOR POST-TRANSPLANT OUTCOMES. Thomas A. Aloia, Nadine Haykal, John Ontiveros, Shelley Spector, Andrea Duchini, Howard Monsour, Joseph Galati, Ahmed O. Gaber, R. M. Ghobrial. *Department of Surgery, The Methodist Hospital, Houston, TX, USA*

Background: Of the various psychosocial risk scales that have been developed in liver transplantation, few have correlated with post-transplant behavior, and none have accurately predicted behavior that results in poor medical outcomes. The purpose of this project was to examine the ability of a novel multi-component psychosocial risk model to predict behavior patterns that produced poor allograft and patient survivals.

Methods: From the 326 pts who underwent liver transplant at our center from 2001 to 2008, 11 patients with both postoperative psychosocial issues and poor medical outcomes (rejection, infection, renal impairment, allograft loss, and death) were identified. An age and gender matched group of 12 patients with minimal post transplant psychosocial issues and favorable medical outcomes were also selected. Four transplant team members, who were blinded to the identity of each patient, scored each pts detailed pretransplant psychosocial evaluation using a novel psychosocial risk model. The model utilizes 33 variables which contribute to summary scores in each of 7 areas: demographic, medical, support, finances, psychiatric, substance abuse, and compliance. Chi-squared tests were utilized to identify each individual component and summary area that correlated with poor outcomes.

Results: The two study groups were well matched for age, gender, and race. In univariate analysis the individual components which correlated with poor outcome were education level<12th grade (p=0.019), HCV cirrhosis

($p=0.021$), medication noncompliance ($p=0.043$), physician recommendation noncompliance ($p=0.022$), and OLT program noncompliance ($p=0.022$). Of the summary scores, only the compliance area score was associated with poor medical outcomes ($p=0.006$). In multivariable analysis, factors independently associated with poor outcome were HCV cirrhosis ($p=0.001$), summary compliance area score ($p=0.001$), and physician recommendation noncompliance ($p=0.002$).

Conclusions: These data indicate that a history of noncompliance is the strongest predictor of posttransplant behavior that directly impacts medical outcomes. Programs that are able to identify this risk factor during the evaluation process may be able to intervene with these patients and improve allograft and patient survivals.

Abstract# P-312

BILE DUCT NECROSIS MIMICKING A HILAR BILE DUCT CANCER DURING LIVING DONOR LIVER TRANSPLANTATION.

Sun Hyung Joo, Bum Soo Kim, Suk Hwan Lee, Sang Mok Lee, Ho Chul Park. *Surgery, Kyung Hee University, Seoul, Korea*

Introduction: Ischemic biliary complications after transarterial chemoembolization (TACE) can show various patterns such as biloma, focal stricture and diffuse dilatation of intrahepatic bile duct. We report a case of a patient with proximal bile duct necrosis mimicking a hilar bile duct cancer detecting during living donor liver transplantation. **Case report:** This patient was a 55-year-old man who diagnosed with HBV related liver cirrhosis with HCC. Two times of TACE were performed for control of HCC. After decision of living donor liver transplantation, preoperative evaluations were done including abdominal CT scan. HCC were stable after TACE but intrahepatic bile ducts were slightly dilated. For further evaluation of the bile duct, MRCP were checked. MRCP revealed a stricture of the common hepatic duct and a dilatation of the left intrahepatic duct, which findings are suggestive of hilar bile duct cancer. Although we suspected that this lesion would be malignancy, we performed an exploratory laparotomy. At surgery, hepatoduodenal ligament was hard and fibrosed with severe inflammation and necrosis from cystic duct to confluence of bile duct. Frozen biopsy was proven to be necrosis not malignancy in the lesion. We performed living donor liver transplantation using modified right lobe graft and biliary reconstruction was made as Roux-en-Y hepaticojejunostomy. Hepatic arterial reconstruction between recipient left hepatic artery and donor right hepatic artery because recipient right hepatic artery is not healthy due to TACE. Final pathology showed no residual tumor and bile duct necrosis in the explanted liver. The patient had no postoperative complications and he was discharged 24 days after surgery. In conclusion, when patient with HCC treated with TACE manifest dilatation of the bile duct on imaging study while the tumor is stable, ischemic complication of the bile duct should be considered.

Abstract# P-313

FEASIBILITY OF USING GRAFTS FROM MARGINAL DONORS IN LIVER RETRANSPLANTATION. A SINGLE-CENTER ANALYSIS.

Josep Martí, Constantino Fondevila, Maria Marta Modolo, David Calatayud, Santiago Sanchez, Joana Ferrer, Raquel Garcia-Roca, Josep Fuster, Juan Carlos Garcia-Valdecasas. *Liver Transplant Unit, Hospital Clinic i Provincial, Barcelona, Spain*

BACKGROUND:

Patients undergoing liver retransplantation (ReLT) have an expected lower survival compared to primary liver transplantation (LT). Therefore the use of grafts from marginal donors with expected long-term worse outcome in patients undergoing ReLT is controversial.

AIMS:

To analyze graft characteristics in patients undergoing ReLT in our center and to compare the survival of marginal grafts vs. non-marginal grafts in this group of patients.

MATERIALS AND METHODS:

From June 1988 to January 2006, 1118 patients underwent LT in our center. Ninety-eight patients received a second graft, 9 a third graft and 1 a fourth graft. ReLT were divided in urgent (within the first week after previous LT: 24 patients), semiurgents (first week to 3 months: 14 patients) and non-urgent (more than 3 months: 70 patients) and in two periods of equal duration: first period from June 1988 to March 1994 (53 ReLT) and second period from April 1994 to January 2006 (55 ReLT). Grafts were divided in non-marginal (Donor risk index (DRI) under 1.8: 79 grafts) and marginal (DRI equal or over 1.8: 29 grafts). Minimum follow-up was 2 years.

RESULTS:

Graft survival was better in the second period (5-year survival: 45% vs 69%, $p=0.014$). Donor age was higher in the second period (32 ± 17 vs 48 ± 18 years, $p<0.001$). DRI was higher in the second period (0.86 ± 0.63 vs 1.32 ± 0.72 , $p=0.001$). No differences in overall survival were found when comparing marginal and non-marginal grafts. Graft survival in patients with high Rosen score was lower in marginal graft compared to non-marginal grafts (5-year survival: 28% vs 61%, $p=0.011$). Regarding ReLT timing, marginal grafts showed poorer survival compared to non-marginal grafts only in non-urgent ReLT (5-year survival: 24% vs 61%, $p=0.012$).

CONCLUSIONS:

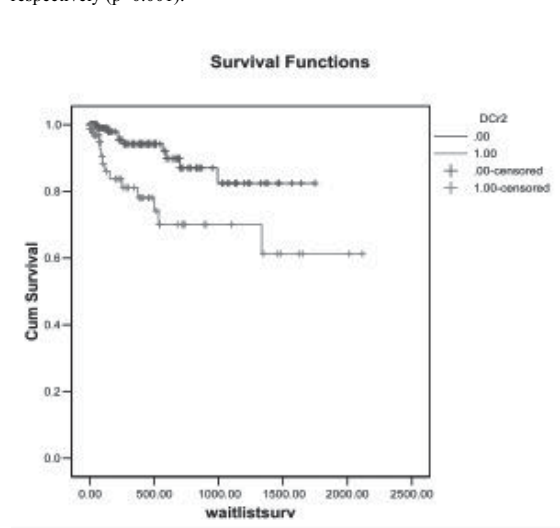
Despite poorer donor quality, graft survival in ReLT has improved with time. Although the use of grafts from marginal donors is not associated with a worse survival, it is imperative to take into account the timing of ReLT and the recipient conditions in order to improve the efficacy of grafts from marginal donors in ReLT.

Abstract# P-314

CREATININE CALCULATED FROM TIMED CREATININE CLEARANCE CORRELATES MORE STRONGLY WITH PRE-TRANSPLANT MORTALITY THAN MEASURED SERUM CREATININE.

Patrick P. McHugh, Thomas D. Johnston, Roberto Gedaly, Hoonbae Jeon, Dinesh Ranjan. *Department of Surgery, University of Kentucky, Lexington, KY, USA*

The Model for End-stage Liver Disease (MELD) score, which incorporates values of serum creatinine (SCr), bilirubin, and INR, has previously been shown to predict mortality in patients awaiting liver transplantation (LT). However, SCr may be lower in malnourished patients with decreased breakdown of creatine, thereby not accurately reflecting renal function. This study aims to correlate derived creatinine (DCr), which we back-calculated using the simplified MDRD equation with GFR determined from timed urine/creatinine clearance studies, with pre-transplant mortality. We reviewed records of patients who underwent LT at our center since 9/04 and/or who were listed for LT since 5/02. Survival from date of listing to date of LT, death, or last visit was calculated using Kaplan-Meier methods. After excluding incomplete records, we were able to analyze 207 patients. From this group, 113 patients underwent subsequent LT. The mean SCr was 1.04 ± 0.44 (median 1.00), while the mean DCr was 2.02 ± 1.42 (median 1.51). We found a significant difference in survival curves for patients with DCr >2.0 compared to DCr <2.0 , with 1- and 3-year wait-list survival rates of 94% and 87% for patients <2.0 , compared to 81% and 70% for those >2.0 , respectively ($p<0.001$).



There was no significant difference between patients with SCr above and below 2.0 ($p=0.79$). Although renal function is represented in MELD calculation with inclusion of serum creatinine, renal impairment may not be captured if SCr is low for other reasons. Interestingly, there were 86 patients with DCr >2.0 , but only 8 patients with SCr >2.0 ; at this same cut-off point, DCr was highly predictive of pre-transplant mortality while SCr was not. Our findings suggest that many patients with renal impairment are not identified

by SCr alone, and due to the prevalence of malnutrition in this population, timed creatinine clearance should be considered, and perhaps even replace SCr, in MELD calculations and liver allocation algorithms.

Abstract# P-315

BILIARY RECONSTRUCTION IN PEDIATRIC LIVING-DONOR LIVER TRANSPLANTATION: BILIO-ENTERIC OR DUCT TO DUCT. Hisham Abdelkader, Hatem Saafan, Amr Abdelaal, Mohamed Fathy, Mohamed Bahaa, Mohamed Shaker, Ahmed Mokhtar, Hany Saied, Mahmoud Meteini, Olivier Boilot, Alaa F. Hamza. *Liver Transplant Unit, Wady Elneel Hospital, Cairo, Egypt*

Objective: To assess the incidence of biliary complications after pediatric living-donor liver transplantation (LDLT) in patients undergoing duct-to-duct choledochocholedochostomy or Roux-en-Y choledochojunostomy reconstruction.

Background Data: Biliary tract complications remain one of the most serious morbidities following liver transplantation. Most centers adopt bilio-enteric anastomosis for pediatric biliary reconstruction after LDLT. No large series has yet been carried out to compare the 2 techniques in LDLT especially in pediatrics. This study undertook a retrospective assessment of the relation between the method of biliary reconstruction used and the complications reported.

METHODS: Between November 2001 and January 2009, 35 patients underwent LDLT. Biliary reconstruction was achieved with Roux-en-Y choledochojunostomy in 14 patients, and duct-to-duct choledochocholedochostomy in 21 patients. The number of graft bile duct and anastomosis, mode of anastomosis, use of stent tube, and management of biliary complications were analyzed.

RESULTS: The overall incidence of biliary complications was 20%. The respective incidence of biliary leakage and stricture were (0/14) 0% and (3/14) 21.4% for Roux-en-Y, and (2/21) 9.5% and (2/21) 9.5% for duct-to-duct reconstruction. Duct-to-duct choledochocholedochostomy showed a slightly lower incidence of biliary complications. All of our strictures in the bilio-enteric group were managed radiologically. Endoscopic management was successful in one patient in the duct to duct group, however endoscopic management of these strictures was not that easy in children especially small babies. **CONCLUSIONS:** The authors found a slight increase in the biliary stricture rate in the Roux-en-Y choledochojunostomy group that contradicts the general belief of a lower complication rate with this type of biliary reconstruction in pediatrics. The authors also found that strictures in Roux-en-Y are perfectly well managed with the endoscopic treatment. Still the number of patients is not enough to draw any statistically significant conclusions.

Abstract# P-316

DONOR FACTORS PREDICTING GRAFT FAILURE AFTER PEDIATRIC LIVER TRANSPLANTATION. Oliver B. Lao¹, James D. Perkins², Andre A. S. Dick², Patrick J. Healey², Jorge D. Reyes². ¹Department of Surgery, University of Washington, Seattle, WA, USA; ²Department of Transplantation Surgery, University of Washington, Seattle, WA, USA

Purpose: Donor and operative characteristics impact outcomes following pediatric liver transplantation. The purpose of this study was to evaluate donor factors associated with graft failure within 90 days of primary pediatric liver transplantation.

Methods: We studied the United Network for Organ Sharing (UNOS) database (12/1/1987-12/31/2007) and identified patients ≤18 years-old that a required re-transplant for graft failure (within 90 days of primary transplant) or died with the primary cause listed as graft failure. We examined donor and operative factors and analyzed their association with graft failure utilizing a multivariable logistic regression model.

Results: Analysis of 841 children (49% male) that suffered graft failure compared to 7,740 children that maintained graft function with logistic regression identified several donor and operative factors significantly associated with graft failure:

Factor	OR	p-value
Donor Age		
≤1yr	2.15	<0.0001
>40 yrs	1.89	<0.0001
Donor Cause of Death		
Anoxia	1.31	0.02
Cerebrovascular Accident	1.36	0.02
Unknown/Other	1.82	<0.0001
Split Liver Graft	1.74	<0.0001
Cold Ischemia Time >11hrs	1.25	0.02
National Sharing of Graft	1.26	0.03

Conclusions: Donor and operative factors such as donor age and cause of death, the use of a split liver graft, cold ischemia time, and sharing on a national level are significantly associated with a greater risk of graft failure. Identification of these factors pre-operatively in addition with the development of a pediatric donor risk index, may aid donor selection, allocation policies and reduce the occurrence of graft failure following pediatric liver transplant.

Abstract# P-317

OUTCOME OF VASCULAR ANASTOMOSES IN LIVING RELATED PEDIATRIC LIVER TRANSPLANTATION.

Mohamed Shaker, Hisham Abdelkader, Mohamed Fathy, Amr Abdelaal, Mohamed Bahaa, Ahmed Mokhtar, Ahmed Eldory, Mahmoud ElMeteini, Alaa Hamza. *Liver Transplant Unit, Wady Elneel Hospital, Cairo, Egypt*

Background: Vascular anastomosis complications represent significant risk for the liver transplants. An integrated surgical and radiologic approach is required for the management of these complications. Percutaneous interventions play an important role in these situations and have been more recently accepted as the initial treatment for many transplant-related anastomotic abnormalities.

Patients & Methods: From October 2001 to January 2009, 35 pediatric patients underwent LDLT. We faced 5 vascular anastomosis related complications (14.2 %). None of our patients presented by portal vein anastomosis related complications. Hepatic artery thrombosis occurred in one case (2.8 %) at day 7 post operative and was corrected surgically, while five cases (14.2%) presented with venous outflow obstruction manifested by resistant ascites in three patients, right hydrothorax in one patient and persistent hyperbilirubinaemia in one patient, three of these cases were corrected by percutaneous HV venoplasty, one had repositioning of the graft and one was corrected by percutaneous HV stenting, which was inserted in an accessory vein at day 8 post operative. The therapeutic results were monitored clinically, by liver functions and by duplex US.

Results: All procedures were conducted without any technical complication. The case with arterial thrombosis showed excellent recanalization of the artery with rapid improvement of the graft function. The three cases treated by percutaneous venoplasty responded well to therapy with complete disappearance of the resistant ascites and hydrothorax and still followed till now with follow up period ranging between two to 26 months and all of them are doing well. The case with repositioning of the graft had marked improvement immediately after surgery. The case with accessory hepatic vein stenting showed gradual decrease in serum bilirubin level and improvement of graft function yet died two weeks later due to severe aplastic anemia and fungal septicemia.

Conclusion: An integrated surgical and radiologic approach is required to manage vascular anastomoses related complications in pediatric living related liver transplantation. Percutaneous transhepatic balloon dilatation and stenting of hepatic vein anastomosis represent safe and effective treatment with good short and mid-term results.

Abstract# P-318

SUCCESSFUL LIVER RETRANSPLANTATION FOR A CHILD WITH HEPATOPULMONARY SYNDROME DUE TO PORTAL VEIN OCCLUSION AFTER LIVER TRANSPLANTATION. Joo Young Jang¹, Kyung Mo Kim¹, Seak Hee Oh¹, Dae Yeon Kim², Ki Hun Kim², Kwang Min Park², Young Joo Lee², Sung Gyu Lee². ¹Pediatrics, Asan Medical Center, Seoul, Korea; ²Surgery, Asan Medical Center, Seoul, Korea

Introduction The hepatopulmonary syndrome (HPS) is defined as arterial hypoxemia because of pulmonary vasodilation as a result of cirrhotic or non-cirrhotic portal hypertension. We describe a case with hepatopulmonary syndrome after first liver transplantation (LT) with portal vein occlusion which is improved after retransplantation of liver. **Case** A 11 months-old-girl, that

experienced living related liver transplantation at 4 months ago, was referred with respiratory distress and perioral cyanosis. Biliary atresia was diagnosed at the age of 2 months and Kasai portoenterostomy was performed. She received LT at the age of 9 months because of prolonged hyperbilirubinemia with recurrent cholangitis. Contrast echocardiography(CEE) was performed before LT and that showed normal findings. After LT, she had suffered from Ebstein-Barr virus infection with infectious mononucleosis and post-transplant lymphoproliferative disorder early lesion was defined in her axillary lymph node biopsy. During admission, she started to present platypnea and orthodeoxia with clubbing finger, hepatosplenomegaly; room air pulse oxymetry revealed 75% of oxygen saturation on supine position and 90% on upright position with poor response to oxygen inhalation. CT scan showed severe narrowing of main portal vein at anastomosis site with no blood flow to intrahepatic segment and right atrium enlargement with engorgement of pulmonary arteries and veins. Her CEE revealed HPS of grade 4 which was refractory to medical treatment and re-LT was performed at 7 months after LT with cadaveric split donor. There were no cirrhotic changes in explants liver with some congestive change were existed. She received prolonged ventilation with inhaled nitric oxide & iloprost nebulizer during 2 months and needed oxygen supply during 4 months. There were no cirrhotic changes in explants liver with some congestive change were existed. CEE with monthly follow-up had revealed progressive improvement of IPS; grade 4 to 2. The child is regularly followed up by pediatrician and has had no further cyanosis at the time of 7 months after re-LT. **Conclusion** HPS after liver transplantation may occur due to portal vein stenosis even though without cirrhosis. Retransplantation of liver was done in our case and this lead to a successful outcome.

Abstract# P-319

RISK FACTORS PREVALENCE FOR PREMATURE CARDIOVASCULAR DISEASE IN PEDIATRIC OLT PATIENTS. Carlos E. Gonzalez Cambaceres, Yanina Camiser, Maria B. Araujo, Oscar C. Imventarza, Carmen Mazza. *Liver Transplantation Service, Hospital de Pediatria Prof Dr Juan P. Garrahan, Buenos Aires, Argentina; Nutrition Service, Hospital de Pediatria Prof Dr Juan P. Garrahan, Argentina; Nutrition Service, Hospital de Pediatria Prof Dr Juan P. Garrahan, Buenos Aires, Argentina; Liver Transplantation Service, Hospital de Pediatria Prof Dr Juan P. Garrahan, Buenos Aires, Argentina; Nutrition Service, Hospital de Pediatria Prof Dr Juan P. Garrahan, Buenos Aires*

Background: Since the beginning of the Pediatric Liver Transplantation Program in November 1992 it had been performed more than 450 pediatric OLT. Significant advances in the field of liver transplantation over the years have been made on renal dysfunction, cardiovascular risk and post transplant malignancies. Despite the progress made remains a formidable intervention with major long term consequences. **Aim:** To assess the prevalence of cardiovascular risk factors. **Patients and Methods:** Pediatric OLT age over 5 years and with 1 year or more after transplantation with stable chronic liver transplant. Were excluded patients with previous structural heart disease. Descriptive analytical cross sectional study was performed. Oral glucose tolerance test, lipid profile, lab assays. HbA1C Age, sex, time from OLT, OLT etiology, anthropometry, arterial hypertension. 2003 Diagnostic Criteria for Diabetes Mellitus from the American Diabetes Association. Homeostasis Model Assessment (HOMA). Task Force in Blood Pressure in Children and Adolescents. Glomerular (GFR) and tubular function. **Results:** 71 patients were included. Male 35 patients. Mean age at liver transplantation 5.7±4.6 years. Mean time after OLT 7.7±3.6 years. OLT etiology: 37% fulminant hepatic failure, 35% biliary atresia, 13% autoimmune hepatitis, 15% others. Cadaveric donors 63%. Mean age at study 13.5±4.5 years. Score Z BMI: -0.33±0.94. Score Z height: -0.14±1.3. Overweight 17%. Normal 83%. Glucose Baseline impairment 4%. Glucose intolerance: 9.8%. Diabetes Mellitus: 2.8%. Insulin resistance (HOMA): 21%. Hypercholesterolemia 9%. Hyperlipidemia 30%. Arterial hypertension none. 72% patients with normal (GFR) but 16% patients developed proteinuria. 57% patients had isolated or combined tubulopathy. **Conclusions:** These is the first study about cardiovascular risks in pediatric adolescent olt patients in our center. Risk factors have been identified and must have a long term follow up if required to establish the real value in the outcome of this population.

Abstract# P-320

SURVEILLANCE OF EPSTEIN-BARR VIRUS INFECTION IN CHILDREN ON GANCICLOVIR-VALGANCICLOVIR PROPHYLAXIS FOR 6 MONTHS AFTER LIVER TRANSPLANTATION. Esteban Frauca¹, Loreto Hierro¹, Angela de la Vega¹, Carmen Camarena¹, Gema Muñoz Bartolo¹, Ruth Díez¹, Carmen Díaz¹, Jose Luis Encinas², Francisco Hernandez², Nuria Leal², Javier Murcia², Manuel Gámez², Manuel López Santamaría², Paloma Jara¹. *¹Hepatology, Children's University Hospital La Paz, Madrid, Spain; ²Transplant Surgery, Children's University Hospital La Paz, Madrid, Spain*

AIMS: In a series of children undergoing liver transplantation (OLT) we analyzed the results of a protocol consisting of: 1) antiviral prophylaxis during 6 months, 2) surveillance of EBV infection, 3) antiviral treatment of infected patients, and 4) individualized reduction of tacrolimus.

METHODS:

Patients: 27 consecutive children with primary OLT in 2007 (follow-up 8-21 months).

Prior to OLT IgG VCA: negative in 16, positive in 9 patients.

Prophylaxis: ganciclovir 5 mg/kg every 12 hours during 1 month followed by valganciclovir 520 mg/m² every 12 h for 5 months.

Sequential clinical checkups plus EBV quantitation were done at 1-3 months intervals.

EBV viral load was assessed by real time PCR (Affigeme EBVTrener). High viral load was set at >2.6x10⁴ copies/ml.

Children displaying high EBV load were treated with valganciclovir. Tacrolimus was decreased to <5 ng/ml in selected patients.

RESULTS

EBV infection was detected in 23 children (92%).

Primary infection: affected 15/16 (94%), 11 started in the first 6 months after OLT. 73% of infected displayed high viral load. One patient was symptomatic (urticaria a frigore, mild pneumonitis, high alkaline phosphatase). All infected patients continued/ restarted valganciclovir, and tacrolimus was reduced in 6 out of 11 showing high viremia. None developed PTLT.

Reactivation: occurred in 8/9 (89%), during the first 6 months after OLT in all cases. High viral load was found in 3/8 (37%). One patient had symptoms (bone marrow aplasia, probably related to nonA-nonB fulminant hepatitis for which he underwent OLT). They received valganciclovir, reduction of tacrolimus in 2 cases, rituximab in 1 case. None developed PTLT. The patient with aplasia died with a mixed EBV, CMV and Aspergillus infection.

CONCLUSIONS

In 25 children with antiviral prophylaxis during 6 months, EBV infection was detected in 92%, 61% of them displaying high viral load. There were no cases of PTLT using valganciclovir, combined with reduced tacrolimus in 8/14 showing high viremia.

Abstract# P-321

LONG-TERM OUTCOME OF PEDIATRIC LIVING DONOR LIVER TRANSPLANTATION FOR NEONATAL HEPATITIS. Yueh-Wei Liu, Chao-Long Chen, Chih-Chi Wang, Shih-Ho Wang, Allan M. Concejero, Chee-Chien Yong, Chin-Hsiang Yang, Bruno Jawan, Yu-Fan Cheng. *Liver Transplant Program, Chang Gung Memorial Hospital-Kaohsiung Medical Center, Kaohsiung, Taiwan*

Objective: Liver transplantation is indicated in patients with end-stage liver disease due to neonatal hepatitis. We present our institutional experience with living donor liver transplantation (LDLT) in children with neonatal hepatitis.

Methods: From June 1994-December 2006, 138 children underwent primary LDLT. Ten (7.2%) children (5 male, 5 female) were diagnosed with end-stage liver disease secondary to neonatal hepatitis. We retrospectively analyzed the clinical records of these patients.

Results: The median age at the time of transplantation was 1.5 years (range, 0.7-6). The mean Child-Turcotte-Pugh score was 9 (S.D. +/-1.9) and the mean Pediatric End-stage Liver Disease score was 15.6 (S.D. +/-7.6). All patients presented with hyperbilirubinemia and/or other complications arising from end-stage liver disease. Five patients had undergone prior exploratory laparotomy to investigate the cause of neonatal jaundice. Hepatitis B and C were negative in all patients. Nine patients received left lateral segment grafts and one received an extended left lateral segment graft. The mean graft-to-recipient weight ratio was 2.9 (S.D. +/-0.9). One patient with a primary duct-to-duct biliary anastomosis developed biliary stricture that required conversion to a Roux-en-Y hepaticojejunostomy. Another patient

developed intestinal B cell lymphoma with bone marrow metastasis which required small bowel resection and systemic chemotherapy. There was one perioperative mortality due to liver graft infarction secondary to portal vein occlusion. Another patient died at 15 months posttransplantation from sepsis secondary to pneumonia. The mean follow-up was 60.2 months (S.D. +/- 22.3 months). All received cyclosporine as immunosuppression agent. Two developed gingival hyperplasia which was dose related to cyclosporine. Only 1 patient had an episode of acute cellular rejection. Liver function was normal in all surviving patients. All were within their respective height and weight for children of their age to the latest follow-up. The 6-month, 1- and 5-year recipient survival rates were 90%, 80% and 80%, respectively.

Conclusion: LDLT is an excellent option for pediatric patients with end-stage liver disease secondary to neonatal hepatitis. Long-term follow up after liver transplantation shows excellent graft and patient survivals.

Abstract# P-322

LIVER TRANSPLANT REVERSES PORTAL HYPERTENSION ASSOCIATED HYPOALBUMINEMIA AND GROWTH FAILURE IN A PATIENT WITH ARPKD.

Vera F. Hupertz¹, Reema Gulati¹, Bijan Eghtesad². ¹Pediatric Gastroenterology & Hepatology, Cleveland Clinic, Cleveland, OH, USA; ²Transplant Surgery, Cleveland Clinic, Cleveland, OH, USA

Autosomal recessive polycystic kidney disease (ARPKD) is a disease that has a prevalence of 1:20,000 caused by a mutation in the PKHD1 gene. It is often associated with cystic liver disease such as Caroli's disease with/without congenital hepatic fibrosis. Thirty % will die shortly after birth due to severe kidney disease and those that survive till generally live to adulthood but suffer from chronic kidney disease that may require dialysis or renal transplantation. Recent literature suggests that growth retardation is not necessarily a complication of ARPKD and hypoalbuminemia is rare. Our patient, who had severe portal hypertension (PH) and recurrent cholangitis, underwent liver transplant with resulting resolution of hypoalbuminemia and growth failure. Case: pt was a 10 year old who underwent living donor liver transplant (LDLT) for recurrent cholangitis and variceal bleeding. At the time of LDLT, his height was <<5% and weight was 3%. Two years prior he was growing along his curve. Workup for growth failure was performed and he had a normal growth hormone stimulation test, thyroid function tests, coagulation studies, and bone age. Subsequently, he developed a slow drop in his albumin without proteinuria and no signs of intestinal lymphangiectasia on endoscopy. Over the next 2 years, his serum albumin dropped to less than 3 gm/dl, his weight gain began to slow, and his height flat-lined. LDLT was performed as above and post-transplant, his height climbed to the 20% and his weight to the 75%. Serum albumin has been normal. Discussion: Portal hypertension is a frequent hepatic complication of ARPKD. It can be associated with variceal bleeding, hypersplenism, and recurrent cholangitis, which can cause significant morbidity post kidney transplant. Growth failure can be associated with chronic renal disease but is not necessarily associated with ARPKD. Growth failure can be associated with PH as seen in extrahepatic causes of PH but has generally not been associated with PH in ARPKD. We suggest that in our particular pt that hypoalbuminemia secondary to PH became severe enough to cause growth failure and that correction of PH lead to both resolution of his hypoalbuminemia and improved linear growth. It is unknown whether shunting or only liver transplant would correct the combination of processes.

Abstract# P-323

LIVER TRANSPLANTATION FOR UNRESECTABLE HEPATOBLASTOMA IN CHILDREN.

Srinath Chinnakotla^{1,2}, Naveen Mittal¹, Martha Stegner³, Amanda Blair³, Lisa Cutright¹, Edmund Q. Sanchez², Richard Ruiz², Greg J. McKenna², Henry B. Randall², Goran B. Klintmalm^{1,2}. ¹Liver Transplant, Children's Medical Center Dallas, Dallas, TX, USA; ²Baylor Regional Transplant Institute, Dallas/Ft. Worth, TX, USA; ³Center for Cancer and Blood Disorders, Children's Medical Center Dallas, Dallas, TX, USA

Total hepatectomy and liver transplantation (LT) may be the only opportunity for survival in children with unresectable hepatoblastoma. More recently, outcomes were improved by combining cisplatin-based chemotherapy and surgery. However, the experience for LT in this uncommon indication is limited; hence, we analyzed our results.

Methods:

We evaluated prospectively collected data on 446 pediatric liver transplants performed at Children's Medical Center from 1985 to 2008.

Results:

There were 13 children (3%) transplanted for hepatoblastoma; 9 patients had unresectable liver lesions; 2 patients who had unresectable liver lesions also had vascular extensions (1 to IVC and 1 tumor thrombus extending onto the right atrium-thrombus which was removed en bloc with the liver at the time of LT) and 2 patients had unresectable liver lesions with lung metastasis. (Both lung lesions were surgically resected prior to LT). All patients received pretransplant cisplatin-based chemotherapy and 10 patients received posttransplant chemotherapy. The overall recurrence-free survival is 92% (12/13). The patient survival was 85%, 77%, and 70% at 1yr, 2yrs, and 5 yrs, respectively. The causes of death were sepsis (3) and recurrent tumor (1). The only patient that had recurrence was the child with an IVC extension in whom a complete resection could not be done at transplant.

Conclusions:

Liver transplantation after preoperative chemotherapy offers excellent recurrence-free survival for unresectable hepatoblastoma provided all macroscopic tumor is removed. Lung metastasis/vascular thrombus at presentation that can be surgically removed should not be excluded from liver transplantation.

Abstract# P-324

TURBULENT PORTAL FLOW AFTER LIVING DONOR LIVER TRANSPLANTATION: PREVALENCE, ASSOCIATED CT FINDINGS, AND CLINICAL SIGNIFICANCE ON LONGTERM FOLLOW-UP.

Kyoung Won Kim¹, So Jung Lee¹, Woo Kyoung Jeong², Gi-Won Song³, Shin Hwang³, Sung-Gyu Lee³. ¹Radiology, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea; ²Radiology, Hanyang University Guri Hospital, Guri, Korea; ³Liver Transplantation Surgery, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea

PURPOSE: To determine the prevalence of turbulent flow of portal vein(PV) after living donor liver transplantation(LDLT), to describe associated CT findings, and to evaluate clinical significance on longterm follow-up.

METHOD AND MATERIALS: Among 101 consecutive patients who underwent LDLT between January and May 2004, we found 87 patients in whom longterm follow-up(> 2 years) with CT and DUS was available for review. Of them, eight patients who underwent PV stenting were excluded, and the other 79 constituted the study population. They underwent LDLT using right lobe in 37, left lobe in 19, and dual grafts in 23, producing a total of 102 PV anastomoses. PVs were evaluated for postanastomotic turbulent flow, and 102 PVs were classified into either turbulence or non-turbulence group. On 1st CT scans obtained within a week of LDLT, we measured calibers of the PV anastomosis(ϕ_A) and maximal dilated postanastomotic PV(ϕ_{MPA}), and calculated dilatation-to-stenosis ratio(ϕ_{MPA}/ϕ_A). We also evaluated CT scans for degree of splenomegaly and variceal engorgement. Two-year follow-up CT scans were reviewed in a similar manner. Unpaired t-test and Fisher's exact test were performed to explore if there were differences in CT parameters and changes on follow-up, between turbulence and non-turbulence groups.

RESULTS: On DUS, turbulence was noted in 26(27%) PVs. On first CT, ϕ_A was significantly smaller and ϕ_{MPA} , as well as ϕ_{MPA}/ϕ_A was significantly larger in turbulence group than in nonturbulence group($p<.01$, respectively). The ϕ_{MPA}/ϕ_A on follow-up CT and the difference of ϕ_{MPA}/ϕ_A between 1st and follow-up CT scans were also significantly larger in turbulence group than in nonturbulence group($p<.01$, respectively). On follow-up, progressive splenomegaly and variceal engorgement were more frequent in turbulence group than in non-turbulence group($p=.01,=.03$).

CONCLUSIONS: Turbulent PV flow is a frequent DUS finding after LDLT, and is associated with mild PV stenosis and poststenotic dilatation. Patients with turbulent PV flow may rarely have progressive splenomegaly and variceal engorgement as well as further dilatation of intrahepatic PV on longterm follow-up.

Abstract# P-325

EVALUATION OF THE HEPATIC ARTERY ANASTOMOSIS BY INTRAOPERATIVE ULTRASONOGRAPHY WITH HIGH-FREQUENCY TRANSDUCER IN RIGHT-LOBE GRAFT LIVING DONOR LIVER TRANSPLANTATION.

Kyoung Won Kim¹, Han Song Mun¹, Gi-Won Song², Chul-Soo Ahn², So Yeon Kim³, Shin Hwang², Sung-Gyu Lee². ¹Radiology, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea; ²Liver Transplantation Surgery, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea; ³Radiology, Seoul National University Bundang Hospital, Seongnam, Korea

Objective: To describe utility of intraoperative ultrasonography (IOUS) with high-frequency transducer in living donor liver transplantation (LDLT) using right-lobe graft (RLG).

Methods: This retrospective study was approved by our institutional review board. We performed IOUS in 22 patients (17 men and 5 women; 51±9.0 years) during LDLT using RLG on a Sequoia 512 scanner with an 8-12-MHz linear transducer. Hepatic artery (HA) anastomosis was identified on grayscale US in virtue of short linear echoes encircling lumen produced by stitches or focal waist as a landmark; the diameter and percent (%) stenosis of the anastomosis were measured. Perianastomotic HA was evaluated to detect thrombus or dissection. Doppler study was performed at graft HA. Patients were divided into those with and without abnormalities: 1) thrombosis, 2) dissection, and 3) abnormal Doppler parameters (i.e. peak systolic velocity < 30 cm/s or > 2 m/s, resistive index < 0.5, and systolic acceleration time > 80 msec) were considered abnormalities.

Results: On grayscale IOUS and Doppler study, abnormalities were found in 10 of 22 patients. Diagnoses were anastomotic stenosis (n=2), celiac stenosis (n=1), compromise of HA inflow due to systemic hypotension (n=1), HA thrombosis (n=2), and HA dissection (n=4). Re-anastomoses were done in three; stenosis (n=2) and thrombosis (n=1). Uneventful postoperative recovery was also noted in the other 7 patients without re-anastomoses.

Conclusion: IOUS with high-frequency transducer is a useful method to make an earliest diagnosis of HA complications of LDLT with RLG.

Abstract# P-326

LIVER GRAFT REGENERATION IN RIGHT LOBE ADULT LIVING DONOR LIVER TRANSPLANTATION.

Yu-Fan Cheng¹, Tung-Liang Huang¹, Tai-Yi Chen¹, Leo Leung-Chit Tsang¹, Chao-Long Chen². ¹Liver Transplantation Program and Department of Diagnostic Radiology, Chang Gung Memorial Hospital-Kaohsiung Medical Center, Kaohsiung, Taiwan; ²Liver Transplantation Program and Department of Surgery, Chang Gung Memorial Hospital-Kaohsiung Medical Center, Kaohsiung, Taiwan

The aim of this study is to evaluate the potential predisposing factors that encourage liver graft regeneration after right lobe adult living donor liver transplantation (ALDLT). The records and imaging studies performed 6 months after transplant were reviewed. The volume of the graft 6 months after transplant divided by the standard liver volume was calculated as the regeneration ratio. The predisposing risk factors were compiled from statistical analyses and included age, recipient body weight, native liver disease, spleen size before transplant, patency of the hepatic venous graft, graft weight-to-recipient weight ratio (GRWR), post-transplant portal flow, vascular and biliary complications, and rejection. 145 recipients were enrolled in this study. The liver graft regeneration ratio was 91.2±12.6% (range, 58-151). The spleen size (p=0.00015), total portal flow and GRWR (p=0.005) were linearly correlated with the regeneration rate. Patency of the hepatic venous tributary reconstructed was positively correlated to graft regeneration (p=0.017). Splenic artery ligation was advantageous to promote graft regeneration but splenectomy did not show any positive advantage. In conclusion, spleen size is a major factor contributing to portal flow and may directly trigger regeneration after transplant. Control of sufficient portal flow and adequate hepatic outflow are important factors in graft regeneration.

Abstract# P-327

INTRA-OPERATION MODULATION OF PORTAL GRAFT INFLOW BY SPLENIC ARTERY LIGATION OR SPLENECTOMY IN HIGH RECIPIENT PORTAL INFLOW DETECTED BY COLOR DOPPLER ULTRASOUND.

Hsin-You Ou, Tung-Liang Huang, Tai-Yi Chen, Leo Leung-Chit Tsang, Allan M. Concejero, Chao-Long Chen, Yu-Fan Cheng. *Diagnostic Radiology, Chang Gung Memorial Hospital-Kaohsiung Medical Center, Kaohsiung, Taiwan; Department of Surgery, Chang Gung Memorial Hospital-Kaohsiung Medical Center, Kaohsiung, Taiwan*

Purpose:

To evaluate the clinical significance of modulating the recipient portal inflow (rPVF) in adult living-donor liver transplantation (ALDLT) through splenic artery ligation or splenectomy in high recipient portal inflow detected by color Doppler ultrasound, by focusing on postoperative abnormal liver functions and prevention small-for-size syndrome.

Material and methods:

From the year of 2003 to 2007, there were 132 ALDLT evaluated by Doppler ultrasound through the intraoperative and postoperative procedures. We focused on the graft hepatic hemodynamics against the graft function and outcome.

Results:

In the 132 cases, the portal inflow increased after liver transplantation with rPVF around 54.5-475 ml/min/100gm graft weight (mean 156). The prolonged hyperbilirubinemia occurred after LDLT was defined as total bilirubin gradually elevated and exceeded 5 mg/dl in post-LDLT day 7. There were 14 cases whose portal hyperperfusion with rPVF were over 250 ml/min/100gmGW. Six patients received perioperative splenic arterial ligation or splenectomy, and only one of them had prolonged hyperbilirubinemia. On the other hand, eight patients were without modulation of portal inflow, and five of them suffered from prolonged hyperbilirubinemia in early post-liver transplanted periods, including one expired due to severe postoperative liver failure.

Conclusion:

Portal hyperperfusion is one of major risk factors for postoperative liver failure in ALDLT, especially for small-for-size syndrome. Intra-operation modulation of portal graft inflow by splenic artery ligation or splenectomy is one of good choice in high recipient portal inflow (rPVF over 250 ml/min/100gmGW) detected by color Doppler ultrasound.

Abstract# P-328

AN ALTERNATIVE PERCUTANEOUS TRANSPLENIC APPROACH IN TREATMENT OF PORTAL VENOUS OCCLUSION AFTER LIVING DONOR LIVER TRANSPLANT.

Tung Liang Huang^{1,2}, Yu Fan Cheng^{1,2}, Shin You Ou^{1,2}, Leo Leung Chit Tsang^{1,2}, Chun Yen Yu^{1,2}, Chao Long Chen². ¹Diagnostic Radiology, Chang Gung Memorial Hospital, Kaohsiung, Taiwan; ²Liver Transplantation Program, Chang Gung Memorial Hospital, Kaohsiung, Taiwan

Background:

Percutaneous transhepatic (PTH) approach with angioplasty was accepted as a treatment of choice for post-transplantation portal venous (PV) occlusion; but in complete PV occlusion, transhepatic approach became difficulty and hazard, the percutaneous transsplenic (PTS) approach may as an alternative treatment method.

Patients and Methods:

We performed PTS instead of PTH approach for two cases of portal complication in the last year.

Case 1: a 2 y/o boy under living donor liver transplantation (LDLT). 18months after transplantation, PV occlusion was found during the Doppler ultrasound (DUS). Computed tomographic angiography showed total PV occlusion with collaterals. Interventional radiological procedure was indicated but the PTH procedure was difficult. The alternative PTS approach was considered.

Case 2: a 51 y/o man with LDLT for 4 years had portal stenosis and persisted ascites. PTH with portal balloon dilatation firstly but severe hemothorax encountered during the procedure. Unfortunately the case had PV restenosis and further PV stenting was indicated. The alternative PTS approach was considered.

The PTS procedure started with puncture of the splenic vein (SV) by using a Chiba needle under ultrasonographic guidance. Then the 0.035-inch guide wire and J curve catheter were used to pass through the PV stenosis. Direct

PV venography was done. A Wallstent (9.0mmx5.0cm, Boston Scientific) was placed bypass the stenosis. Portography was done again. The PTS tract was sealed by using coils and glue. DUS follow up was done to confirm the well patency and opening of the Wallstent.

Results:

There were no major complications during the PTS approach procedures. After the Wallstents placed in position between the PV to the SV, portography showed patent PV and DUS showed marked increase of hepatopetal PV inflow. The splenic hemostasis problem was successfully prevented with sealing the PTS tract by coils and glue. The complications of graft dysfunction and ascites were improved. There was no any PV restenosis in the cases after following 4 months up to now.

Conclusion:

When the PTH approach is difficulty for the treatment, PTS approach is an alternative safety pathway, beside this, the puncture injury and hemostasis problem of the liver graft can be also diminished.

Abstract# P-329

TREATMENT OF PSEUDOANEURYSM FOLLOWING LIVER BIOPSY. Kwan Woo Kim, Sung Gyu Lee, Shin Hwang, Ki Hun Kim, Chul Soo Ahn, Deok Bog Moon, Tae Yong Ha, Gi Won Song, Dong Hwan Jung, Je Ho Ryu, Nam Kyu Choi, Young Dong Yu, Gil Chun Park, Joo Dong Kim. *Asan Medical Center, Seoul, Republic of Korea*

Introduction : Hepatic artery pseudoaneurysm is a rare but dangerous complication of both acute surgical and chronic injury to the hepatic artery.

There are many causes of HAP, but it usually follows trauma, in the form of blunt or penetrating abdominal injury or inadvertent surgical or interventional injury.

However, early diagnosis and intervention can result in an excellent long-term outcome.

We reported two unusual complicated case of intrahepatic pseudoaneurysm after liver biopsy.

Case report 1 : Case 1 occurred following transhepatic liver biopsy in donor pre-op work up in a 23 years old female donor.

Intrahepatic pseudoaneurysm at segment 6 of liver graft was showed in post op routine follow up CT scan after liver transplantation.

Angiography was performed and the segment 6 branch was embolized using PVA and one coil.

Intrahepatic pseudoaneurysm was successfully embolized.

Case report 2 : Case 2 occurred following transjugular liver biopsy due to elevated liver enzyme after liver transplantation in a 69 years old female.

Intrahepatic pseudoaneurysm at right posterior segment of liver graft was showed following CT scan.

Hepatic angiogram was showed a large pseudoaneurysm adjacent to right hepatic vein.

Selective right hepatic artery angiogram through the microcatheter did not demonstrate feeding artery and failed to embolization the pseudoaneurysm intraarterial approach.

The pseudoaneurysm was managed percutaneous transhepatic injection of thrombin.

Intrahepatic pseudoaneurysm was successfully embolized.

Conclusion : The intrahepatic pseudoaneurysm following liver biopsy was successfully treated using intraarterial coil embolization and percutaneous transhepatic thrombin injection.

Hepatic artery pseudoaneurysm is a rare but dangerous complication of both acute surgical and chronic injury to the hepatic artery.

However, early diagnosis and intervention can result in an excellent long-term outcome.

Abstract# P-330

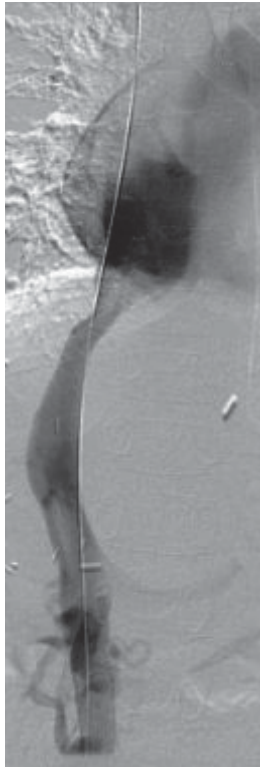
SUCCESSFUL SEQUENTIAL THROMBOLYSIS AND BALLOON DILATATION OF VENA CAVAL THROMBOSIS AND STENOSIS POST LIVER TRANSPLANTATION. Iftikhar

Khan¹, Mohammad Al-Jared², Ahmed Elgohary¹, Yahya Saleh¹, Rehana Nisar¹, Hosham Malik¹, Zahid Arain¹, Hammood Hebbi¹, Sami Wali¹, Atef Bassas¹. ¹Prince Sultan Liver Transplant Unit, Riyadh Military Hospital, Riyadh, Saudi Arabia; ²Department of Interventional Radiology, Riyadh Military Hospital, Riyadh, Saudi Arabia

Interventional radiologist is a vital member of transplant team who should be available for immediate consultation to help in management of postoperative problems seen exclusively in transplant patients. We report a case of 7-year-old boy who after liver transplantation developed renal dysfunction, ascites, hepatic allograft dysfunction and pedal edema secondary to partial thrombosis of suparenal vena cava and stenosis of suprahepatic vena cava. The diagnosis was confirmed by cavography.



Thrombolysis was achieved by local infusion of TPA. This led to immediate complete reversal of renal dysfunction. Successful balloon dilatation of stenotic vena cava resulted in complete resolution of his clinical features and normalization of liver allograft function.



Advances in and application of minimally invasive percutaneous endovascular techniques in liver transplant patients have resulted in increase in graft and patient survival.

Abstract# P-330.5

MRCP ACCURATELY DIAGNOSED BILIARY COMPLICATIONS AFTER LIVER TRANSPLANTATION: A COMPARISON WITH ENDOSCOPIC RETROGRADE CHOLANGIOGRAPHY AND PERCUTANEOUS TRANSHEPATIC CHOLANGIOGRAPHY.

Lior H. Katz^{1,5}, Ofer Benyamini^{2,5}, Marius Brown^{1,5}, Jaquelin Sulkes^{3,5}, Eitan Mor^{4,5}, Ziv Ben-Ari^{1,5}. ¹Liver Institute and Department of Medicine D, Rabin Medical Center, Petach-Tikva, Israel; ²Department of Diagnostic Radiology, Rabin Medical Center, Petach-Tikva, Israel; ³Epidemiology Unit, Rabin Medical Center, Petach-Tikva, Israel; ⁴Department of Organ Transplantation, Rabin Medical Center, Petach-Tikva, Israel; ⁵Sackler School of Medicine, Tel-Aviv University, Tel-Aviv, Israel

Biliary complications after liver transplantation remain a serious cause of morbidity, mortality, and graft dysfunction or failure in recipients. Direct cholangiographic techniques such as endoscopic retrograde cholangiopancreatography (ERCP) or percutaneous transhepatic cholangiography (PTC) are invasive and carry a relatively high rate of procedure-related complications. Magnetic resonance cholangiopancreatography (MRCP) is a safe and accurate tool that provides detailed presentation of the biliary tract. The aim of this study was to evaluate the diagnostic value of MRCP following liver transplantation in detecting biliary complications and to compare these findings to those that were found in either ERCP or PTC. Twenty-seven consecutive patients (mean age 48.8 ± 14.9 years, 19 males) who underwent liver transplantation and presented with clinical and biochemical or ultrasonography or histologic findings suggestive of biliary origin underwent MRCP.

In eighteen (66.6%) patients biliary complications were detected. Biliary stricture was the most common findings (12/18, 66.6%), of them, eleven (91.6%) were anastomotic. Diffused intra-hepatic biliary strictures were detected in 5 patients (27.7%); two with recurrence of PSC and three ischemic. In one patient only choledocholithiasis was detected. In 9 (33.3%) patients the MRCP was normal. Eight patients underwent ERCP and another eight PTC. A statistical significant correlation was detected between the MRCP

and the: ERCP findings (p=0.01), PTC findings (p= 0.01). The sensitivity and specificity of the MRCP in our study were 88.9%. The PPV and NPV were 94.1% and 80.0%, respectively.

In conclusion, MRCP is an accurate and useful imaging procedure in the assessment of biliary complications after liver transplantation.

Abstract# P-331

SURVIVAL OF CLOSTRIDIUM PERFRINGENS SEPSIS IN A LIVER TRANSPLANT RECIPIENT.

Geraldine Diaz¹, Thomas Boyer², Rainer Gruessner³, John Renz³, John Renz. ¹Anesthesia/Critical Care, University of Arizona, Tucson, AZ, USA; ²Medicine, University of Arizona, Tucson, AZ, USA; ³Surgery, University of Arizona, Tucson, AZ, USA

Clostridium perfringens sepsis following orthotopic liver transplantation (OLT) is a rare but reported complication that historically results in mortality or emergent retransplantation (ReTx). Complications from C. perfringens emphysematous gastritis have contributed to the death of a live liver donor as well. We describe the first documented survivor of C. perfringens sepsis following OLT that was managed without laparotomy or ReTx. The patient is a 52-year male who underwent OLT for end-stage liver disease secondary to hepatitis C with hepatocellular carcinoma. His physiologic model for end-stage liver disease score was 16 and he received an allograft from a 46-year male with hepatitis C and B serologies. His intra-operative course and hospitalization were unremarkable. Four months post-OLT, he presented to the Emergency Department (ED) complaining of abdominal pain, loss of appetite, and lethargy. He rapidly decompensated requiring emergent transfer to the intensive care unit for metabolic acidosis and hypotension. Vasodilatory shock progressed to multisystem organ failure including: encephalopathy, cholestasis, respiratory failure, atrial fibrillation, renal failure, anemia, thrombocytopenia, and disseminated intravascular coagulopathy. Cross sectional imaging demonstrated pneumobilia but no gas within the hepatic parenchyma. In addition, there was significant wall thickening of the stomach, small and large bowel consistent with ischemic enteritis. Blood cultures were positive for C. perfringens. The patient also received percutaneous transhepatic cholangiography, liver biopsy, liver culture, and endoscopy. The patient's hemodynamic status and the lack of a single locus of necrosis precluded surgery. The patient was treated with aggressive medical therapy including intubation, vasopressors, amiodarone, fluid replacement, continuous renal replacement therapy, antibiotics, and transfusion. The patient responded to therapy and was extubated within 7 days. To date, C. perfringens sepsis in OLT recipients has been uniformly fatal without emergent ReTx. This is the first report of a survivor of C. perfringens sepsis managed without surgery. This poster paper reviews the existing literature of C. perfringens post-OLT and elaborates on the medical management performed on the above recipient.

Abstract# P-332

A RANDOMIZED, CONTROLLED, OPEN LABEL STUDY TO EVALUATE THE EFFECT OF EVEROLIMUS ON FIBROSIS PROGRESSION IN LIVER TRANSPLANT RECIPIENTS WITH RECURRENT HEPATITIS C: THE REVERT STUDY.

F. Villamil¹, A. Gadano², F. Zingale³, R. R. Perez⁴, S. Yantorno¹, A. Otero⁵, A. Avagnina⁶. ¹Fundación Favaloro, Buenos Aires, Argentina; ²Hospital Italiano, Buenos Aires, Argentina; ³Instituto Cardio Vascular de Rosario, Rosario, Argentina; ⁴Hospital Italiano, Mendoza, Argentina; ⁵Novartis Pharma, Argentina; ⁶CEMIC, Buenos Aires, Argentina

BACKGROUND Recurrent Hepatitis C virus (rHCV) infection in immunosuppressed liver transplant (LT) recipients is characterized by an accelerated fibrogenesis which can lead to allograft cirrhosis in at least 30% of patients within 5 yrs. Recent experimental data has shown that mTOR-guided HSC-activation is a key factor to induce liver fibrosis. Use of mTOR-inhibitors such as sirolimus and everolimus (EVL) was associated with antifibrotic and antiproliferative effects in several animal models of liver fibrosis and cirrhosis. The **REVERT** study (NCT00582738) is aimed to evaluate the effect of EVL on fibrosis progression in LT patients with rHCV. **DESIGN** REVERT is a Phase II, 24M, randomized, multicenter, parallel-group, open label trial. **Inclusion criteria** 1) Age 18-70 yrs 2) Primary LT with deceased or living donors performed at least 6M before enrolment 3) Documented histological rHCV with fibrosis stage I-IV (Ishak-Knodell Score). 50 stable patients on maintenance calcineurin inhibitor (CNI)-based immunosuppression with no current use of antiviral therapy randomized 1:1 to either CNI group (std dose tacrolimus or cyclosporine

± mycophenolic acid ± steroids) or EVL group (reduced CNI dose ± EVL [1.0-1.5mg b.i.d] ± steroids). Once EVL target trough level is $\geq 6 - \leq 12$ ng/mL, CNI will be eliminated. Study recruitment is ongoing and data will be available in late 2011. **OBJECTIVES** The primary objective is to compare fibrosis staging scores between baseline and 24M for each patient (24M is the expected time to advance 1 fibrosis stage). The secondary objectives are to compare 1) Mean fibrosis score at 12/24 M 2) Proportion of patients with an increase of ≥ 1 pt in fibrosis score between baseline and 24M 3) Fibrosis area by semiquantitative histomorphometry 4) A composite of BPAR, death or graft loss at 12/24 M and 5) Renal function (GFR; MDRD). An external, independent Data Monitoring Committee (DMC) instituted prior to study start continuously reviews study data. **CONCLUSION** REVERT is the first study to assess the clinical utility of EVL as monotherapy against fibrosis progression in LT recipients with rHCV.

Abstract# P-333

TREATMENT OF HEPATIC STEATOSIS FOLLOWING LIVER TRANSPLANTATION. Sean C. Kumer¹, Curtis K. Argo², Patrick L. Northup², Carl Berg², Abdullah Al-Osaimi², Steve Caldwell², Timothy L. Pruett¹, Timothy M. Schmitt¹. ¹*Surgery, University of Virginia, Charlottesville, VA, USA*; ²*Digestive Health, University of Virginia, Charlottesville, VA, USA*

Purpose: To describe and evaluate the appearance and treatment of increased steatosis in a post-liver transplant population.

Materials & Methods: We identified 12 patients with the appearance of marked steatosis following liver transplantation. Patients were biopsied per routine protocol or for elevation of liver enzymes. Patient pre-transplant diagnosis, BMI, duration between transplant and diagnosis, laboratory values, and immunosuppression regimens were evaluated. Following pathological confirmation of hepatic steatosis, medical treatment was initiated. Patients were given vitamin E, actigall, fish oil, lipid lowering agents and improved diabetic control. Follow up consisted of laboratory examination and biopsy.

Results: The majority of patients had cryptogenic cirrhosis (n=6), followed by NASH (n=2), HCC/HCV (n=2), alcoholic (n=1), and autoimmune (n=1). The average BMI at diagnosis was 32 with a range of 21-43. The average duration until diagnosis of marked steatosis was 857 days (Range 44-4100 days). The average cholesterol was 166 (83-302) and triglycerides were 212 (51-538). Immunosuppression consisted of low-dose Tacrolimus in the majority of patients. One patient was on Sirolimus monotherapy. Five patients were also receiving Cellcept. While only 3 patients were on low-dose prednisone (2.5-5 mg/day). After an average of 9 months of treatment, we observed improvement in their metabolic and liver profiles.

Conclusion: Recurrence of non-alcoholic fatty liver disease (NAFLD) is a known entity typically associated with obesity, hyperlipidemia, and diabetes. We describe a population of post-liver transplant patients who developed recurrent steatosis with clinical implications. The majority (10/12) of these patients developed this condition within the first 1-2 years following transplant. Nine of these patients can grossly be grouped as NAFLD and have a unifying theme of elevated BMI and metabolic syndrome. Treatment with vitamin E, actigall, and fish oil in conjunction with lipid lowering agents and tighter diabetic control may offer additional medical therapy which may ultimately improve graft survival.

Abstract# P-334

IT IS LIVER TRANSPLANTATION NECESSARY FOR HEPATOPORTAL SCLEROSIS? Elaine C. Ataide, Marilia I. Leonardi, Raquel B. Stucchi, Adilson R. Cardoso, Cristina A. Caruy, Jazon R. Almeida, Tiago S. Pereira, Cecilia A. F. Escanhoela, Ilka F. S. F. Boin. *Unit of Liver Transplantation, Faculty of Medical Science - State University of Campinas, Campinas, Sao Paulo, Brazil*

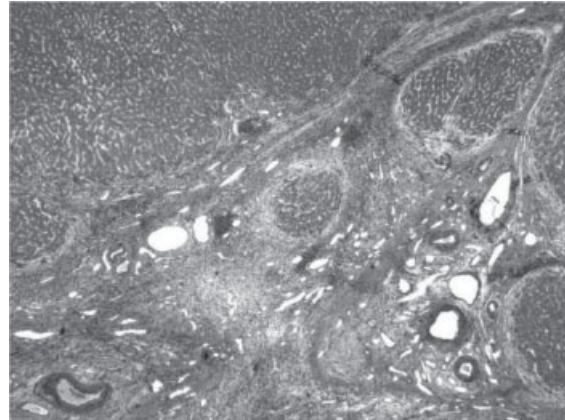
Introduction: Hepatoportal sclerosis (HPS) is one of the causes of noncirrhotic portal hypertension. In general, hepatic synthetic function is preserved and treatment is aimed at relief of the portal hypertension. Nevertheless, liver transplantation (LT) has been performed in patients with HPS, on the presumption that they had cirrhosis.

Aim: To verify the results obtained with LT and to study the clinical and pathological features of HPS patients who underwent to LT.

Methods: We studied 300 LT and observed that 6 of them had a definite diagnosis of HPS that was based on pathologic grounds alone that were identified based on both gross and microscopic examination of the explanted

native liver. The demographic data were analyzed retrospectively.

Results: From 1991 to 2007 it was observed that 6 patients were identified by pathologic exam as HPS. Three were men; mean of age: 42.3 years; 5 Child-Pugh C and 1 B; MELD score: 19.6(16-27); 2 of them had hyponatremia; etiological diseases were classified as 4 cryptogenic cirrhosis, 1 alcohol and 1 HVB. Mean value of INR was 2.45(1.86-4.1); of albumin was 3.1 (2.2-4.3) of total bilirubin was 2.7(0.6-6.9); of creatinine was 0.88(0.4-1.23); of AST was 26.5 (23-88) and of ALT was 27.2 (18-46); the explanted livers had weights ranging from 930 to 1180 g. No occlusive portal vein thrombosis was not present. None liver showed histological features of the presumed underlying liver disease. On histological examination, dense portal fibrosis and marked phlebosclerosis were observed.



The Kaplan-Meier method showed 50% of survival on 5th year.

Conclusion: HPS can demonstrate synthetic liver dysfunction and reduced liver simulating liver cirrhosis, and the phlebosclerosis may contribute to hepatic parenchymal loss and subsequent synthetic dysfunction leading the patient to LT. Perhaps, a correct diagnosis may be obtained by transjugular biopsy avoiding a unnecessary liver transplantation.

Abstract# P-335

EARLY DIAGNOSIS AND TREATMENT OF BILIARY ANASTOMOTIC STRICTURES AFTER PEDIATRIC SPLIT LIVER TRANSPLANTATION. Marco Spada, Pieralba Catalano, Roberto Miraglia, Fabrizio Di Francesco, Silvia Riva, Davide Cintorino, Marco Sciveres, Bruno Gridelli. *ISMETT, UPMC, Palermo, Italy*

PURPOSE: Analyze the efficacy of a protocol of early diagnosis and treatment of biliary complications after split liver transplantation in children.

METHOD: Over 5 years, we performed 95 liver transplantations (LTx) in 80 children. 75 were primary LTx that represent our study group. Recipient median age was 2.4 yrs. Median follow up was 25 months. Split liver was *in situ*. Anastomotic biliary stricture (ABS) was investigated with liver ultrasound and liver biopsy and confirmed with percutaneous transhepatic cholangiography (PTC).

RESULTS: 3-year patient and graft survivals were 86%, 82%. Recipients received 12 whole livers (WL), 53 left lateral segments (LLS), and 11 extended right grafts (ERG). Biliary reconstruction was with duct-to-duct anastomosis in 7 cases (WL=1, ERG=6), single hepaticojejunostomy (HJ) in 52 (WL=11, LLS=36, ERG=5), and double HJ in 16 LLS recipients. No stents were used, except in 7 LLS recipients in whom a transhepatic biliary stent was placed intraoperatively. ABS developed in 18 cases (WL=17%, LLS=28%, ERG=9%). In 40% of the cases there was no evidence of biliary tree dilatation while histologic signs of mechanical cholestasis were always present. PTC confirmed the diagnosis. 17 patients underwent stent placement and balloon dilatation. In two cases the stricture could not be passed or did not resolve and HJ redo was performed. PTC with bilioplasty was successful in 76% of the cases. In 3 cases stricture recurred; one was treated with Colapinto needle and bilioplasty and two still have a biliary stent in place. No grafts were lost because of ABS. Of the 7 patients with intraoperative stent placement, 2 developed ABS and intrahepatic biliary stricture. Univariate and multivariate analysis identified among 18 parameters only LLS as risk factor for ABS development.

CONCLUSION: ABS is a frequent complication after split LTx. Its early diagnosis is crucial to preserve graft function and can be efficiently obtained combining clinical, radiologic and histologic findings. PTC and bilioplasty are effective in ABS treatment.

Abstract# P-336

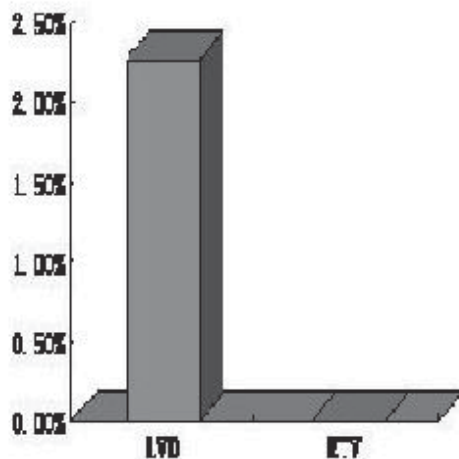
THE SAFETY AND EFFICACY OF HBIG IN COMBINATION WITH ETV OR LVD IN PREVENTING RECURRENCE OF HBV AFTER LIVER TRANSPLANTATION WAS EVALUATED HERE. Wang Dong, Ye Ji Zhu, Ming Guang Li, Sheng Xi Leng. *Department of Hepatobiliary Surgery, Peking University People's Hospital, Beijing, China*

22 liver transplantation patients received combination therapy with ETV (0.5mg per day) and 221 patients received combination therapy with LVD (100mg per day). In initial treatment patients, ETV had more competence in decreasing the level of HBV replication than LVD did.

mean degree of decrease of HBV DNA level (log10 copies/mL)	ETV	LVD	P value
2 week	-1.37	-0.88	<0.01
4 week	-2.03	-1.14	<0.01
8 week	-2.26	-1.45	<0.01
12 week	-2.68	-1.56	<0.01

none

The mean cumulative doses of HBIG administered within the first half year in ETV group was fewer than LVD group (14000IU vs 16400IU, respectively, $p < 0.05$). No HBV recurrence was found in ETV group, while HBV recurrence was observed in 5 patients of LVD therapy (0% vs 2.26%, respectively, $p < 0.05$).



80% (4/5) of HBV recurrence in LTD group were due to HBV mutation and 2 patients had to be retransplanted. Substitution with ETV (1.0mg per day) in HBV recurrent patients could lower levels of both HBV DNA replication and hepatic enzymes. No side effects of ETV were found. In conclusion, ETV plus low dose of intramuscular HBIG prophylaxis is a safe and more efficient regimen to prevent recurrent HBV infection following liver transplantation than LVD does. HBV recurrence after liver transplantation is a catastrophic event and is mostly due to HBV mutation, substitution of ETV may be a good choice.

Abstract# P-337

TEMPORAL (GIANT CELL) ARTERITIS & BRUCellosis POST LIVER TRANSPLANTATION PRESENTING WITH OBSTRUCTIVE PATTERN OF LIVER ENZYMES. Mohammad M. Hamshaw, Abdaal W. Khan, Sherif El Hanafi, Abdulmajeed Al Abdulkareem. *Hepato-Biliary Sciences and Transplantation, King Abdulaziz Medical City, Riyadh, Saudi Arabia*

Introduction:

Post-liver transplant, a cholestatic picture of liver enzymes suggests biliary tract pathology. Other causes include ACR, recurrent hepatitis B&C or drugs. Diagnosis frequently require invasive biliary imaging and liver biopsy. Two cases of cholestatic liver enzyme elevation are described 8 months and 8

years after transplant which were found to be associated with temporal (giant cell) arteritis and monoarticular left knee arthritis due to brucellosis, respectively.

Patients and Methods:

Case 1:

58 year old man status post liver transplant for HCV cirrhosis admitted with left temporal headache for 4 weeks. Clinical exam-tenderness left temple, left ptosis (3rd nerve palsy) pupillary reflexes spared. He was found to have altered liver enzymes mainly alkaline phosphatase (1170 IU/ml) and GGT (437 IU/ml). T Bilirubin N, ALT 44 U/l. Biopsy 1 month ago: mild HCV recurrence with fibrosis 1/6 (Ishaq) and inflammatory score 3/18. Ultrasound & ERCP: nondiagnostic. Put on prednisone 40mg daily. Headache & LFT's also showed rapid improvement with alkaline phosphatase coming down to 319 IU/L and GGT to 216 IU/L. Biopsy of the left temporal artery consistent with healing temporal arteritis.

Case 2:

S/P OLTx in USA 8 years earlier for HCV cirrhosis. HCV recurrence noted 5 months ago. Presented with generalized fatigue for 2 months and left knee pain and swelling, fever low grade x 2 weeks. Medications: Tacrolimus, Glibenclamide, nexium, darbepoetin, l-thyroxine, Peg IFN & ribavirin. O/E pallor, moderate left knee joint effusion with joint line tenderness, decreased range of motion. Joint aspirate: highly viscous yellowish fluid, no crystals, Jt. WBC:12000 with PMN:77%. Brucella antibody titre was 1: 2560, aspirate culture showed brucella species. His LFTs showed T Bilirubin 13 micromol/l, ALT: normal; alkaline phosphatase increased from 129 IU/l to 980 IU/L, and GGT went from 294 to 933 IU/L. HCV RNA was negative. Ultrasound & ERCP normal. Treated with streptomycin & Doxycycline with satisfactory clinical and biochemical improvement.

Conclusions: Giant cell arteritis and brucellosis should be considered in the differential diagnosis of cholestatic LFTs in the appropriate clinical setting. This would avoid unnecessary invasive investigations of liver and biliary tract.

Abstract# P-338

PREVENTION OF HEPATITIS B RECURRENCE POST LIVER TRANSPLANT: USE OF IM HBIG. Anwar Jarrad¹, Saeb Hammoudi¹, Muawieh Ababneh¹, Aiman Obed², Abdulla Al Bashir¹. ¹Hepatology and Gastroenterology, University Hospital, Amman, Jordan; ²Transplant Surgery, University Hospital Goettingen, Goettingen, Germany

Background: Hepatitis B tends to recur after liver transplant.

Liver Transplant is carried in the low risk group.

Ways to combat recurrence includes IV HBIG at high dose and long duration.

Some studies have shown similar success with IM smaller dose and oral Lamivudine, which we explored in our study population

Methods: 14 patients with living donor liver transplant with the diagnosis of hepatitis b ESLD were transplanted between 11/2004 till 8/2008. ALL except one patient were HBV DNA negative or < 2000 copies/ml at the time of liver transplant.

Most received Lamivudine before liver transplant.

ALL were given HBIG, 800-1000 IU/day for 7-10 days immediately post transplant and continued with monthly IM, HBIG 800 – 1000 IU, IM and Lamivudine.

After one year, HBIG was stopped and all patients were continued only on Lamivudine.

Results: 14 patients were transplanted for hepatitis B. Data for analysis is available on 10 patients who survived more than 6 months. Follow up from 6 - 40 months.

ALL patients received HBIG IM in the first year with Lamivudine (HBsAg titer >100 iu/ml).

ALL 10 patients until now are HBsAg and HBV DNA negative with normal graft function.

Conclusion: IM, HBIG and Lamivudine in the first year post liver transplant to prevent hepatitis B recurrence appears safe and effective.

Continuation with Lamivudine after the first year in this group is probably needed though the exact duration is unknown till now.

Abstract# P-339

PRETRANSPLANT PRIMARY BILIARY CIRRHOSIS RECURRENT POST TRANSPLANT AS AUTOIMMUNE HEPATITIS. Anwar Jarrad¹, Hassn Enab², Saeb Hammoudi¹, Aiman Obed³, Abdulla Al Bashir¹. ¹Hepatology, University Hospital, Amman, Jordan; ²Pathology, University Hospital, Amman, Jordan; ³Transplant Surgery, University Hospital Goettingen, Goettingen, Germany

Case Report: we report here a case of primary biliary cirrhosis which had end stage liver disease pretransplant but recurred as AIH after LDLT.

Case History: 52 years old woman was transplanted in January 2006 at our hospital for ESLD secondary to primary biliary cirrhosis.

Post transplant course was complicated by chylous ascites, pleural effusion, and biliary anastomotic stricture which were treated by biliary dilation and stenting.

Upon discharge, she was given Tacrolimus Immunosuppressant as single agent, her follow up revealed normal enzymes except high alkaline phosphatase.

After 24 months post LT she had Gastric variceal bleeding and was managed with Histoacryl injection and esophageal varices was banded prophylactically.

Ultrasound did not show changes from previous US few months back.

26 months post LT she was noted to have increasing liver enzymes up to 3 times, prolongation of prothrombin to an INR of 1.4 decreasing platelets ~ 120000.

Liver biopsy was done and revealed severe changes of AIH with precirrhosis (stage 5/6, and severe inflammation (Grade 4/4), ANA positive 1/2560 (Was negative pre transplant), AMA and ASMA both are negative.

She was shifted to Prednisolone, Azathioprine, and was continued on Tacrolimus 1 mg/day.

2 weeks later she almost normalized her liver enzymes and prothrombin.

She was continued on low dose steroids, Azathioprine, and 1mg Tacrolimus.

Conclusion: this is a rare case where pretransplant PBC recurred as post transplant AIH.

Though both are immune diseases but the treatment is different and this diagnosis could have been missed easily and resulted in end stage liver disease.

Abstract# P-340

INTRAOPERATIVE RED CELL AND PLATELET TRANSFUSION HAVE NO EFFECT ON SURVIVAL OR HISTOLOGIC DISEASE RECURRENCE IN HEPATITIS C PATIENTS AFTER LIVER TRANSPLANTATION. Mark J. Rice¹, Adam Wendling¹, Roberto J. Firpi², Alan W. Hemming², David R. Nelson², Wilhelm K. Schwab¹, Nikolaus Gravenstein¹, Timothy E. Morey¹. ¹Department of Anesthesiology, University of Florida College of Medicine, Gainesville, FL, USA; ²Department of Surgery, University of Florida College of Medicine, Gainesville, FL, USA

Background: The literature suggests blood product transfusions have a negative impact on liver transplantation survival. We retrospectively investigated the impact of intraoperative blood product usage on liver transplantation survival for patients being transplanted for hepatitis C-related end stage liver disease. In addition, we analyzed a potentially more sensitive metric, namely disease recurrence and fibrosis progression, obtained from follow-up liver biopsies.

Methods: One hundred ninety four consecutive patients with hepatitis C virus (HCV) undergoing liver transplantation were included in the analysis. To investigate the effect of red cell or platelet transfusions on post-transplant HCV recurrence, hepatic biopsy data from four months and one year after transplantation were studied. In addition, survival data were analyzed.

Results: There was no effect of intraoperative red cell or platelet transfusion on either one or five year patient survival following liver transplantation. There was no difference in HCV disease recurrence or progression of hepatic fibrosis at four months or one year attributable to either red cell or platelet transfusion.

Conclusions: This study was not able to confirm an effect on survival of HCV-infected liver transplant patients related to intraoperative transfusion of red cells or platelets. In addition, these transfusions had no effect on HCV recurrence or fibrosis progression. This is not to condone a liberal transfusion practice, but rather to reassure that when clinically indicated, transfusion does not have a significant impact on patient survival or disease recurrence in HCV-infected liver transplant patients.

Abstract# P-341

CHANCES AND LIMITATIONS OF NONINVASIVE TESTS IN THE ASSESSMENT OF LIVER FIBROSIS IN LIVER TRANSPLANT PATIENTS. Carsten Kamphues¹, Lotz Katharina¹, Röcken Christoph², Neumann P. Ulf¹, Neuhaus Peter¹. ¹Department of General, Visceral and Transplantation Surgery, Charité, Campus Virchow Klinikum, Berlin, Germany; ²Department of Pathology, Charité, Campus Virchow Klinikum, Berlin, Germany

Background: Since fibrosis progression resulting in liver cirrhosis represents the main reason for graft lost in patients after liver transplantation an early detection of liver fibrosis is crucial. In recent years several non-invasive tests for the assessment of liver fibrosis have been developed.

Methods: We prospectively assessed the stage of liver fibrosis of 135 liver transplant patients (94 HCV, 41 alcoholic cirrhosis) using liver biopsy, transient elastography and serum markers.

Results: In the HCV group the AUROC for diagnosis of significant fibrosis (F≥2) and cirrhosis (F=4) were 0.81 (NPV=0.58, PPV=0.9) and 0.87 (NPV=0.94, PPV=0.56). In the alcoholic cirrhosis group significant fibrosis (F≥2) was diagnosed with an AUROC of 0.83 (NPV=1.00, PPV=0.23). In both groups higher AUROC values were reached in patients with a BMI of less than 25 kg/m² and both serum markers showed no significant correlation to liver fibrosis.

Conclusion: The transient elastography is a reliable test for exclusion of liver cirrhosis in HCV transplant and significant liver fibrosis in alcoholic transplant patients. For the diagnosis of significant liver fibrosis in HCV transplant patients the transient elastography reaches good results but cannot replace liver biopsy. Both serum markers APRI and FIB-4 are not feasible to assess liver fibrosis in liver transplant patients.

Abstract# P-342

THE HEPATITIS B VIRUS (HBV) SERO-NEGATIVE CONVERSION WITH ENTECAVIR AND HIGH DOSE HBIG COMBINATION THERAPY FOR THE PATIENTS WITH HBV RECURRENCE AFTER LIVER TRANSPLANTATION. Young-Kyu Kim¹, Kwang-Woong Lee¹, Seong Yeong Cho¹, Sung-Sik Han¹, Seong Hoon Kim¹, Sun-Young Kong², Yu Mi Lee¹, Sang Jae Park¹. ¹Center for Liver Cancer, National Cancer Center, Goyang-si, Gyeonggi-do, Korea; ²Laboratory Medicine, National Cancer Center, Goyang-si, Gyeonggi-do, Korea

BACKGROUND: HBV re-infection after liver transplantation (LT) often has a severe course and could result in graft failure, so prompt antiviral medication is essential. However, there have been few reports regarding sero-negative conversion trial after recurrence of HBV. In this study, we reported the efficacy of combination therapy with Entecavir and high dose HBIG for the HBV re-infected patients after LT. **METHOD:** Among 101 HBV patients who underwent liver transplantation (2 deceased donor LT, 99 living donor LT) between February 2005 and December 2008 in National Cancer Center, Korea, 10 patients (10%) who had HBV recurrence even with HBV prophylaxis were included in this study. The prophylaxis regimen after LT was Lamivudine and HBIG combination therapy (HBsAb titer > 500 IU/ml) for 1 year, and HBIG monotherapy (HBsAb titer > 200 IU/ml) after then. 8 patients were male and mean age was 53.3. The recurrence was defined by sero-positive conversion of HBsAg. The mean duration until recurrence of HBV was 26 (5 - 41) months after LT. All re-infected patients received Entecavir 0.5 mg once a day and consecutive high dose HBIG to maintain the HBsAb titer >500 IU/ml. **RESULTS:** All patients showed negative HBV-DNA level after this regimen. 8 patients (80%) showed sero-negative conversion of HBsAg. The other two patients showed high HBsAb titer with sero-positive status. There was no treatment related complication and death. **CONCLUSION:** Combination of Entecavir and high dose HBIG is a safe, effective treatment option to result sero-negative conversion for the patients with post-transplant HBV recurrence.

Abstract# P-343

PRETRANSPLANT PORTAL VEIN THROMBOSIS: HOW TO SUCCESSFULLY RESTORE PORTAL FLOW (PF) INTO THE GRAFT. Gi-Won Song¹, Sung-Gyu Lee¹, Shin Hwang¹, Chul-Soo Ahn¹, Deok-Bog Moon¹, Kyoung-Won Kim², Ja-Young Cho¹.

¹Division of Hepatobiliary Surgery and Liver Transplantation, Department of Surgery, Asan Medical Center, Seoul, Korea; ²Department of Radiology, Asan Medical Center, Seoul, Korea

(Background) Although PVT is not currently absolute contraindication for liver transplantation (LT), it is considered that the patient with pretransplant PVT carries high risk for posttransplant mortality and morbidity due to complexity of surgical procedure for PF restoration. In this study, we would like to show actual surgical outcome of LDLT in patient with pretransplant PVT and introduce our technical tips. **(Patients and Methods)** 568 single graft adult LDLTs which were performed from 2004 June to 2007 June in our institution. All patients were divided into two patients groups: PVT group and non-PVT group. We analyzed demographic and clinical characteristics of patients of each group. And compared short-term and long-term outcome of each group. In addition, we reviewed our surgical techniques about PVT or PVS. **(Results)** In 41 cases (7.2%), pretransplant PVT was found. Among 41 patients with PVT, 11 patients (26.8%) showed complete obstruction and 30 patients showed partial obstruction. The thrombus was limited in PV trunk in 25 patients (61.0%), located in PV trunk and proximal superior mesenteric vein (SMV) in 10 patients (24.4%) and extended into distal SMV in 6 patients (14.6 %). The surgical procedures for PV thrombectomy and reconstruction were divided into 4 categories: 1) PV plasty with eversion thrombectomy 2) PV plasty and intraoperative PV stent insertion without complete thrombectomy 3) Interposition vein graft 4) Extra-anatomical anastomosis by using porto-systemic collateral. In-hospital mortality rate of PVT group 2.4% which was not different from non-PVT group. The re-thrombosis rate was 4.9%. Among 41 patients with pretransplant PVT, post-transplant PVS developed in 4 cases (9.8%) and PV stent insertion was performed in all cases. Preoperative demographic and clinical characteristics were not different between two group. And 1-year and 3-year survival rate were similar between 2 groups. Even in patients with complete PVT or PVT extended into SMV showed similar short-term and long-term result. **(Conclusion)** Pre-transplantation PV PS is not contraindication for LDLT. However, cautious patient selection and thorough make-up of operative strategy should be preceded.

Abstract# P-344

VERY EARLY HEPATIC ARTERY THROMBOSIS AFTER LIVER TRANSPLANTATION MAY NOT BE DETECTED BY POST-OPERATIVE TRANSAMINASE ELEVATION. Vasiliou Papanikolaou¹, Dionisios Vrochides¹, Georgios Imvrios¹, Dimitrios Giakoustidis¹, Ioannis Fouzas¹, Nikolaos Antoniadis¹, Achilleas Ntinas¹, Dimitrios Kardasis¹, Evangelos Akriviadis², Themistoklis Vasiliadis², Ioannis Goulis², Eva Anagnostara³, Evangelia Katsiki⁴, Nikolaos Ouzounidis¹, Georgios Tsoulfas¹, Tatiana Amvrosidou¹, Anastasios Tsitlakidis¹, Dimitrios Takoudas¹.

¹Organ Transplant Unit, Aristotle University, Thessaloniki, Greece; ²Department of Internal Medicine, Aristotle University, Thessaloniki, Greece; ³Department of Anesthesiology, Aristotle University, Thessaloniki, Greece; ⁴Department of Pathology, Aristotle University, Thessaloniki, Greece

Introduction: Transaminase elevation is one of the cardinal signs of hepatic artery thrombosis (HAT). More than 35% of liver recipients with late HAT (> 30 days post-transplant) display no transaminase elevation. However, transaminase elevation secondary to very early HAT (within 48 hours after graft reperfusion) is not well studied.

Purpose: To study the liver enzyme elevation secondary to very early HAT after liver transplantation.

Methods: A total of 231 primary, adult, single-organ liver transplants were performed from 1990 to 2007. Fifteen patients (6.49%), were diagnosed with very early HAT either by Doppler or by contrast enhanced computed tomography (ceCT) scan. Aspartate aminotransferase (AST) value ≥ 800 IU/ml within the first two postoperative days predicted early graft failure (within 90 days post-transplant) with 90% sensitivity and 100% specificity ($s=0.960$, $p=0.005$). Group A' patients ($n=9$) reached this threshold, whereas group B' patients ($n=6$) did not.

Results: All liver grafts with very early HAT finally failed, leading to either re-transplantation or patient's demise. Mean graft survival was $32.78 \pm$

22.82 and 221.17 ± 171.80 days for groups A' and B' respectively ($p=0.006$). Mean AST value two days after transplantation was 2688 ± 1226.18 and 375 ± 169.65 IU/ml for groups A' and B' respectively ($p=0.001$).

Conclusions: Very early HAT after liver transplantation has two distinct patterns of presentation. The first one is associated with high post-operative AST values and leads to rapid graft failure. The second is associated with mildly elevated post-transplantation AST values and leads to a much slower graft failure.

Abstract# P-345

COMPARISON OF TECHNICAL VARIANT AND WHOLE ORGAN LIVER GRAFTS IN THE ERA OF MELD. Felix Braun¹, Human Honarpisheh¹, Rainer Guenther², Jessica Walter¹, Maren Schulze¹, Martin Burdelski³, Dieter C. Broering¹.

¹Klinik für Allgemeine Chirurgie und Thoraxchirurgie, Universitätsklinikum Schleswig-Holstein, Campus Kiel, Kiel, Germany; ²Klinik für Allgemeine Innere Medizin, Universitätsklinikum Schleswig-Holstein, Campus Kiel, Kiel, Germany

In our experience, survival after liver transplantation (LTx) before MELD was similar using split or whole grafts. However, some centres are reluctant to use technical variants (split, reduced-size, living-donor) because the personal feeling suggests better results using the whole donor liver, especially after the introduction of MELD. Therefore, we compared the outcome of technical variant grafts with whole grafts in the MELD-era.

Since 01.01.2007, 104 liver transplants (55 full size, 48 technical variants, 1 domino) have been performed in 92 patients (median age 50.54 (0.32-71.17) years). The current patient and graft survival rates were 95.65 und 86.54%. All four fatal outcomes occurred after whole organ LTx, while none of the recipients deceased after technical variant LTx. In total 14 liver grafts were lost (10 whole organ and 3 technical variants). Reasons for graft loss were primary non(dys)function ($n=4$), exitus ($n=4$), ITBL ($n=2$) and hepatic artery thrombosis ($n=1$) after whole organ LTx and hepatic artery thrombosis ($n=2$) and primary dysfunction ($n=1$) after technical variant LTx. Mean ($\pm$ SD) MELD was 23.45 ± 9.33 for whole organ and 22.40 ± 7.01 for technical variant graft. Analysis of actuarial patient and graft survival comparing technical variant with whole organ LTx resulted in p-values of 0.0032 and 0.0296.

In our series, patient and graft survival rates after LTx were significantly better in technical variant compared with whole organ grafts after the introduction of MELD. Therefore, technical variant grafts can also be used safely in the era of MELD.

Abstract# P-346

RECIPIENT OUTCOMES IN DOMINO LIVER TRANSPLANTATION (LT) WITH DONOR VENA CAVA PRESERVATION (VCP). R. Garcia-Roca¹, M. M. Modolo¹, P. Taura², J. Beltran², S. Sanchez¹, J. Marti¹, J. Ferrer¹, D. Calatayud¹, C. Fondevila¹, J. Fuster¹, J. C. Garcia-Valdecasas¹.

¹ICMDM, Hospital Clinic, Barcelona, Spain; ²Anesthesia, Hospital Clinic, Barcelona, Spain

INTRODUCTION

Familial amyloid polyneuropathy (FAP), a slow progressive genetic disorder manifested in young adults successfully treated with LT. Such livers, otherwise functionally normal, can be used for LT in a selected group of patients. Donor hepatectomy with VCP is considered a safer procedure and more hemodynamically stable. However, may increase the complications compromising the outcome in FAP liver recipients due to inadequate outflow. The aim of this study is to retrospectively evaluate the outcome and specifically the incidence of venous outflow complications in FAP liver recipients.

MATERIALS AND METHODS

From Jan-01 to Dec-08, 30 patients received a LT from a FAP donor (8F:23M), the mean age was 62 years old at time of transplant and a mean ischemia time of 7:56 min. The main causes of liver disease were HCV (53%), ETOH (32%) and 33,3% of them also had HCC associated with the primary disease. In all patients, hepatectomy was performed with VCP following the piggy-back technique. FAP liver venous outflow reconstruction was performed using vena cava from the deceased donor, by 2 techniques: using the retrohepatic vena cava ($n=23$) or iliac bifurcation ($n=5$), both associated with venoplasty of the 3 hepatic veins. Persistence of ascitis postoperatively was defined by production of >500 ml/day for more than 10 days. Patient and graft outcomes, ischemia time and vascular complications were analyzed.

RESULTS

Of the 30 patients receiving a FAP liver with VCP, 5 had ascitis at time of transplant, 4 persisted short term and were treated conservatively. There was no venous outflow obstruction documented clinically or radiologically. There were 5 biliary complications related to the T-tube and no arterial complications. Two patients died from sepsis in the 1st yr and one graft failed due to primary non-function. The 1-yr patient and graft survival were 93% and 90% respectively. To date with a median follow up of 31 months, there were no symptoms suggesting "de novo" appearance of FAP disease.

CONCLUSIONS

Domino LT is associated to very good results. The absence of the VC in the FAP liver can be performed safely with minimal risks to both donor and recipient without compromise of the final outcome. Recurrence of FAP in the recipient has been reported in the literature in 2 cases, none so far in our experience.

Abstract# P-347

MAJOR HEPATECTOMY UNDER TOTAL VASCULAR ISOLATION: A ROLE OF ISCHEMIC PRECONDITIONING, A RETROSPECTIVE STUDY. JangYong Jeon, Jean C. Emond. *General Surgery, College of Medicine, Hallym University, Hallym University Sacred Heart Hospital, Anyang, Kyungki, Republic of Korea; General Surgery, Center for Liver Disease and Transplantation, New York-Presbyterian Hospital, New York, NY, USA*

Purpose

Ischemic preconditioning (IPC) is one of protective strategies that have been employed to reduce ischemia reperfusion (IR) injury. Several patient series to date have argued the merits of IPC for hepatectomy. The aim of this study is to evaluate the influence of IPC under total vascular isolation (TVI) on postoperative outcomes in patients who underwent major hepatectomy at Columbia University Medical Center.

Methods

The records of 95 patients who underwent major hepatectomy under TVI were reviewed. They were divided into TVI alone (group 1: n=54) and TVI with IPC (group 2: n=41). The IPC group received 10 minutes of hepatoduodenal ligament clamping and 3-5 minutes of reperfusion prior to major hepatectomy under TVI. Operation time, blood loss, blood transfusion and clamping time were reviewed. The serum concentration of AST, ALT, total bilirubin, prothrombin time and creatinine were regularly determined. Hospital stay and complications including mortality and morbidity were determined.

Results

Postoperative laboratory results of liver function tests were not significantly different between groups. The concentrations of ALT tended to be higher in the group 2 than in the group 1. The concentration of bilirubin tended to be higher in the group 1 than in the group 2. The level of creatinine and prothrombin time tended to be higher in the group 2. When the duration of ischemia exceeds 50 minutes, peak AST, ALT levels were higher than when the duration ischemia was less than 50 minutes and ALT levels of group 2 peak on days 3 and returned to normal late. A bilirubin level tended to be much higher in both group than when the duration of ischemia is less than 50 minutes and returned to normal more later. The duration of ischemia was shorter in the group 2. However, IPC had no impact on the duration of operation, intraoperative blood loss, and hospital stay. The morbidity rates were 37.3% and 34.1% respectively.

Conclusions

Our clinical use of IPC as a protective strategy against IR injury under TVI did not show any benefit of operative, laboratory parameters and clinical outcomes. More clinical study will be required to verify the merits of IPC.

Abstract# P-348

VENOUS RECONSTRUCTION FOR A RIGHT LOBE GRAFT WITH MULTIPLE VENOUS ORIFICES IN LIVING DONOR LIVER TRANSPLANTATION. Fernando Rotellar, Fernando Pardo, Pablo Martí-Cruchaga, Ignacio Herrero, Bruno Sangro, Mercedes Iñarrairaegui, Gabriel Zozaya, Javier A.-Cienfuegos. *University Clinic. Universidad de Navarra, Pamplona, Spain*

Background. Live donor right lobe hepatectomy is a well established procedure and is performed safely in the vast majority of cases. The main surgical challenge is to assure an optimal outflow of the graft. Previous studies demonstrated that the MHV tributaries or SHVs should be reconstructed if the calculated area of congestion is more than 20%. Usually V8 or V5 tributaries

are reconstructed with jump vascular grafts to the recipient vena cava.

Aim. To present our surgical technique joining this tributaries in a single orifice.

Patients and Methods. During the transection of hepatic parenchyma, MHV tributaries susceptible of reconstruction are sectioned between Hem-O-Lock®, clips that will easily be removed at the back table. Finally, a small longitudinal patch of vena cava is removed with the right lobe. It will be very helpful for the reunion of the orifices in a single patch. We present three different situations: Type 1: multiple posterior orifices without MHV tributaries. All of them are joined together in a single one with the help of the caval patch.

Type 2: multiple posterior orifices with MHV tributary reconstructed without help of a vascular graft. Type 3: multiple posterior orifices with MHV tributary that needs the help of a cryopreserved vascular graft.

Results. No caval stenosis was observed in any patient. In all situations those multiple outflow orifices were joined in a common area that was easily anastomosed to a cavoplasty in the recipient.

Conclusion. Reconstruction of multiple venous collaterals improves outflow in right lobe living donor liver transplantation. Small caval patches or cryopreserved grafts result very helpful in this task.

Abstract# P-349

CONTRAST ENHANCED ULTRASOUND (CEUS): A NEW LOW-COST IMAGING PROCEDURE FOR HEPATIC ARTERY AND PORTAL VEIN EARLY COMPLICATIONS AFTER LIVER TRANSPLANTATION. Roberto M. Lauro, Umberto Maggi, Giovanni Paone, Paolo Bertoli, Giorgio Rossi. *Surgery, Fondazione IRCCS Policlinico, Mangiagali e Regina Elena, Milan, Italy*

Background

Hepatic Artery (HAT) and Portal Vein Thrombosis (PVT) are life threatening complications after liver transplantation (LT) both in adult and pediatric recipients. The average incidence after LT in adults is around 3-13% for HAT and 1-2% for PVT. Retransplantation, when available, is the only treatment. Early and fast diagnosis of these complications is essential: the aim of our study is to improve the early detection of HA and PV complications after LT with a new advanced imaging ultrasound (US) procedure such as CEUS (Contrast Enhanced US).

Materials and Methods

In our institution, starting from May 2008, CEUS by using SONOVUE® (BRACCO Imaging Italia s.r.l. - Italy) as contrast medium, is routinely performed along with Doppler US on day 1, 7, 15 and 30 after LT, in order to detect an early episode of HAT or PVT. Every exam lasts about 10 minutes. In case of suspicions of patency complications, CT-scan with vascular reconstructions and angiography are performed. Our study is still ongoing. CEUS was able to detect the image of the right HA allowing a more efficient Doppler US. In this way, prompt and easily retrieved information concerning arterial patency were available. Time from the end of contrast injection to visualization of HA and PV was almost always within 15 seconds. US Doppler with resistive index was able to give further information concerning the entity of a possible stenosis. Volumetric measures such as vessel diameters were more useful for PV than for HA. During the study, a portal vein stenosis with consequent thrombosis was detected.

Results and Conclusion

On the basis of our preliminary results, CEUS performed routinely after orthotopic liver transplant along with Doppler US, may permit an early and thorough detection of hepatic artery and portal vein complications after LT.

Taking its place as a fast and low-cost procedure, CEUS could be considered a new and fast imaging procedure to detect early HA and PV complications, improving graft and patient prognosis in the aftermath of LT. CEUS is fast and easy to carry out especially when the patients cannot be easily moved from the ICU.

Abstract# P-350

THE EFFECT OF DIFFERENT TECHNIQUES FOR BILE DUCT ANASTOMOSIS ON POST-TRANSPLANT BILIARY COMPLICATION IN LIVING DONOR LIVER TRANSPLANTATION. Man Ki Ju, Gi Hong Choi, Jin Sub Choi, Dong Jin Joo, Soo Jin Kim, Soon Il Kim, Myoung Soo Kim, Yu Seun Kim. *Department of Surgery and The Research Institute for Transplantation, Yonsei University College of Medicine, Seoul, Republic of Korea*

Biliary complications remain a major cause of morbidity after liver transplantation, especially in living donor liver transplantation (LDLT). And, blood supply to bile duct is important in pathogenesis of biliary complication. The objective of this study is to verify the effect of different techniques for bile duct anastomosis method on post-transplant biliary complication. One hundred twenty-one liver transplantations were done at our center from August, 2005 to August, 2008. Among 121 liver transplant recipients, 68 LDLT using right lobe graft recipients were enrolled in this study. We used different techniques for biliary anastomosis by period. First 38 recipients used 'Classic dissection' (Group 1), next 30 recipients used 'Hilar plate looping with size-matched anastomosis' (Group 2) technique. 'Hilar plate looping' technique means that the complete hilar plate and glissonian sheath around the hepatic duct is looped after full dissection of right hepatic artery and portal vein. This thick cover of hilar plate around the graft duct preserved the periductal arterial plexus, and prevented their retraction. Biloma or stricture that required surgical or radiologic intervention treatment and developed within 6 months after transplantation was determined as post-transplant biliary complication. There were 52 males and 16 females with mean age of 50.6 ± 7.9 years. Hepatocellular carcinoma with B-viral hepatitis was the most common underlying liver disease (31/68; 45.6%). There was statistically no difference of demographics in each group. The incidence of complication in group 1 was 15 (39.5%), and 3 (18.8%) in group 2. Especially, there was no biliary stricture in group 2 (Table). There was significant difference of complication rate between group 1 and 2 ($p=0.006$). This new technique of 'Hilar plate looping' during donor surgery significantly reduces recipient biliary complications in LDLT.

Abstract# P-351

LATERO-LATERAL CAVAL ANASTOMOSIS WITHOUT VENO-VENOUS BYPASS AND TEMPORARY PORTO-CAVAL SHUNT IN LIVER TRANSPLANTATION: PROSPECTIVE EXPERIENCE. Matteo Donataccio¹, Giorgio C. Dalle Ore¹, Dino Donataccio¹, Marcello Ceola², Maurizio Dan². *¹Liver Transplant Unit, Azienda Ospedaliera di Verona, Verona, VR, Italy; ²Anaesthesia and Intensive Care Unit, Azienda Ospedaliera di Verona, Verona, VR, Italy*

Caval anastomosis in liver transplantation has been modified in order to avoid outflow complication. Classic cava replacement is rarely indicated; most liver transplantation teams use a piggy-back (PB) technique. In our local experience we opted for a latero-lateral (L-L) caval anastomosis according to the results described in 2003 by Lerut et al in Bruxelles. This technique first described by Belghiti in 1992 with portocaval shunt (PCS), has many advantages mainly related to avoid the use of veno-venous bypass (VVB) and temporary portocaval shunt (PCS). The inferior vena cava (IVC) flow preservation during the hepatectomy and consecutive graft implantation supports hemodynamic stability during liver transplantation. Therefore VVB use is not routinely necessary with IVC-preserving OLT technique. Moreover this approach allows a favorable intraoperative course avoiding excessive fluid replacement, coagulation abnormalities and hypothermia. The patient can be early extubated with low rates of pulmonary complications and reduced ICU length of stay.

Specific complications of liver transplantation with recipient IVC preservation are hemorrhage and outflow impairment with acute and chronic Buddi-Chiari syndrome which are more frequent in PB than in L-L caval anastomosis. In our experience recipient IVC preservation was always possible; we never needed to use VVB. The large caval anastomosis achieved optimal outflow, avoiding vascular problems, as shown by daily ultrasound monitoring.

In our prospective experience the latero-lateral caval anastomosis was safe and feasible in 106 adult patients. No complications related to caval anastomosis technique occurred. 1 year graft and patient survival rates were both 95%.

In our opinion L-L caval anastomosis represents the most important technical

evolution in the last decade, allowing one perform liver transplantation without VVB and TPCS, with significative improvement of the perioperative global outcome.

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Abstract# P-352

INFLOW OR OUTFLOW? INTRACTABLE ASCITES AFTER OLT. Scott A. Fink¹, James V. Guarrera¹, Wei Zhang², Martin R. Prince², Robert S. Brown¹, Jean Emond¹. *¹Center for Liver Disease and Transplantation and Department of Surgery, New York-Presbyterian Hospital/Columbia University Medical Center, New York, NY, USA; ²Department of Radiology, New York-Presbyterian Hospital/Columbia University Medical Center, New York, NY, USA*

Aim: To elucidate mechanisms and therapeutic strategies in the management of posttransplant ascites. **Methods:** We describe a series of six cases of intractable ascites post OLT in adults that persisted beyond one month. The mean age was 50.2 years. The mean MELD score at OLT was 18.7. The mean duration of ascites was 115 days following transplantation. 50% of the patients had significant ascites prior to transplantation requiring the use of diuretic medication. Five of the six patients had at least one manifestation of portal hypertension (ascites, encephalopathy, or varices) known prior to transplantation. Ascites in one patient resolved spontaneously 60 days following transplant. Five out of six patients received either TIPS or splenic artery embolization. One of the patients receiving TIPS died shortly after TIPS placement. The remaining four patients showed resolution of their ascites following TIPS (two patients) and splenic artery embolization (two patients). Spleen volumetric data was obtained from MRI where available. The mean liver and spleen volumes posttransplant were 1755.6 mm and 948.1 mm respectively. In two patients, spleen volumetric data following either TIPS placement or splenic artery embolization was available. In one patient, spleen volume diminished from 788 to 707.9 mm following TIPS. In the second patient, spleen volume diminished from 970.1 to 805 mm following a splenic artery embolization. Ascites resolved in both cases. **Conclusions:** Ascites following transplantation is potentially treatable using shunting procedures. In these cases, reduction in portal pressure was achieved by opposite mechanisms, inflow reduction via splenic artery embolization versus decreasing outflow resistance via TIPS. The optimal approach is unclear.

Case Descriptions

Patient	Etiology	Ascites Prior to Transplant	Age at Transplant	MELD at Transplant	Intervention	Outcome
1	cryptogenic cirrhosis	yes	62	22	TIPS	Death
2	HCV/HCC	no	57	10	none	Resolved
3	PSC	no	26	26	splenic artery embolization	Resolved
4	AIH	yes	60	22	splenic artery embolization	Resolved
5	PBC	yes	45	18	TIPS	Resolved
6	Gaucher's Disease	no	51	14	TIPS	Resolved

Abstract# P-353

THE IMPACTS OF CONCOMITANT SPLENECTOMY ON PORTAL PRESSURE IN LIVER CIRRHOSIS PATIENTS. Sang Geol Kim, Yoon Jin Hwang, Kyung Hee Nam, Jae Min Cheon, Young Gook Yun, Jong Yeol Kim. *Department of Surgery, Kyungpook National University Hospital, College of Medicine, Daegu, Republic of Korea*

Purpose: Concomitant splenectomy in cirrhotic patients is known to ameliorate bleeding tendency and decrease portal venous pressure. However, the direct measurement of change in portal pressure after concomitant splenectomy is not reported. We tried to measure the change of PVP before and after splenectomy.

Methods: To evaluate the efficacy of concomitant splenectomy, 18 cirrhotic patients with liver cirrhosis, thrombocytopenia, or esophageal varix were selected. Through the 5 French feeding tube which was inserted into right gastro-epiploic vein after laparotomy, we measured portal vein pressure directly before and after splenectomy, and under portal triad clamping.

Results: After splenectomy, the PVP decreased significantly from 261.11 ± 45.87 mmHg to 221.11 ± 38.48 mmHg ($p=0.05$). Under portal triad clamping, the PVP decreased significantly from 605.00 ± 116.48 mmHg to

513.89±70.56 mmHg. ($p=0.05$). **Conclusion:** Concomitant splenectomy in liver cirrhosis patients may improve liver function and elevate platelet count, and result in the reduction in excessive portal pressure.

Abstract# P-354

SPLIT LIVER TRANSPLANTATION IN ADULT AND PEDIATRIC RECIPIENTS: A 16 YEAR EXPERIENCE IN A SINGLE CENTER.

Olivier Boillot, Gabriella Pittau, Thomas Gelas, Mustapha Adham, Jérôme Dumortier, Olivier Guillaud, Yves Bouffard, Catherine Boucaud, Charles Ber, Pierre Sagnard. *Liver Transplant Unit, Edouard Herriot Hospital, Lyon, France*

Split liver transplantation (SLT) is a technically demanding procedure which is considered as less efficient than whole or living donor liver transplantation (LT). Our results over a 16 year experience are presented.

Patients and methods. Since 1991 to 2007, 927 liver transplantations (LT) were performed in 895 patients (799 adults and 128 children). Among these, 121 transplantations were done by using split liver grafts including 62 right and 17 left livers and 42 left lateral sections in 77 adult and 44 pediatric recipients. All split procedures but two, were done ex-situ. Mean recipient ages were 54 and 3.3 years in adults and children respectively. Main indications for LT were alcoholic and viral-related cirrhosis (80%) in adults and biliary atresia (52%) in children. Since 2000, a SLT program for 2 adults was started by using a full-left liver including the middle hepatic vein and a right liver with only the right hepatic vein. In cases of small-for-size left graft, a porto-mesenteric disconnection was undergone.

Results. Adult recipients received 61 right and 16 left livers whereas pediatric recipients had 42 left lateral sections, 1 left and 1 right livers. Seven patients (5.8%) (5 adults and 2 children) had retransplantation during the follow-up for small-for-size syndrome (2 cases), graft primary nonfunction, hepatic artery thrombosis, chronic rejection, HCV recurrence and portal vein thrombosis. Adult patient and graft 1, 5 and 10 year survival was 88, 81, 72.5% and 87, 80, 66.4% respectively. In children, it was 81.4, 75.5, 75.5% and 74.9, 71.5, 71.5% respectively. Regarding the 1, 5 and 10 year patient survival according to the type of graft, it was 90.3, 86.3, 72% and 76.6, 59, 59% and 73.7, 70, 70% for the right and left livers and the left lateral section respectively. Early mortality dramatically decreased in the recent past 5 years (10% in 60 patients) particularly for patients having left parts of the liver.

Conclusions. In this series of SLT, transplantation of right livers was associated with the best results; moreover, right livers did as well as whole grafts. Left livers given to adult patients were associated with initial poor outcomes, nevertheless improved results were observed with better graft selection and allocation.

Abstract# P-355

LONG-TERM OUTCOME OF HEPATIC ARTERY ANASTOMOSIS USING CONTINUOUS SUTURE TECHNIQUE IN LIVING DONOR LIVER TRANSPLANTATION.

Nam-Joon Yi, Kyung-Suk Suh, Tachoon Kim, Joohyun Kim, Woo Young Shin, Kuhn Uk Lee. *Surgery, Seoul National University College of Medicine, Seoul, Korea*

Background. In adult-to-adult living donor liver transplantation (ALDLT), hepatic arterial anastomosis (HAA) requires interrupted suture technique (IST) under a microscope. Continuous suture technique (CST) is simple and time-saving procedure, but there has been few report of HAA using CST in ALDLT.

Patients and Methods. From January 2005 to November 2007, 148 recipients underwent right liver ALDLT; among these patients, 17 recipients (11.5%) underwent HAA using CST. 13 patients were male, and mean age was 50 (35-64) years. The original liver diseases were viral hepatitis in 15 and each one of alcoholic and primary sclerosing liver cirrhosis. 7 patients had hepatocellular carcinoma, and among these patients 3 had history of transarterial chemoembolization. The indications of CST in HAA were large diameter of the graft hepatic artery (internal diameter > 2.0mm) and good quality of recipient hepatic artery. HAA was performed under a microscope or loupe magnification using Nylon 8-0 in an end-to-end fashion. Patency of arterial flow was followed-up using a US doppler for 5 days daily, 3 days per week for 2 weeks, and then using a liver dynamic CT scan 1, 4, and 12 months after surgery. The mean follow-up period was 24 (7.7-34.1) months.

Results. All were right liver grafts. The internal diameter of hepatic artery was 2.2 (2.0-2.5) mm. The used recipient artery was the right hepatic artery in 6 and the proper hepatic artery in 1. The mean time of HAA was 28 (20-42) minutes; it was significantly shorter than that of matched historical control group who underwent HAA using IST (48 minutes) ($p<0.05$). There

was no mortality and no complication in HAA during the follow-up period. There were 6 biliary strictures at the anastomosis site resolved by non-surgical method. A 34-year-old male patient suffered multiple postoperative complications; atrial fibrillation, pneumonia, intraperitoneal bleeding, ascites associated with portal vein stenosis resolved with non-surgical treatment, and mitral regurgitation corrected by surgical valve replacement.

Conclusion. In LDLT, HAA using CST was feasible and saved operation time for HAA compared with conventional HAA using IST. In addition, it may guarantee long-term safety.

Abstract# P-356

MICROVASCULAR RECONSTRUCTION OF HEPATIC ARTERY: PERSONAL EXPERIENCE ON 500 CASES.

Mehmet Alper¹, Murat Zeytinlu², Murat Kilic³. ¹*Dept. of Plastic and Reconstructive Surgery, Ege University, Izmir, Turkey;* ²*Dept. of Surgery, Ege University, Izmir, Turkey*

Aim: Live donor liver transplantation (LDLT) has emerged to overcome the scarcity of cadaveric organs. Although more than 10,000 LDLTs have been performed worldwide, many important aspects specific to this procedure including microsurgical reconstruction of hepatic artery are still inadequately documented. This is one of the most important part of LDLT because hepatic arterial thrombosis (HAT) may cause fatal complications requiring retransplantation and can even result in death. Today, microsurgical technique has minimized the risk of HAT. The aim of this study is to demonstrate the safety and efficacy of microvascular hepatic artery reconstruction in LDLT and point out the difficulties of the operation based on 500 consecutive cases and some rare situations will be discussed.

Patients and methods: From June 1999 to January 2009, 500 LDLTs were performed at Ege University Organ Transplantation Center. 96 left lateral segment, 10 left lobe and 394 right lobe grafts were used. Anastomoses were completed with interrupted sutures with 9-0 or 10-0 polyamide sutures. The diameters of both recipient and graft arteries were measured. 83 % of graft arteries and 64 % of recipient arteries were equal to or less than 2 mm. in diameter. Median anastomosis time was 48 minutes. Back-wall first anastomosis technique used in almost all cases.

Results: HAT was encountered in 5 cases (1 %). Two thrombosis were in the first five transplantations. However, these failures were not the result of technical error but were related to severe hypotension following completion of anastomosis, due to esophageal variceal bleeding in one case and hemopneumothorax in the other case. These two patients succumbed to death following these complications. The third HAT occurred from a branch that was close to the anastomosis and that had been ligated proximally and fourth HAT at the anastomosis site. These patients recovered following immediate vessel resection and reanastomosis. The fifth HAT similarly occurred from a side branch proximal to the anastomosis. Though the thrombotic segment of artery excised and reanastomosis was done, no reflow was seen.

Conclusion: The graft artery should be anastomosed to the recipient artery with delicate manipulation of these vessels facilitated by microsurgical methods with the best position under a surgical microscope to overcome the high risk of HAT and arterial complications during LDLT.

Abstract# P-357

ABDOMINAL HERNIA IN WAITING LIST PATIENTS: WHAT IS THE BEST POLICY?

Wellington Andraus, Ailton Sepulveda, Mauricio Barros, Antonio Roberto Teixeira, Rodrigo B. Martino, Vinicius R. Santos, Andre C. Oliveira, Fabio F. Makdissi, Estela R. Figueira, Roberto Meirelles, Luiz A. C. D'Albuquerque. *Gastroenterology, Sao Paulo University School of Medicine, Sao Paulo, Brazil*

INTRODUCTION: Hernia in cirrhotic patients is indeed a big challenge. Surgery was considered an exception, with high morbidity and mortality. However, recent series advocate surgery before complications with less mortality. Our large patient number in transplant waiting list lead us to confront this issue very often.

AIM: The aim of the present study was to analyze a series of cirrhotic patients that underwent surgical repair, comparing urgent and not urgent cases.

MATERIAL AND METHODS: Between 2005 and 2007, fifty patients underwent hernia surgical repair. All of them were cirrhotic in transplant waiting list in a single center.

RESULTS: There were 15 patients (30%) Child A, 23 patients (46%) Child B and 12 patients (24%) Child C. The cirrhosis etiology was alcohol in 21 (42%), VHC in 18 (36%), VHB in 5 (10%) and others in 6 (12%). There were 6 women and 44 men, with a mean age of 52.2 (± 12.4). The mean

MELD score was 14.7 ($\pm$ 5.9). Twenty six surgery were performed in urgency, three of them Child A, fourteen Child B and nine Child C ($p=0.009$). Post operative complications were more frequently in Child B (6/23) and C (8/12) than Child A (2/15) ($p=0.009$). There were more complications in patients with MELD score more than 20 ($p=0.034$), and also in patients underwent urgent surgery ($p=0.011$). There were 5 deaths related to the surgery, 4 Child C and 1 Child B.

CONCLUSION: MELD score and urgency are risk factors for complications in hernia repair surgery. An elective procedure is a good option for Child A and B patients. A randomized trial is needed to standardize the best policy for these patients.

Abstract# P-358

SEQUENTIAL TREATMENT OF HCC IN A PATIENT WITH HBV CIRRHOSIS AND LUNG TUBERCULOSIS CAVITATION: LOCAL ABLATION, LEFT LUNG PNEUMONECTOMY, LIVER TRANSPLANTATION. Matteo Donataggio¹, Giorgio C. Dalle Ore¹, Dino Donataggio¹, Marcello Ceola², Michela Ricci³, Maurizio Dan², Francesco Calabrò³. ¹Liver Transplant Unit, Azienda Ospedaliera di Verona, Verona, VR, Italy; ²Anaesthesia and Intensive Care Unit, Azienda Ospedaliera di Verona, Verona, VR, Italy; ³Thoracic Surgery Unit, Azienda Ospedaliera di Verona, Verona, VR, Italy

We report the preoperative, surgical and postoperative management of ortotopic liver transplantation (OLT) performed in a patient affected by tubercular disease with left lung infected cavitation, treated with pre-transplant left lung pneumonectomy.

In Dec. 2006 a black 30 year old male patient with active tuberculosis, suffering from liver cirrhosis due to HBV infection and HCC, underwent local ablation of HCC. In Jan.2007, because of progression of liver cirrhosis and worsening of pulmonary function due to infection of the left lung cavitation, the patient began evaluation for OLT.

At first a tubercular disease eradication was obtained with surgical left lung pneumonectomy followed by 8 months of anti-tubercular drug therapy. When no signs of relapse of tubercular disease was detected, he underwent oncologic evaluation (HCC of 2 cm) and cardiopulmonary testing which reported a severe reduction of lung volume with restrictive pattern (Spirometry FEV1 1,53 lit) and an estimated pulmonary artery pressure of 37 mmHg compatible with moderate pulmonary hypertension.

The patient was assigned at ASA IV class and was admitted to the waiting list for OLT.

In June 2008 the patient underwent OLT with an anaesthesiologic management tailored to maintain splanchnic perfusion with concomitant "one lung protection"; the patient was monitored with Swan-Ganz catheter and VigileoTM in order to maintain the preload status at the lower limit avoiding hypoperfusion. No packed RBCs was administered; the volemic replacement was obtained with low amount of crystalloid, FFP and cell salvage blood. After surgery the patient was admitted to ICU for 4 days and extubated after 6 hours of mechanical ventilation.

The postoperative period was characterized by persistent ascites, moderate renal failure with no permanent reliques and a CMV reactivation which required specific anti-viral drug therapy. After 7 months the patient is being well, the graft has normal function and no-tubercular relapse is still observed.

To our knowledge there is no evidence of another successful case of liver transplantation in a patient treated with pneumonectomy.

Abstract# P-359

SPLIT LIVER TRANSPLANTATION FOR TWO ADULT RECIPIENTS IN A EUROPEAN MELD-BASED ALLOCATION SYSTEM. Matteo Cescon, Gian Luca Grazi, Matteo Ravaioli, Giorgio Ercolani, Massimo Del Gaudio, Marco Vivarelli, Augusto Lauro, Matteo Zanello, Gaetano Vetrone, Alessandro Cucchetti, Antonio D. Pinna. *Department of Surgery and Transplantation, University of Bologna, Bologna, Italy*

Background: Split liver transplantation (SLT) for two adult recipients is still considered a challenging procedure, especially when subjected to Model for End-Stage Liver Disease (MELD)-based allocation criteria.

Methods: Twenty-two SLTs were performed in adult recipients in a European center operating within a MELD-oriented system. Thirteen right-sided grafts and 9 left-sided grafts were used. Right-sided grafts included 11 extended right grafts and 2 full right grafts. Left-sided grafts included 6 left lateral

segment grafts and 3 full left grafts. Ninety-three percent of donors were allocated based on MELD score.

Results: In left-sided grafts, median graft-to-recipient body weight ratio was 0.81 (0.67-1.11). Liver cirrhosis (46%) and metabolic/genetic disorders (56%) were the main indication for transplant in recipients of right and left grafts, respectively. Overall patient and graft survival were 90% and 86%. Patient survival was 84% in recipients of right grafts and 100% in recipients of left grafts. Graft survival was 84% and 89%, respectively. Vascular and biliary complications occurred in 14% and 4% of cases. Median hospital stay was 17 (7-182) days.

Conclusions: SLT for two adult recipients can be successfully performed, even using left lateral segments, by assigning one graft according to MELD score, and with a more liberal allocation of the second graft.

Abstract# P-360

HIGH INCIDENCE BUT LOW RATE OF REPAIR OF INCISIONAL HERNIAS AFTER LIVER TRANSPLANTATION. Benjamin Samstein, Elsa Pichardo, Tomy Perez, Robert Brown, Jean Emond. *Surgery, Columbia University, New York, NY, USA*

Background: Incisional hernias (IH) have been a well known complication following liver transplantation (LT); however, the appropriate management of IH continues to be widely debated. We aim to assess our center's clinical practice and outcomes following repair of IH. Methods: All adults who underwent a standard bilateral subcostal incision with midline extension LT at our center between 01/98 and 06/07 were retrospectively assessed. Primary outcomes were 1 year patient survival post HR and clinical documentation of hernia recurrence. Complications were assessed via the Clavien classification. Results: Of the 848 patients evaluated, 56 received a HR. Baseline characteristics were as follows: mean age at LT 51.7 years, mean age at HR 54.3 years, mean time to HR following LT 2.54 years, 76% male, 55% whites, 35% Hispanic, 67% viral hepatitis as etiology of ESLD, 20% at least one episode of acute rejection (AR) prior to HR, 81% cadaveric LT, 95% elective HR, 92% underwent open HR, 51% received tacrolimus, 23% underwent a relaparotomy within 7 days of LT, and 11% underwent secondary closure at LT. Percentage of meshed used during HR were as followed: 25% Parietex, 24% Surgisis, 25% Marlex, and 26% Other. Only 39.3% of the patients found to have a hernia underwent repair within a year of discovery. Overall 1 year patient survival following HR was 96% with mean length of stay (LOS) of 4.5 days and estimate blood loss (ebl) of 103ml. The majority of complications following HR were infection related (Table 1). In univariate analysis, age at LT (OR 1.09, CI[1.011, 1.16] $p=.02$), age at HR (OR 1.09, CI[1.02, 1.17] $p=.016$), and tacrolimus induction (OR .27, CI[.07, .98] $p=.05$) were found to impact hernia recurrence. After controlling for clinical factors, such as time to HR, relaparotomy within 7 days of LT, and type of LT, no statistically significant variables were predictive of recurrence. Age at HR, ebl, LOS, number of relaparotomies post LT, mesh used during HR, episode of AR, and etiology of liver disease were not associated with patient survival following HR. Conclusion: There is a high incidence of hernia after liver transplantation and many patient chose to postpone repair. There is a relatively high incidence of wound infections with open repair.

Complications after Incisional Hernia Repair

Clavien Grade	Percentage
None or Grade I	58%
II	31%
III or greater	11%

Abstract# P-361

BLOOD SALVAGE DURING ORTHOTOPIC LIVER TRANSPLANTATION (OLT) CAN SIGNIFICANTLY REDUCE THE DEMAND FOR BANKED RED BLOOD CELLS. James D. Kindscher, Martin De Ruyter, Melissa Rockford, Amy Pichoff, Malik Hamid, John Nachtigal. *Department of Anesthesiology, Kansas University Medical Center, Kansas City, KS, USA*

Purpose: This retrospective study analyzed the utility of intra-operative blood salvage to reduce the overall transfusion needs during OLT.

Methods: All patients undergoing OLT at a single university medical center between November 9, 2000 and January 2, 2009 were included in the study. Surgical technique involved caval replacement without veno-venous bypass. Blood from portal inflow (500 cc) was used to flush the donor organ of preservative. Using standard protocols, a COBE BRAT[®] (Sorin Group, USA, Arvada, CO) autotransfusion device scavenged shed blood. In patients with hepatic tumors, blood salvage was initiated after native hepatectomy. Blood

salvage volume was correlated to banked blood units by assuming 180 cc of red cell mass per unit. Goals for hemoglobin levels at the end of the procedure were 9-10 gm/dl; this was met in 84% of patients. All transfused blood products were verified by cross-referencing anesthesia records with blood bank documentation. Blood salvage data, including volume and hematocrit of salvaged blood, was obtained from an internal database.

Results: 375 consecutive OLT patients were included in the study. Operation times (Table 1) and transfusion requirements (Table 2) are provided below.

Surgical Times(hours)		
	mean	std. dev.
Operative Time	6.05	1.55
Anhepatic Time	1.06	0.29

Transfusions (units)		
	mean	std. dev.
Banked Blood	2.68	3.16
Salvaged Blood	7.25	7.44
Fresh Frozen Plasma	3.41	4.00
Apheresis Platelets	0.86	1.55
Cryoprecipitate	2.61	6.22

The mean banked blood transfusion and salvaged blood transfusion per patient were 2.68 and 7.25 units respectively. 30% of patients required no banked blood transfusions intra-operatively, 13% received one unit and 17% received two units. Blood salvage returned >10 units of blood in 20% of cases with a range of 0-70 units. In only 2% of cases were less than 2 units of salvaged blood collected and returned intraoperatively.

Conclusions: Blood banks are under significant pressure to have available sufficient allogeneic blood for OLT procedures. Application of an intra-operative blood salvage program may greatly reduce the needs for banked blood during OLT. In our single center, intra-op blood salvage provided 73% of the total intra-op demands for blood transfusion, thus significantly reducing the demand on the blood bank.

Abstract# P-362

BILIARY DRAINAGE OF DUCT-TO-DUCT ANASTOMOSIS IN ADULT WHOLE-ORGAN LIVER TRANSPLANTATION: INCREASED MORBIDITY AND NO BENEFIT. Robert Klek¹, Jerzy Lubikowski¹, Mariola Post¹, Jacek Butkiewicz¹, Konrad Jarosz¹, Andrzej Bialek², Piotr Milkiewicz³, Maciej Wojcicki¹. ¹Department of Hepato-Pancreato-Biliary Surgery and Liver Transplantation, Marie Curie Hospital, Szczecin, Poland; ²Department of Gastroenterology, Pomeranian Medical University, Szczecin, Poland; ³Division of Hepatology and Liver Transplantation, Marie Curie Hospital, Szczecin, Poland

Biliary complications (BCs) following liver transplantation (LT) are due to various factors including surgical technique and the use of biliary drains for duct-to-duct (DD) anastomosis. We analyzed their incidence, treatment and outcome following adult whole-organ LT with DD anastomosis performed between 2002-2007. There were 101 LTs in 99 patients, of which 84 were analyzed. Recipients who died within 30 days of LT without any evidence of BCs and one patient with biliary strictures due to hepatic artery thrombosis, were excluded. Until late-2004, DD anastomosis with interrupted sutures over an external biliary drain (DD/BD) was performed in 35 patients (group I). Subsequent to this, no biliary drain was used for DD anastomosis (DD/non-BD) created routinely with a running suture in 49 patients (group II). DD anastomosis over a biliary drain was associated with a higher incidence of both total (31% vs. 8%; P=0.008) and late (>30 days) BCs (20% vs. 2%; P=0.008).

Types of BCs in two groups

	DD/BD n=35	DD/non-BD n=49	p
Patients with BCs	11 (31%)	4 (8%)	0.008
Patients with early BCs	4 (11%)	3 (6%)	NS
Patients with late BCs	7 (20%)	1 (2%)	0.008
Anastomotic strictures	3 (9%)	2 (4%)*	NS
Leaks	6 (17%)	2 (4%)*	0.06
Cholangitis	2 (6%)	1 (2%)*	NS

* one patient with a biliary leak from a donor cystic duct stump coexisting with an anastomotic stricture followed by a biliary sepsis resulting in mortality

There was also a trend for less biliary leaks when no biliary drain was used for DD anastomosis (17% vs. 4%; P=0.06). All biliary leaks in patients with DD/BD reconstruction occurred from the exit site of the biliary drain after its removal. No statistically significant differences were found in the incidence of biliary strictures and the necessity of surgical interventions. One patient died due to a BC. In conclusion, our results indicate that DD anastomosis performed with no external biliary drainage reduces the incidence of BCs

after whole organ OLT. A running suture anastomotic technique may be a good alternative of interrupted sutures in this setting.

Abstract# P-363

IMPACT OF TEMPORARY PORTO-CAVAL SHUNT (TPCS) IN LIVER TRANSPLANTATION (OLT). Davide Ghinolfi, Gonzalo Rodriguez-Lai, Kishore Iyer, Mark Sturdevant, Hiroshi Sogawa, Gloria Immordino, Felipe Maegawa Boff, Alan Contreras Saldívar, Noorul Khan, Thomas Schiano, Juan Del Rio Martin. Recanati Miller Transplant Institute, Mount Sinai Medical Center, New York, NY, USA

Introduction. Organs with high DRI (donor risk index) may not tolerate hemodynamic instability during OLT. The aim of this study is to assess if TPCS may improve peri-operative (30 days post surgery) outcome and which categories of patients benefit most from this maneuver. **Methods.** This is a retrospective, IRB approved analysis of 263 OLT performed on 252 consecutive adult patients using piggyback technique over a period of 29 months. The patients were divided in two groups: 139 received 143 OLT with TPCS (TPCS), 116 received 120 liver transplants without (Non TPCS). **Results.** Donor and recipient features in the two groups were comparable. Intra and post-operative results are presented.

Intraoperative variables and postoperative results

	TPCS Group (n=143)	Non TPCS Group (n=120)	p				
Mean surgical time, min (range)	427 (215-1047)	445 (272-917)	ns				
PRBC, mean units (range), median	8.09(0-30), 6	10.8 (0-91), 8	0.095				
FFP, mean units (range), median	7.6(0-38), 6	9.3 (0-75), 8	0.01				
Platelets, mean units (range)	1.46(0-30)	2.78 (0-30)	0.052				
No transfusions (PRBC) n, %	17 (11.9%)	7 (5.8%)	0.01				
MELD (mean)	24	25.4	ns				
DRI (mean)	1.785	1.824	ns				
Perioperative (30-day) survival (%)	92.8%	90.8%	ns				
Perioperative (30-day) graft survival (%)	88.0%	85.8%	ns				
1 year patient survival, (%), n	86.9%, 61	87.1%, 101	ns				
1 year graft survival, (%), n	77.0%, 61	80.2%, 101	ns				
PNF n, %	10 (7.0%)	12 (10.0%)	ns				
Graft survival*							
	TPCS group (n=60)		p		Non TPCS group (n=100)		p
1 month	DRI<1.8	DRI>1.8	ns		DRI<1.8	DRI>1.8	0.02
1 year	DRI<1.8	DRI>1.8	ns		DRI<1.8	DRI>1.8	ns
Patients perioperative survival*							
	TPCS group (n=60)				Non TPCS group (n=100)		p
MELD>24	100				87		0.04

*Patients with 1 year follow up

Conclusion. TPCS reduces blood product utilization and improves outcomes on high MELD/DRI cases without prolonging the surgical time.

Abstract# P-364

VASCULAR COMPLICATIONS IN RIGHT LOBE LIVING DONOR LIVER TRANSPLANTATION. Sedat Karademir, Tarkan Unek, Serhan Derici, Tufan Egeli, Huseyin Astarcioğlu, Ibrahim Astarcioğlu. General Surgery and Liver Transplantation, Dokuz Eylul University Hospital, Izmir, Turkey

Vascular complications remain the most challenging aspect of adult right lobe living donor liver transplantation (RLDLT). Between 04/2004 and 08/2008, 132 consecutive RLDLTs were performed in Dokuz Eylul University Hospital and followed prospectively. Age, sex, MELD status, primary diagnosis, GW/BW ratio, features of vascular reconstructions, vascular complications and their management were evaluated. All recipients received Doppler ultrasonographic examination both during operation and daily for the first 7 days and when necessary thereafter. Median follow-up was 24 months (range 1-58) and 1-year graft and patient survival was 81.3% and 82.9%, respectively. Overall incidence of vascular complications was 10.6% (14/132). Five recipients suffered from early (<30 days) loss (thrombosis) of graft inflow (arterial: 2, portal: 3). Of these, 2 grafts were successfully salvaged by arterial thrombectomy. In one recipient with portal vein thrombosis (PVT),

hepatic artery has sustained intrahepatic portal blood flow until complete recanalization was achieved with anticoagulant therapy. Remaining two PVTs died of graft failure. Outflow complications (n=3) were due to hepatic vein-vena cava stenosis late after transplantation (5, 8 and 37 mon). All were successfully treated with percutaneous balloon angioplasty (PBA) and stent placement. We observed portal vein stenosis (PVS) in 3 recipients at the anastomotic site (2, 4 and 5 mon). In these, vascular extension grafts (cadaveric iliac vein: 2, PTF: 1) have been used to approximate and perform tension-free portal vein anastomosis. All 3 PVSs were successfully treated with PBA and stent placement. One recipient suffered from late HAT (POD 85) and underwent retransplantation. In another two, hepatic artery stenosis (HAS) was observed (POD 35 and 38) and PBA + sirolimus coated stent was placed. In conclusion, overall incidences of thrombosis and stenosis formation after RDLT were equal (5.3%) in our center. Graft salvage was successful in early HAT. Late HAT causes significant morbidity and graft loss. Early PVT is a mortal complication but may be well tolerated if hepatic arterial blood flow sustains intrahepatic portal flow. Use of cadaveric or PTF vascular grafts for portal vein extension may cause late stenosis.

Abstract# P-365

HEPATIC ARTERY THROMBOSIS IN ADULT TO ADULT LIVING DONOR LIVER TRANSPLANTATION. Yusuke Kyoden, Sumihito Tamura, Yasuhiko Sugawara, Norihiro Kokudo. *Artificial Organ and Transplantation Division, Department of Surgery and Organ Transplantation Service, University of Tokyo, Tokyo, Japan*

Back ground: Despite the refinements in surgical technique, hepatic artery thrombosis (HAT) remain problematic in adult living donor liver transplantation (LDLT), considered to occur in approximately 1.7% to 6.8%. Detailed reports, however, focused specifically on HAT in large adult LDLT patient series remain limited.

Patient and Methods: Between January 1996 and October 2006, 310 adult LDLT were performed at our institution. The incidence of the HAT in these patients was retrospectively analyzed.

Results: During the observation period (median, 43 months), HAT were observed in 13 patients (4.2%). HAT was detected with range from 8 hours to 140 days after LDLT. For them, 6 patients were treated with thrombectomy and re-anastomosis and 5 patients were treated with anticoagulant therapy. Two patients with simultaneous thrombosis of hepatic artery and portal vein died just after the diagnosis and any appropriate treatments were unable to carry out. There were 6 patients who developed biliary complications (bile leakage 3 cases and bile duct stenosis 4 cases). During follow up period, 6 patients have died and 7 patients have survived. The overall survival rate was significantly lower in the patients with HAT than that without this complication (P=0.0001). In this study, higher MELD score seemed to be related to the occurrence of HAT. Multivariate analysis, however, could not detect any significant factors related to the occurrence of HAT.

Conclusion: HAT is a significant cause of patient loss and still a challenging issue following adult LDLT.

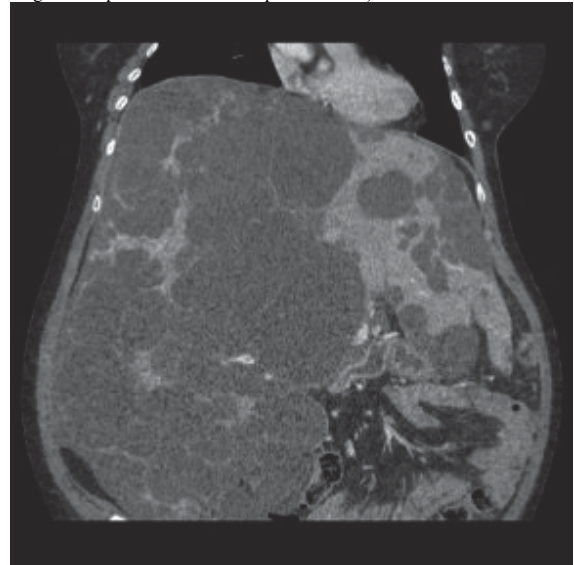
Abstract# P-366

LIVER TRANSPLANTATION FOR MASSIVE HEPATOMEGALY IN ONE CASE OF ADULT POLYCYSTIC LIVER DISEASE. Jorge A. Martinez¹, Nicolás Jarufe¹, Juan F. Guerra¹, Pilar Domínguez¹, Alejandro Soza^{1,2}, Cristián Muñoz^{1,2}, Marco Arrese^{1,2}, Rosa M. Perez^{1,2}. ¹Liver Unit. Department of Digestive Surgery, Facultad de Medicina. P. Universidad Católica de Chile, Santiago, Chile; ²Department of Gastroenterology., Facultad de Medicina. Pontificia Universidad Católica de Chile, Santiago, RM, Chile

Polycystic liver disease (PLD) is an infrequent, benign, autosomal dominant disorder that usually presents in combination with polycystic kidney disease (PKD). Hepatic complications are due to mass effects leading to abdominal discomfort, with distension, tenderness and dyspnea, with subsequent deterioration of the quality of life. Conservative surgery, as unroofing or partial resection is indicated for large and symptomatic cysts. Liver failure is uncommon, so indication of liver transplantation (LT) is still controversial. Aim: To report a clinical case with massive hepatomegaly due to PLD, successfully treated by total hepatectomy and liver transplantation.

Case report: A 55 year-old woman with PLD and PKD presented with massive hepatomegaly (figure 1) causing severe physical impairment, fatigue, abdominal pain and malnutrition. Her liver and renal functions were normal. Her weight was 73.7 kg. Other 4 members of her family were also affected,

no-one of them submitted to LT (father, dead because of fatal liver trauma; 2 brothers, one with a kidney transplantation and one aunt, dead after a liver surgical complication before transplantation era).



After sixteen months on the national waiting list, she was transplanted with a deceased donor liver graft. A 14.8 kg polycystic liver was removed sparing her inferior vein cava, therefore venovenous bypass was unnecessary. Cold ischaemia time was 468 min. Transfusion requirements were minor. Postoperative course was complicated by small intimal dissection of the native hepatic artery treated by anticoagulant therapy. Discharge was on postoperative day 13.

Conclusions: Liver transplantation offers a definitive treatment in patients with massive PLD, enabling fully recovery of an active lifestyle. Specific technical issues and perioperative risks are inherent to these huge livers.

Abstract# P-367

REMOVABLE INTRADUCTAL STENTING IN DUCT-TO-DUCT BILIARY RECONSTRUCTION IN LIVER TRANSPLANTATION. Hadrien Tranchart¹, Ailton Sepulveda¹, Mircea Chirica¹, Frederic Prat², Denis Bernard¹, Filomena Conti¹, Olivier Soubrane¹, Olivier Scatton¹. ¹Liver Surgery and Liver Transplantation, Cochin Hospital, Paris, France; ²Endoscopy Department, Cochin Hospital, Paris, France

We hypothesized that internal stenting of the duct-to-duct bile anastomosis might diminish the incidence and severity of biliary complications and avoids the drawbacks related to the use of external t-tubes.

The purpose of this study was to report our experience with a new technique of biliary reconstruction including intraoperative intraductal stent tube (IST) placement followed by endoscopic removal in the postoperative period.

Methods

An IST was placed into the bile duct at the end of the biliary anastomosis during cadaveric LT in 15 successive patients when the diameter of the anastomosis was smaller than 5mm. A custom made segment of a 8 French T tube was used for the confection of the IST. The tube was removed endoscopically 4-8 months after LT, or in case of IST related adverse events. Among the 15 patients, 12 patients received a whole liver graft, 3 patients a partial graft, and one patient received a domino liver, and 2 received a combined liver-kidney transplantation. Operative mortality and morbidity were recorded. The evaluation of postoperative biliary complications was the main endpoint of the study.

Results

The IST was successfully inserted in all the patients. After a median follow-up of 15 (range 2-22.5) months, endoscopic removal of the IST was performed in 10 patients (66%). The median delay between LT and IST removal was 21.5 (4-57) weeks. No technical failure and no procedure related complications were recorded during drain removal. Biliary complications occurred in 4 patients (26%) during follow-up. One patient was successfully treated by antibiotics for recurrent cholangitis. One patient developed biliportal fistula requiring reoperation on POD 30 and stent removal. One patient (7%) had asymptomatic biliary leakage that was diagnosed at the time of

endoscopic IST removal and was treated successfully by immediate stent replacement. Late anastomotic stricture occurred in one patient and was successfully treated by endoscopic dilation and anastomotic stenting. No biliary complication occurred in the group of patients who underwent elective cadaveric whole graft LT.

Conclusion

IST is technically feasible and safe, and seems to prevent from severe biliary complication especially in transplantation of whole liver grafts and small size bile ducts.

Abstract# P-368

TECHNICAL ASPECTS OF HEPATIC ARTERY RECONSTRUCTION WITHOUT MICROSCOPE IN LIVING DONOR LIVER TRANSPLANTATION. Abdallah Slim, Andrea Lauterio, Alessandro Giacomoni, Stefano Di Sandro, Iacopo Mangoni, Plamen Mihaylov, Mohamed Al Kofahi, Luciano De Carlis. *Niguarda Hospital, Milano, Italy*

Introduction. In living donor liver transplantation (LDLTx) hepatic artery anastomosis still remain a challenge. Indeed hepatic artery reconstruction using a microscope has been advocated to decrease the incidence of hepatic artery thrombosis. However microscope itself is not considered compulsory by many surgeons. We herein describe our experience of arterial reconstruction without the microscope.

Methods. From March 2001 to December 2008, 49 LDLTx were performed at our institution using the right graft without the middle hepatic vein. All the arterial anastomosis were performed using the "parachute" technique, after an arteriotomy on both arterial stumps with one running 7/0 prolene suture using 3X surgical loupe magnification. Arterial flow is re-established before the suture is tied to allow further expansion at the anastomosis site. The arterial anastomosis was performed with the right hepatic artery in 22 cases and with the proper hepatic artery in 27 cases. In 2 cases an interposition arterial conduit was used. A doppler ultrasound was performed at the end of the anastomosis, at the end of the recipient surgery and daily for 7 days after transplant.

Results. Data have been retrospectively analyzed. Hepatic artery thrombosis occurred in 2 patients (4%). One of them has been retransplanted while the second one underwent an urgent surgical revision within 8 hours after transplantation. A thrombectomy and a new arterial anastomosis using an aortic conduit have been performed. The hepatic artery developed a new thrombosis. Four months after transplantation an intra hepatic biloma has been drained. Patient is alive with a biliary stent in place and normal liver function tests.

Conclusion. Our results show an overall arterial complication rate of 4%. These data are comparable to other previous published series that report a negative arterial complication rate between 1.6% and 22% using a microscope. Although the use of microscope allows more precise and easy arterial anastomosis in LDLTx, an accurate surgical technique using 3x surgical loupe magnification can assure remarkable results.

Abstract# P-369

COST AND EFFICACY ANALYSIS OF UNIVERSAL VERSUS TARGETED PROPHYLAXIS IN LIVER TRANSPLANTATION. Brianne L. Dunn¹, Nicole A. Weimert¹, David J. Taber¹, Neha Patel¹, Jenna L. Scheffert¹, Angello Lin², Tikvah Y. Habib², Kenneth D. Chavin², Prabhakar K. Baliga². ¹*Dept of Pharmacy, MUSC, Charleston, USA;* ²*Division of Transplant Surgery, MUSC, Charleston, SC, USA*

Purpose The aim of this study was to evaluate the overall incidence of fungal infections in patients who received universal fungal prophylaxis versus targeted fungal therapy and compare the cost of both strategies.

Methods: This was a review of adult liver transplants between 1/00 through 9/08. Patients prior to 2006 received universal prophylaxis with fluconazole. Targeted prophylaxis based on University HealthSystem Consortium criteria was implemented from 1/06 onward. The primary outcome was the number of documented fungal infections based on culture. Costs were calculated based on AWP cost per patient and compared between groups. Fischer's Exact, Median and T-tests were used to compare groups where appropriate.

Results: A total of 509 transplants were performed; information on fungal prophylaxis was available on 443 patients; 32 pediatric patients were excluded. In the universal group, 97% of patients received prophylaxis with fluconazole, while in the targeted group 34%, 12%, and 7% received fluconazole, voriconazole or liposomal amphotericin B, respectively. Of the patients who received universal prophylaxis, 14% developed a fungal

infection compared to 11% of those who received targeted prophylaxis (p=NS). The rate of non-albicans or mold infections was similar in patients that received fluconazole compared to broad spectrum antifungals. For a 7-day course, observed cost per patient for universal prophylaxis was \$220 and targeted prophylaxis was \$543.

Characteristics	Universal (n=231)	Targeted (n=180)	P-value
Age	51±9	52±12	0.352
African-American	35 (15%)	22 (12%)	0.472
Female	77 (33%)	60 (33%)	1.000
ECD	7 (3%)	11 (6%)	0.149
Fulminant	29 (13%)	19 (11%)	0.643
Avg CrCl (mL/min) at transplant	76±25	75±25	0.688
Avg MELD at transplant	21±10	22±9	0.288
Median blood products (range)	35 (0 – 334)	28 (0 – 375)	0.006
Avg Post-Transplant length of stay (days)	15±22	12±15	0.102
30 Day all cause mortality	14 (6%)	10 (6%)	1.000

Clinical Outcomes	Universal (n=231)	Targeted (n=180)	P-value
Number of Treated Patients	231 (100%)	97 (54%)	<0.001
Fluconazole	225 (97%)	62 (34%)	<0.001
Length of Fungal Coverage	5±5	19±14	<0.001
Total Fungal Infections	22 (10%)	14 (8%)	0.600
Non-Candida albicans Fungal Infections	9 (4%)	6 (3%)	0.798
Actual Cost Per Patient Observed	\$220	\$543	N/A
Per Protocol Cost Per Patient*	\$131	\$388	N/A
*Per 100 patients based on % that received specific antifungal in study cohort based on 7 days of prophylaxis			

Conclusion: In liver transplantation, 7-day universal fungal prophylaxis with fluconazole has equal efficacy and is more cost effective than targeted prophylaxis using broad spectrum antifungals.

Abstract# P-370

AGGRESSIVE HEPATIC VENACAVAL RESECTION IN LIVING DONOR LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA EXCEEDING THE MILAN CRITERIA: A CASE REPORT. Yuzo Umeda, Takahito Yagi, Hiroshi Sadamori, Hiroaki Mastuda, Susumu Shinoura, Kenji Mizuno, Ryuichi Yoshida, Daisuke Satoh, Masashi Utsumi, Noriaki Tanaka. *Gastroenterological Transplant Surgery and Surgical Oncology, Okayama University, Okayama, Japan*

Purpose: In living donor liver transplantation (LDLT) for hepatocellular carcinoma (HCC), patients within the Milan criteria have excellent survival, compared with exceed Milan criteria. Especially in HCC invading hepatic vein or localized dorsal liver, liver manipulation during exfoliation from the inferior vena cava (IVC) could attribute the risk of micrometastasis. In fact, we experienced the case, exceed Milan criteria, recurred as vena cava tumor thrombus derived from short hepatic vein invasion, 11 months after LDLT. And we performed the IVC resection and reconstructed using artificial vascular graft. From this experience, we devised aggressive combined resection of the hepatic venacava in LDLT, against the risk of HCC recurrence. This report sought to describe the surgical procedure of hepatic venacaval resection in primary LDLT for HCC exceeding the Milan criteria.

Case report: (Case1) A 60-year-old man had end-stage viral cirrhosis with HCC (Maximum tumor size: 3.3cm, Number: 13). (Case2) A 57-year-old man with HCC (Size 3.9cm, Number 22). They received extended left lobe liver grafts. A primary anterior approach to the IVC was taken with little or no mobilization of the liver off of the IVC. With active porto-venovenous bypass (Porto-Femoro-Axillary), supra and infrahepatic vena cava were clamped. And then liver and retrohepatic vena cava (infra hepatic vein confluence) were removed en bloc. The IVC was reconstructed with ringed Gore-Tex tube graft. After IVC reconstruction, hepatic vein was reconstructed. No anticoagulant was used throughout the entire course. The patients tolerated this operation and postoperative course without complication. And they have been recurrence-free with good liver function after follow-up for 1 year.

Conclusion: Combined resection of the hepatic venacava and liver has become feasible with the application of innovative surgical techniques in LDLT for HCC exceeding the Milan criteria. It will be necessary to confirm the effect with further studies and more cases.

Abstract# P-371

SURGICAL REANASTOMOSIS COULD SPARE RETRANSPLANTATION IN HEPATIC ARTERY THROMBOSIS. Woo Young Shin, Kyung-Suk Suh, Joohyun Kim, Tae Hoon Kim, Nam-Joon Yi, Jai-Young Cho, Kuhn Uk Lee. *Surgery, Seoul National University College of Medicine, Seoul, Korea*

Introduction Hepatic artery thrombosis (HAT) is the most common vascular complication, and one of the most important causes of graft loss after liver transplantation. However, the incidence of HAT, re-graft and the mortality attributable to HAT have decreased in recent years. One of the causes of improving the outcome was successful management of HAT. Hence, in this study, we analyzed the incidence of HAT, and investigated the outcome of HAT according to the type of management.

Methods

From March 1988 to June 2008, 610 patients underwent liver transplantation in our institution. Among these patients, 460 cases (74.5%) were living donor liver transplantation, and 132 cases (21.6%) were children. Seventeen cases (2.8%) developed HAT and were retrospectively reviewed.

In all transplanted patients, the flow of hepatic artery was monitored by Doppler ultrasonography daily till the 1st week and 2-3 times per week thereafter. If there were arterial flow on Doppler, we checked the CT angiography or conventional angiography for confirmation of HAT. The median follow-up periods was 14.8 months (2.6 ~108.8).

Results

Median age was 44 years old (1 ~ 57). There were 14 adults and 5 children, and the incidence of HAT was 2.9% in adults and 3.8% in children. Six cases (31.6%) were secondary HAT related to predisposing factors. Median time in developing HAT was 11 days, and 5 cases developed HAT intraoperatively. Fifteen cases (78.9%) developed HAT within 4 weeks postoperatively. Initially 17 cases (89.4%) underwent reanastomosis. Eleven cases (64.7%) preserved arterial flow, but 6 cases were re-obstructed. Among these, 1 patient underwent retransplantation. The 1st HAT case underwent retransplantation for initial treatment. Hence, the rate of re-graft was 10.5% (2/19). One patient who developed HAT in postoperative 12 weeks had fine collateral arteries, and was treated with anticoagulation. In 12 (63.2%) out of 19 cases, biliary complication developed during follow-up. Among these, 10 cases needed interventional procedures, and the complications were resolved in those who were treated over one year.

Conclusion

Early detection and early reanastomosis of HAT could spare retransplantation. If biliary complications developed, it could be controlled by aggressive radiologic or endoscopic interventional procedures.

Abstract# P-372

RISK FACTORS FOR COLONIZATION/INFECTION FOR VANCOMYCIN-RESISTANT ENTEROCOCCUS IN COHORT OF LIVER TRANSPLANTATION RECIPIENTS WITH SURVEILLANCE CULTURES. Maristela P. Freire, Patricia Bonazzi, Icaro Boszczowski, Isabel V. Oshiro, Thais Guimaraes, Telesforo Bachella, Silvia F. Costa, Edson Abdala. *São Paulo University, São Paulo, Brazil*

Vancomycin-resistant *enterococcus* (VRE) is an emergent pathogen in nosocomial infection, liver transplant (LT) recipients have a higher risk to have infection for this agent. The goal of this study is describe VRE infection in LT patients and identifies risk factors. **Methods:** We analyzed the LT procedures at the Hospital of the University of São Paulo from January/2005 to september/2008. Surveillance cultures for VRE of samples were obtained from rectum and collected in admission, weekly in during ICU stay and before discharge. Data were obtained from medical records. We excluded for risk factor analysis patients who died in less than 48 hours after LT or had colonized before LT. Analysis of risk factors was performed using chi-square test or Fisher's exact test for dichotomic variables and Mann-Whitney for continuous variables; multivariate analysis was made by stepwise logistic regression. The variables analyzed were: surgical factors, clinical and laboratorial findings of the receptor, procedures performed, length of pre-operative stay, length in ICU and antibiotic consume during hospitalization. **Results:** A total of 167 liver transplant procedures were conducted in

the period analyzed; 31 were excluded. VRE colonization occurred in 26 patients, 13 had VRE identified before LT, the mean time to acquire VRE was 30 days. Infection was detected in 12 patients, 83% were *E. faecium*, 33% were colonized before infection and the mean time from colonization to infection was 13 days, the most common site was organ/space surgical infection. The risk factors identified in the univariate analysis were: use of vancomycin, length of dialysis, MELD, CHILD-PUGH score, fulminant hepatitis, type of biliary anastomosis, length of hospital stay before LT and intra-operative blood transfusion. The multivariate analysis identified MELD score, intra-operative blood transfusion and type of biliary anastomosis as risk factors for acquired VRE after LT. The multivariate analysis for VRE infection identified MELD (0.018) and length of vancomycin use(0.42). **Conclusions:** Features related to severity of patient and surgical aspects were identified as risk for VRE acquisition. We could not related colonization to risk of VRE infection.

Poster Session III

Abstract# P-373

ASSOCIATION BETWEEN BODY MASS INDEX, ASCITES AND ANESTHESIA MANAGEMENT OF LIVER TRANSPLANT PATIENTS. Youri Vater, James Perkins, Gregory Dembo, Jorge Reyes, Kenneth Martay, Ester Park, Alex Vitin, Miriam M. Treggiari. *Anesthesiology & Pain Medicine, University of Washington, Seattle, WA, USA; Transplantation Division, University of Washington School of Medicine, Seattle, WA, USA*

Background: Patients requiring orthotopic liver transplantation (OLT) often present with variable amounts of ascites that might lead to having incorrect body mass index (BMI) category. The purpose of the present study was to investigate the association between BMI and ascites fluid volume to respiratory function and anesthesia management in OLT.

Patients and Methods: After IRB approval, 211 patients undergoing OLT over a 2-year period were reviewed. Data collected included patient demographics, BMI, amount of ascites (ml), respiratory variables, intraoperative factors and timing of extubation. The main interests were PAaO₂ at the end of anesthesia care and time to extubation.

Results: Ascites fluid of ≥ 1500 ml was found to be the cut-off point, resulting in a significant ($P<0.001$) survival difference between the groups (1-year survival rate: 97% for <1500 ml and 84% for ≥ 1500 ml). There was a significant ($P=0.04$) difference for the PAaO₂ at the end of anesthesia between <1500 ml ascitic group (266 ± 82 mm Hg) compared to the ≥ 1500 ml ascitic group (309 ± 90 mm Hg). Despite this, there was no difference ($P=0.3$) in extubation time between the <1500 ml ascitic group (16.8 ± 15.4 hrs) and the ≥ 1500 ml ascitic group (19.4 ± 27.6 hrs). The group with ≥ 1500 ml had significantly decrease renal function, higher INR, required more PRBC during the OLT than the <1500 ml group.

There was no BMI level resulting in a significant difference in survival; patients with BMI >30 were considered obese. There was no significant difference in PAaO₂, time to extubation, pre-operative creatinine clearance, or INR between the group with BMI <30 compared to ≥ 30 . However, BMI ≥ 30 group required significantly ($P<0.001$) more PRBC (1338 ± 715 ml) than BMI <30 group (PRBC 754 ± 642).

Conclusions: Although patients with obesity have worse oxygenation intra-operatively, these preliminary data suggest that the presence of ascites, and not obesity, is associated with worse outcomes specifically due to poor postoperative renal function. However, preliminary data do not suggest that obesity was associated either with requirement for prolonged ventilation after surgery or had a difference in time to extubation.

Abstract# P-374

THE INFLUENCE OF TWO DIFFERENT ANESTHETIC REGIMENS ON THE RIGHT VENTRICULAR FUNCTION DURING ORTHOTOPIC LIVER TRANSPLANTATION. Glauber Gouvêa¹, Rodrigo Diaz¹, Lúcio Auler¹, Renato Toledo¹, José M. Martinho^{2,3}. ¹Anesthesiology, Hospital Geral de Bonsucesso, Rio de Janeiro, Brazil; ²Surgery, Hospital Geral de Bonsucesso, Rio de Janeiro, Brazil; ³Surgery, Universidade Federal Fluminense, Niterói, Rio de Janeiro, Brazil

Objectives: The purpose of this study was to evaluate the right ventricular function (RVF) during orthotopic liver transplantation (OLT) under two different anesthetic regimens: propofol versus isoflurane anesthesia.

Design: Prospective clinical study.

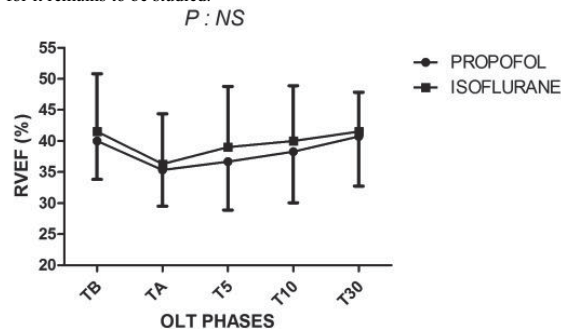
Setting: Liver Transplantation Unit of a Tertiary Hospital.

Participants: Twenty five (N=25) cirrhotic patients undergoing OLT.

Interventions: All patients were monitored with a modified pulmonary artery catheter which continuously measured the right ventricular ejection fraction (RVEF). Right ventricular (RV) hemodynamic data were recorded during 5 specific stages. Anesthetic technique consisted of either isoflurane or total intravenous anesthesia with propofol. Surgical technique was similar between groups.

Measurements & Main Results: Ten (n=10) patients comprised the isoflurane group (I), whereas fifteen (n=15) patients received propofol anesthesia (P). The RVEF was not significantly different between groups during all phases studied: (I vs P: TB: 41±9% vs 40±6%; TA: 36±8% vs 35±6%; T5: 39±10% vs 37±8%; T10: 40±9% vs 38±8% and T30: 41±6% vs 41±8%; P: NS). No patient developed clinically significant RV dysfunction.

Conclusions: Under the conditions of this study, the RVF followed similar trends during OLT regardless of the anesthetic regimen used. Whether these findings apply to patients with previous RV dysfunction or at increased risk for it remains to be studied.



Abstract# P-375

ACTIVE SURVEILLANCE CULTURES ON THE FIRST DAY OF ADMISSION AFTER ORTHOTOPIC LIVER TRANSPLANTATION. Guadalupe Aguirre-Avalos^{1,3}, Marco A. Covarrubias-Velasco², Roberto C. Miranda-Ackerman¹, Cuauhtemoc Juárez-Urriarte¹, Graciela C. Gómez-Arellano¹, Andrea Viramontes-Pérez¹, Diego Cisneros-Estrada¹, Juan A. Ramírez-Casillas¹, Martha L. Zavala-Silva⁴, Julio C. Mijangos-Mendez¹, Marlene Ruiz-García¹, Luis C. Rodríguez-Sancho², Hilario Coronado-Magaña¹. ¹Intensive Care Unit, Hospital Civil de Guadalajara, Guadalajara, Jalisco, Mexico; ²Transplant Unit, Hospital Civil de Guadalajara, Guadalajara, Jalisco, Mexico; ³Investigación en Microbiología Médica, Universidad de Guadalajara, Guadalajara, Jalisco, Mexico; ⁴Laboratorio de Microbiología, Hospital Civil de Guadalajara, Guadalajara, Jalisco, Mexico

Background.

Orthotopic Liver Transplantation (OLT) patients have increased risk for infectious complications. Detection and control strategies should be implemented to reduce the rates of colonization and/or infection after OLT. The primary objective of the present study was to determine the rate of colonization and/or infection on the first day of Intensive Care Unit (ICU) stay after OLT.

Methods.

From January 2000 to December 2005, 105 OLT patients admitted to a 14-bed medical and surgical adult ICU were monitored with active surveillance cultures to identify colonized and/or infected patients on first day of admission. The specimens were obtained from multiple sites. Identification and susceptibility to antimicrobial agents was determined using the MicroScan and Sensititre system.

Results.

In ICU admission, pathogenic microbiological flora was recovered from nose and throat in 25 patients. Gram-negative microorganisms were isolated in 60%, *Enterobacter* and *Klebsiella* species were the most frequently isolated. Gram-positive microorganisms were isolated in 56%, Methicillin-resistant *Staphylococcus aureus* 3, Methicillin-sensitive *Staphylococcus aureus* 5, Vancomycin-sensitive *Enterococcus* 5 and *Streptococcus agalactiae* 1. Of the 105 patients, 18% met criteria for site of infection. The lower respiratory tract was the most common site involved followed by the urinary tract and blood infections. Infections were considered community acquired in 16 and

nosocomial acquired in 3. Eleven patients were received antimicrobials for their infections. All patients without infections received antimicrobial prophylaxis.

Conclusion.

Active surveillance cultures to identify patients who are colonized and/or infected is an important strategy of treatment, prevention and control. The significance of nasal carriage with pathogenic Gram-negative bacteria should be determined.

Abstract# P-376

314 LIVER TRANSPLANTS WITHOUT PLASMA TRANSFUSION: ANALYSIS OF PREDICTIVE FACTORS OF BLEEDING. Emmanuel Boleslawski¹, Olivier Delhaye², Nicole Declercq², Sébastien Dharancy³, Stéphanie Truant¹, Gilles Lebuffle², Brigitte Jude⁴, François-René Pruvot¹. ¹Digestive and Transplantation Surgery, CHRU de Lille, Lille, France; ²Anesthesiology, CHRU de Lille, Lille, France; ³Hepatogastroenterology, CHRU de Lille, Lille, France; ⁴Haemobiology, CHRU de Lille, Lille, France

As soon as 1995, in our center, plasma transfusion has no longer been used during liver transplantation. The aim of this study was to determine to what extent intraoperative bleeding was actually correlated with the preoperative levels of coagulation factors, excluding the bias of exogenous administration of fresh frozen plasma, with intraoperative surgical events and indication for liver transplantation as main covariables.

Methods: From January 1995 to June 2007, there were 314 consecutive liver transplants. Intra and postoperative plasma transfusion were avoided in all patients. Red blood cells, platelets and fibrinogen were administered when hematocrit was <35%, platelet count <50,000/mm³ and fibrinogen <1 g/L, respectively. Aprotinin (2 mg/kg) was systematically injected 15 min before reperfusion and the injection was renewed in the absence of clots formation in the operative field. Excessive intraoperative blood loss (EIBL) was defined as bleeding superior to one blood mass (4500 mL). Recipient and intraoperative variables were analyzed in both univariate and multivariate fashion to find a link with intraoperative bleeding.

Results: The median value of intraoperative bleeding was 2925 ml (range: 200-17700). Patients with preoperative INR > 1.5 did not experience a significant increase in intraoperative bleeding (median value of 3050 ml vs 2800 ml; p=0.12). Thirty-four patients (10.8%) experienced excessive blood loss. In univariate analysis, early period of transplantation (1995-2001), non-preservation of the vena cava and a surgical cause of bleeding were associated with EIBL. In multivariate analysis, only non-preservation of the vena cava (OR=4.03; p=0.005) and surgical cause of bleeding (OR=158; p<0.00001) were associated with EIBL. Postoperative day 1 INR was not correlated with postoperative blood loss (p=.094; p=.17).

Conclusion: Bleeding in liver transplantation is not correlated with pre- or postoperative coagulation factors level. Systematic replacement of these factors with fresh frozen plasma seemed unnecessary provided surgical haemostasis had been controlled and antifibrinolytic agents had been used before reperfusion of the liver graft.

Abstract# P-377

THE EFFECTS OF EARLY AND LATE OCCURRENCE OF HEMORRHAGIC SHOCK IN POST-HEPATECTOMY RATS.

Bruno Jawan¹, Chao-Long Chen², Chih-Hsien Wang¹, Chia-Yun Lai², Chia-Jung Huang¹. ¹Anesthesiology, Chang Gung Memorial Hospital, Kaohsiung Medical Center, Kaohsiung, Taiwan; ²Liver Transplant Program, Chang Gung Memorial Hospital, Kaohsiung Medical Center, Kaohsiung, Taiwan

Background

The study aims were to determine and define (1) the range of compensatory function of the remnant liver as a blood reservoir after hepatectomy, and (2) the effects of hemorrhagic shock and reperfusion following 70% hepatectomy in a small animal experiment model.

Materials and Methods

One-hour hemorrhagic shock followed by one-hour resuscitation was induced in normal sham rats (GI), and in rats after 70% hepatectomy on postoperative days 3 (GII) and 7 (GIII). The amount of blood loss to cause shock, blood pressure before shock, hemoglobin, hematocrit, mortality, aspartate aminotransferase (AST), alanine aminotransferase (ALT), lactate dehydrogenase (LDH) and heat shock protein 70 (hsp70) were compared among groups by using one-way analysis of variance with post-hoc correction. A p value <0.05 was regarded as significant. Data were presented as mean ± SD.

Results

The blood loss required to induce shock was significantly lower in GII than GI and GIII. The blood loss was 15.6 ± 1.0 , 5.68 ± 2.5 , and 13.2 ± 1.6 ml for GI, GII, and GIII, respectively. The mortality due to hemorrhagic shock was significantly higher in GII than GI and GIII. Liver function showed that the AST and LDH were significantly higher and hsp70 significantly lower after resuscitation in GII. Early postoperative (day 3) hemorrhagic shock after 70% hepatectomy led to higher mortality among GII subjects when compared to subjects (GIII) who had hemorrhagic shock on a later period (day 7).

Conclusion

A remnant liver following 70% hepatectomy with hemorrhagic shock is more vulnerable to ischemia-reperfusion injury, as assessed by liver function tests and gene expression of hsp 70 in early postoperative period than that of late postoperative period. Hemorrhagic shock in the early post-operative period of 70% hepatectomy may contribute to higher mortality.

Abstract# P-378

LIVER TRANSPLANTATION IN CRITICALLY ILL CHILDREN LESS THAN 1 YEAR OR 10 KG: AN ANESTHESIOLOGIST/CRITICAL CARE PERSPECTIVE.

Geraldine Diaz¹, Khalid Kahn², Andrew Theodore², Cleo Harden², Lu Masselli³, Nikki Stubbs³, Rainer Gruessner³, John Renz³.
¹Anesthesiology/Critical Care, University of Arizona, Tucson, AZ, USA; ²Pediatrics, University of Arizona, Tucson, AZ, USA; ³Surgery, University of Arizona, Tucson, AZ, USA

Case: 8month-old male, weight 8.4kg, located in the pediatric intensive care unit (PICU) with end-stage liver disease secondary to TPN-induced cholestasis. The patient has a history of short-gut syndrome from necrotizing enterocolitis at birth and is TPN dependent for >90% of nutritional needs. The Pediatric End-Stage Liver Disease score is 42, complicated by renal insufficiency, and the patient meets listing criteria as a UNOS status 1b secondary to respiratory failure necessitating intubation and gastrointestinal hemorrhage requiring continuing need for blood transfusion. The patient is offered liver transplantation (OLT) with a whole cadaver allograft. Discussion: OLT in critically ill infants presents unique challenges to the anesthesiologist/intensivist with respect to pre-operative preparation, intra-operative support, type of allograft utilized, and post-operative management that must be precisely orchestrated to achieve a successful outcome. We have developed a 7minute discussion as a case presentation format that reviews our experience with >100 pediatric liver transplants of critically-ill children less than one-year of age or 10kg in weight with respect to pre-operative evaluation, intra-operative support, and post-operative intensive care management. Topics include:

Pre-Operative Evaluation
Physiology of end-stage liver disease in children
Impact of the etiology of liver failure upon liver transplantation
Effect of associated organ dysfunction upon pre-operative preparation
Vascular access: how much and where?
Role of the PELD in predicting outcomes
Intra-Operative Support
Successful Strategies for Induction
Metabolic/Physiologic Support
Vasopressor Utilization
Transfusion in Small Children
Antifibrinolytic Utilization
Augmentation of Pre-Existing Organ Dysfunction: renal, respiratory
Post-Operative Management: The Initial 72hours
Evaluation of allograft function
Augmentation of Allograft Function
Physiologic Support.

Abstract# P-379

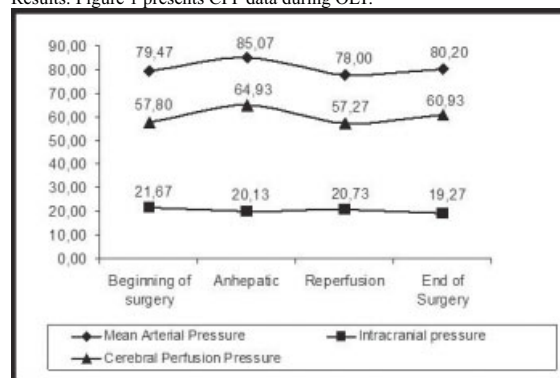
ANESTHETIC MANAGEMENT AND OUTCOME OF LIVER TRANSPLANT PATIENTS WITH FULMINANT HEPATIC FAILURE. Alexandre Teruya, Alexandre P. Oliveira, Rogério P. Barbosa, Maria Paula V. C. Zurstrassen, Diná M. H. Nowak, Marcelo B. Rezende, Rogério Carballo, Sérgio P. Meira-F^o, Marcel V. Vitorelli, Rafael C. P. Zamper, Ben-Hur Ferraz-Neto, Flávio Takaoka. Hospital Israelita Albert Einstein, Sao Paulo, SP, Brazil
Introduction: Fulminant Hepatic Failure (FHF) outcome has greatly improved with liver transplantation (LT). However, optimal perioperative neurological management of FHF during LT remains poorly defined. Practices are often based on local experience and case reports. In addition, data from literature

show that management of coagulopathy, and the value and techniques of intracranial pressure (ICP) monitoring in the perioperative period of LT are controversial.

Aim: The aim of this study is to present anesthetic management and outcome of ICP monitored patients during LT.

Methods: A retrospective review of 185 LT performed between June 2005 and November 2007 was performed. Twenty-eight patients presented FHF (15%). Among these, twenty-one with high-grade encephalopathy received preoperative ICP monitoring. Anesthetic management aimed to maintain Cerebral Perfusion Pressure (CPP) above 50 mmHg. Total intravenous anesthesia consisted on continuous infusion of propofol, remifentanyl and cisatracurium and fentanyl boluses as demanded. Mannitol was administered during dissection and post-reperfusion phases. Twenty degrees head-up tilt was maintained throughout the procedure.

Results: Figure 1 presents CPP data during OLT.



Mean time from public health system notification and LT was 2.7 days. Nineteen patients presented full graft and clinical recovery, without neurological impairment 12 months following OLT. ICP complications (dislodgment and bleeding) required surgical re-intervention in 4 patients. Two of these patients presented partial neurological motor deficit, probably related to ICP monitoring.

Conclusions: ICP monitoring is a valuable perioperative tool on CPP control and improved outcomes, despite being associate with serious neurological complications. Further studies are necessary to improve coagulopathy management in ICP monitored patients. There is a potential role for rFVIIa that needs to be investigated.

Abstract# P-380

SALVAGE LIVER TRANSPLANTATION (LT) IN DECOMPENSATED CIRRHOSIS AFTER ABDOMINAL SURGERY. NEW INDICATION FOR LIVER TRANSPLANTATION. Ephrem Salamé¹, Mario Altieri¹, Gil Lebreton¹, Jack Tartiere², Desiré Samba², Barbara Alkofer¹, Dominique Arsène³, Jean-Paul Deshayes², Philippe Ségol¹.
¹Département de Chirurgie Digestive et de Transplantation Hépatique, CHU Côte de Nacre, Caen, France; ²Département Anesthésie et Réanimation Chirurgicale, CHU Côte de Nacre, Caen, France; ³Département Hépatogastroentérologie, CHU Côte de Nacre, Caen, France

Introduction: Cirrhotic patients are of high risk of decompensation and mortality after abdominal surgery. Salvage transplantation in this indication remains the only therapeutic option. The authors will discuss this new indication for LT and its timing. **Case report:** A 57 years old male, who had compensated cirrhosis, was presented with recurrence of in situ adenocarcinoma of the lower esophagus one year after a primary treatment with radio-chemotherapy. Transjugular intrahepatic porto-systemic shunt (TIPSS) was placed before esophageal surgery. Partial esophagectomy with upper gastrectomy was performed by transhiatal approach. A jejunal loop (20 cm) was interposed between the esophagus and the residual stomach. The postoperative course was marked at day 15 by ascitis, jaundice (total bilirubinemia 20mg/dl), INR: 3, and renal failure (creatininemia 3mg/dl). There was no evidence of infection. Pathology report confirmed the 3mm in situ adenocarcinoma (R0). After a multidisciplinary approach the patient was eligible to be listed for LT. Thirty-six hours after listing he received a full cadaveric liver allograft. Early postoperative course was marked by renal failure treated with hemodialysis for 3 weeks. The renal function was partially recovered (creatininemia 2 mg/dl), liver function tests was normal.

Two months later he developed a severe pneumonia, septic shock, ARDS and deterioration of the renal function (creatinemia 6 mg/dl). He recovered in ICU after two weeks of intensive medical support. At month 4 postOLT he developed a biliary stenosis treated with a transpapillary endoprosthesis for a duration of 8 months. At months 20 after OLT, the patient had no complains a good quality of life and screening showed no evidence of cancer recurrence. **Discussion:** This case report good result of salvage liver transplantation in decompensated cirrhosis after abdominal surgery. This new unusual indication for LT is convenient but must be very selective. The decision is very difficult and must be taken very early before uncontrolled infection and/or multiple organ failure.

Abstract# P-381

THE USE OF CELL SAVER AND OTHER RESTRICTIVE BLOOD TRANSFUSION MANEUVERS FOR LIVER TRANSPLANTATION. Zalak Patel, Haran Fisher, Ernesto Pretto. *Anesthesiology, Jackson Memorial Hospital, UM-Miller School of Medicine, Miami, FL, USA*

Massive blood transfusion in Orthotopic Liver Transplantation (OLT) is associated with lower graft and patient survival rates. We discuss the management of a case of OLT without the use of banked red blood cell transfusion.

A 57 year male patient with hepatitis C cirrhosis (MELD 19), hypertension and diabetes was scheduled for OLT. Preoperative hematocrit was 30 and INR 1.34. Patient had right ventricular systolic pressure of 50 mmHG, EF= 55%.

Intraoperatively, besides standard monitoring, we used Transesophageal Echocardiography (TEE), thromboelastography (TEG) and arterial blood gas analysis (ABG).

Total duration of surgery was 11 hours with estimated blood loss of 2000 ml. We maintained the hematocrit around 25, normothermia and acid-base balance throughout the procedure. After reperfusion 4 units of Fresh Frozen Plasma (FFP) and 8 units of platelets were given to correct coagulopathy and 1000ml of cell saver blood was transfused. We employed a dedicated perfusionist, two suction catheters in order to have blood constantly available in the room. The post-operative course was uneventful.

Discussion:

In OLT, risk factors contributing to massive bleeding include: portal vein thrombosis, postsurgical or inflammatory adhesions, the cause and severity of underlying liver disease, renal impairment, anemia, portal hypertension and fibrinolysis. Even though blood transfusion is a life saving intervention, complications of transfusion can adversely affect outcome.

Currently a hematocrit of 25-30% is acceptable in the literature.

Platelet transfusion can be reserved for patients with maximum amplitude less than 40 mm on TEG. Normothermia is of benefit since hypothermia can induce platelet dysfunction and prolongs coagulation reaction time by reducing enzymatic activity.

In OLT, during the dissection phase, slight hypovolemia to decrease venous pressure and intravascular volume of collaterals, helps to reduce blood loss.

Furthermore, maintenance of normal PH, Ca and Mg aids in enhancing normal coagulation.

Thus, use of cell saver blood, maintenance of normothermia, acid-base and electrolyte balance help to decrease blood transfusion requirement during OLT with added benefit of decreasing the overall health care cost.

This is possible even in patients with moderately high MELD score as in our case.

Whether the exclusive use of cell saver blood, as opposed to banked blood, will result in better outcome remains to be investigated.

Abstract# P-382

CONTINUOUS INTRA-ARTERIAL BLOOD MONITORING CAN HELP TO ELIMINATE USE OF SODIUM BICARBONATE TO CORRECT METABOLIC ACIDOSIS DURING LIVER TRANSPLANTATION. Mitsuru Nakatsuka, Jan Yi Pasnak. *Department of Anesthesiology, Virginia Commonwealth University Health Center, Richmond, VA, USA; Department of Anesthesiology, Virginia Commonwealth University Health Center, Richmond, VA, USA*

Not only MELD score but also serum sodium concentration are reported to be associated with mortality for liver transplantation. Patients with ESKD were often hyponatremic. During liver transplantation, especially following reperfusion, severe metabolic acidosis may be encountered. Rapid

correction of metabolic acidosis by use of sodium bicarbonate may increase significantly sodium concentration and osmolality which may possibly cause CPM. Significant hypercarbia by overdose of sodium bicarbonate might be detrimental by increasing pulmonary vascular resistance, especially in patients with portopulmonary hypertension. Real-time continuous arterial gas monitor system can help to significantly cut down use of bicarbonate. We used small dose of THAM and totally eliminated use of sodium bicarbonate during liver transplantation. **Method:** Six patients undergoing liver transplantation were studied using continuous intra-arterial blood gas monitor system (CIABG) after approval of IRB. An intra-arterial blood gas sensor was inserted in the radial artery through a 20-gauge arterial catheter. Anesthesia was maintained with 50%O₂/air, isoflurane, sufentanil and cisatracurium. Arterial blood gas values were measured with this CIABG, 1 min. before reperfusion, and 1, 3, 5, 7 and 10 minutes after reperfusion of the grafted liver. With real-time continuous blood gas monitor, sodium bicarbonate was never needed. Data were analyzed with paired samples t-test and p < 0.05 was considered statistically significant. **Result:** Data was shown in Table 1.

Table 1: Changes in ABG values following reperfusion

time	pre-re perfusion	1 min after RP	3 min after RP	5 min after RP	7 min after RP	10 min after RP
pH	7.40±/-0.01	7.37±/-0.05	7.36±/-0.05	7.34±/-0.03 *	7.35±/-0.03 *	7.36±/-0.03 *
pCO ₂	39.0±/-2.5	42.8±/-4.1	45.6±/-5.4 *	45.2±/-5.3 *	44.2±/-4.5	44.0±/-3.5
pO ₂	505.35±/-35	510±/-35	493±/-50	466±/-46	421±/-52	410±/-83

Mean±/SD. * = P<0.05

Conclusion: We demonstrated that by using a real-time CIABG, we totally eliminated use of sodium bicarbonate during liver transplantation. We believe we can cut down significantly or eliminate use of sodium bicarbonate during liver transplantation.

Abstract# P-383

PERIOPERATIVE CARE IN ALPERS SYNDROME CARRIER: CASE PRESENTATION AND ANESTHESIA SURVEY. Youri L. Vater, Gregory A. Dembo, Kenneth Martay, Alexander A. Vitin, Avi A. Weinbroum. *Anesthesiology Department, Section of Transplant Anesthesia, University of Washington School of Medicine, Seattle, WA, USA; Post-Anesthesia Care Unit, Sourasky Medical Center, Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel*

Mitochondrial disorders encompass progressive multi-systemic disabling disorders, involving brain, kidney and liver dysfunction. Orthotopic liver transplantation may be considered when anti-seizure drugs (valproic acid) induced fulminant hepatic failure (FHF) ensues.

A 23- years old Caucasian woman has been suffering from a Complex III electron transport chain deficiency, comparable with **the Alpers syndrome**. Long seizures were treated by valproic acid (VPA, 250 mg plus 125mg/daily), which caused FHF. OLT was offered as a first line emergency and priority treatment. Twenty- hour hours prior the OLT the patient developed cardiac arrest, successfully reversed by CPR; ICP bolt was inserted and high ICP (20 mm Hg) has been treated by controlled mandatory ventilation. She was placed on amiodarone (0.5 mg/min) and epinephrine (0.2 mcgr/kg/min) infusion. OLT was undertaken under anesthesia with propofol infusion (2-4mg/kg/h) for brain protection, remifentanyl, oxygen and hyperventilation. The duration of surgery was 6 hours, ICP declined from 20 mm Hg to 6 mm Hg. Intraoperative fluid restriction policy was applied. 6 hours following OLT she regained consciousness and followed commands. Myoclonic jerks started soon afterwards and progressively increased, her weaning off from the ventilator became impossible. 20 days following the OLT with failure in success of various antiseizure therapy, VPA was reestablished with great concerns about FHF for a new liver graft. All liver enzymes became normal 3-4 days after OLT, she had sufficient urine output, she was weaned off from any inotropic support. Patient was hemodynamically stable with good function of new liver graft. The patient slowly developed meningitis and pneumonia and expired day 32 postoperatively. **Summary.** No evidence-based safe anesthetic exist for mitochondrial miopathy patients. FHF may occur in mitochondrial myopathy sufferers treated with VPA. Total IV anesthesia seems remarkable safe, including propofol and remifentanyl infusions. The main concern was brain protection and stable hemodynamic conditions during the OLT. **Geneticists, neurologists and hepatologists may aid the anesthesiologist to program perioperative care in patients with mitochondrial ciopathy.**

Abstract# P-384

LONG TERM OUTCOME AFTER LIVER TRANSPLANTATION IN A PATIENT WITH A POSTOPERATIVE DECOMPENSATED SEVERE PULMONARY HYPERTENSION AND CARDIAC FAILURE.

Mario Altieri¹, Eric Saloux², Jean-Paul Deshayes³, Jack Tartiere³, Désiré Samba³, Gilles Grollier², Ephrem Salamé¹. ¹Département de Chirurgie Digestive et de Transplantation Hépatique, CHU Côte de Nacre, Caen, France; ²Département de Cardiologie, CHU Côte de Nacre, Caen, France; ³Département Anesthésie et Réanimation Chirurgicale, CHU Côte de Nacre, Caen, France

Introduction: Porto-pulmonary hypertension is infrequent and associated to cirrhosis and portal hypertension. Liver transplantation (LT) in patients with pulmonary hypertension is risky and it is mandatory to be reduced before surgery. However, the arterial lesions and consequently pulmonary hypertension are irreversible even after LT. The duration of post LT treatment and compliance becomes a major problem and need to be discussed.

Case report: A 50 years old female patient had LT for a 3 cm hepatocellular carcinoma on primary biliary cirrhosis. Early postoperative course was marked by a prolonged mechanical ventilation for three weeks. One month later she developed severe hypoxemia (PaO₂ 46 mm Hg, PaCO₂ 25 mm Hg) with severe pulmonary hypertension (mPAP : 70 mm Hg) confirmed by echocardiography and right heart catheterization. She had mechanical ventilation for 5 days and Epoprostenol IV treatment was initiated and prolonged for a period of 17 months. Oral prostacyclin analog relayed IV treatment during 6 years and was associated temporarily with phosphodiesterase inhibitors. Cardiac shunt right-left was diagnosed on echocardiogram due to the patency of ovale foramen and was closed few weeks after vasodilators therapy. mPAP was decreased around 35 mmHg and the patient in this period had normal life. Liver function tests was normal. Seven years after LT she complains short of breathness and cyanosis. At this time mPAP was 70 mm Hg. Epoprostenol IV treatment was reintroduced with partial response. She developed 7 months later a progressive bi-ventricular heart failure leading to multiorgan failure and death at month 91 after LT.

Discussion: This case report a long term survival and good quality of life with medical treatment for decompensated portopulmonary hypertension post LT. Survival and quality of life post LT depend on the response to vasodilators therapy and the necessity to continue this treatment for life. The long-term prognosis could be altered with the evolution of arterial lesions and compliance to treatment especially for the IV therapy. This strategy must be discussed with the patient before LT.

Abstract# P-385

SEVERE INTRAOPERATIVE GLUCOSE VARIABILITY AND EXTENDED CRITERIA DONOR: ASSOCIATION WITH REOPERATION FOR HEMORRHAGE IN LIVER TRANSPLANTATION. Chulsoo Park¹, Hasen Yersiz², Marc Huh¹, Randolph H. Steadman¹, Ronald Chen¹, Ke-Qin Hu³, Johnny Hong², Ronald W. Busuttil², Victor W. Xia¹. ¹Department of Anesthesiology, Ronald Reagan UCLA Medical Center, Los Angeles, CA, USA; ²Department of Surgery, Ronald Reagan UCLA Medical Center, Los Angeles, CA, USA; ³Division of Gastroenterology, UC Irvine Medical Center, Orange, CA, USA

Reoperation for hemorrhage (RH) is not uncommon in patients after liver transplantation (LT) and is associated with increased morbidity and mortality. We sought to determine the incidence of and risk factors for RH in LT. After IRB approval, we retrospectively reviewed all adult patients who underwent LT at our medical center between January 2004 and November 2007. Recipient, donor, and intraoperative factors were first analyzed by univariate analysis. Independent risk factors were then identified by multivariate logistic regression. During the study period, 699 patients underwent LT. Thirty-one patients were excluded because of incomplete data, leaving 668 patients in the study. A total of 111 patients (16.6%) underwent 156 RHs, averaging 1.4 cases per patient. More than half of RHs occurred in the first 48 hrs after LT. One-third of patients required 2 or more RHs. Of more than the 60 variables studied, four independent risk factors: severe intraoperative glucose variability, graft with multiple extended criteria (≥ 2 any of the following: age >50 yr, highest Na⁺ >155 mEq/L, hospital stay >5 d, cold ischemia time >10 hrs, warm ischemia time >40 min, and macrosteatosis of the graft $>20\%$) intraoperative use of vasopressors, and red blood cell transfusion requirement were identified. The area under receiver operating characteristic was 0.744. In conclusion, several independent risk factors for postoperative RH in adult LT have been identified. If confirmed by future

studies, it is reasonable to consider avoiding severe intraoperative glucose variability and limiting the multiple extended criteria in the graft as a strategy to reducing postoperative RH in LT.

Multiple logistic regression model

	Odds ratio	95% CI	p
Severe glucose variability (≥ 55 mg/dL)	1.90	1.20-2.29	0.005
Extended criteria donor (≥ 2 criteria)	1.85	1.18-2.90	0.008
Vasopressors	1.73	1.05-2.86	0.033
RBC < 7 units	0		
RBC 7-10 units	2.92	1.16-7.35	0.023
RBC 11-17 units	3.04	1.25-7.39	0.014
RBC ≥ 18 units	7.35	3.11-17.33	< 0.001

Abstract# P-386

DOWNREGULATION OF T-LYMPHOCYTE ACTIVATION AND CO-ACTIVATION MARKERS IN HEPATITIS C VIRUS (HCV) INFECTION BEFORE AND AFTER LIVER TRANSPLANTATION. Cecilia Ortiz², Marina Berenguer¹, Raquel Cañada², Amparo Sempere⁴, Blas Risdal¹, Victoria Aguilera¹, Martin Prieto¹, Xavier Lopez³, Andres Gonzalez². ¹Hepatology Unit-CIBEREHD, Hospital la Fe, Valencia, Spain; ²Experimental Immunity Unit-CIBEREHD, Hospital la Fe, Valencia, Spain; ³CSISP Public Health Department-Evolutionary Genetics Unit-CIBERESP, Generalitat Valenciana, Valencia, Spain; ⁴Hematology Unit, Hospital la Fe, Valencia, Spain

HCV infection recurrence after liver transplantation (LT) is associated with a faster disease progression. Little is understood on why the immune system is unable to clear or control the infection in LT. AIMS: To explore the expression levels of lymphocyte activation and co-activation markers in HCV-infected LT patients compared to HCV+non-LT and to HCV-healthy controls. METHODS: 43HCV+LT (23 CyA, 20 FK506; M/F 32/11) were compared to 25HCV+non-LT patients (M/F 15/10) and to 23HCV-healthy controls (M/F 11/12). Viral load was determined by Cobas Amplifier HCV2.0 (Roche). Activation and co-activation markers (HLA-DR, CD38, CD28) were analyzed on T-cells (CD4+, CD8+) subsets in whole blood by flow cytometry (FACS Calibur, BD). RESULTS: LT patients were older ($p=0.07$) and had higher levels of ALT, AST and GGT ($p<0.05$) than HCV+non-LT. There were no differences in platelets, fibrosis and viral load between LT and non-LT. Absolute numbers of CD4+ or CD8+ T-cells expressing CD28+, CD38+, CD38/HLA-DR+ were reduced both in LT and in HCV+non-LT compared to HCV-healthy controls ($P<0.05$). Percentages of T-cells expressing CD28, CD38, CD38/HLA-DR were reduced in HCV+patients compared to HCV-healthy controls ($P<0.05$). Absolute numbers of CD8+CD28+ T-cells and percentage CD28 expression in both the CD8+ and CD4+ subsets were decreased in LT recipients compared to HCV+non-LT ($P<0.05$). The number of T-cells expressing CD28+ and/or CD38/HLA-DR were correlated with the viral load ($P<0.05$) in HCV+non-LT but not in HCV+LT patients. CONCLUSIONS: In HCV infected patients, the decreased levels of T-cell activation and co-activation markers compared to HCV-healthy controls may indicate T-cell dysfunction, or a greater permissivity of the immune system for viral replication. The further decrease of CD28+TCells in HCV+LT patients, compared to HCV+non-LT patients could be related to excess immune suppression and/or to a change in the immune balance due to the new graft. Reduced T-cell subsets effectively activated could fail to control HCV replication in LT, to faster disease progression and severe tissue damage after graft reinfection.

Abstract# P-387

PATTERNS OF HLA AND MICA ANTIBODY EXPRESSION IN TWENTY-YEAR LIVER TRANSPLANT SURVIVORS. Sherilyn Gordon Burroughs¹, Heidi Schubmehl¹, Mikki Ozawa², Paul Terasaki², Ronald W. Busuttil¹. ¹Surgery, David Geffen School of Medicine at UCLA, Los Angeles, CA, USA; ²Terasaki Foundation Laboratory, One Lambda, Inc, Los Angeles, CA, USA

BACKGROUND: Although UNOS data demonstrate a improvement in one-year graft survival in patients transplanted 1997-2002 versus those transplanted 1992-1996, there is no demonstrable improvement in five-year graft survival in the recent era. Human leukocyte antigens (HLA) allow for immune self-tolerance and foreign antigen recognition; HLA matching decreases rates of graft rejection for many organ recipients except liver. It is postulated that sinusoidal and portal tract lymphocytes mediate OLT donor-specific T-cell tolerance. The role of ubiquitous non donor-specific anti-HLA in the pathophysiology of OLT rejection, however, has not been well studied.

Expression of MHC class I-related chain A (MICA) has been demonstrated to correlate with premature graft loss and liver graft rejection although a causative role has not been identified. We sought to demonstrate the pattern of anti HLA and anti MICA in our long-term OLT recipients. **METHODS:** HLA and MICA antibody titers of adult recipients with graft survival >20 years (LTS) were measured and compared with titers of recipients with graft survival < three years (STS) in an IRB-approved protocol. Episodes of biopsy-proven acute rejection (BPAP) were recorded for subjects in each group. Recipients with Hepatitis C or autoimmune liver disease were excluded. **RESULTS:** Of 12 subjects studied (9 LTS/ 3 STS), 56% and 78% of LTS expressed significant titers of HLA class I and class II antibodies, respectively. Only 33% expressed anti-MICA. Interestingly, of LTS, BPAP rates were lowest in subjects expressing anti-MICA (67% vs 83%). Of STS, 33% expressed anti-HLA class I, 33% class II, and 0% anti-MICA. 67% of STS anti-MICA negative patients had BPAP. **DISCUSSION:** Anti MICA may serve to protect liver allografts from immune injury. Examination of the expression profile of anti-HLA and anti-MICA in subjects with LTS may allow improved identification of patients at risk for immune-mediated graft dysfunction and shortened graft survival. Further characterization of donor-related antibodies, identification of peripheral and intra-graft-T-cell populations, and microchimerism studies will be necessary to explore the role of HLA and MICA antibodies in OLT rejection.

Abstract# P-388

CC CHEMOKINE RECEPTOR 5delta32 POLYMORPHISM IS NOT A RISK FACTOR DEVELOPMENT OF BILIARY STRICTURES AFTER LIVER TRANSPLANTATION, BUT IT IS ASSOCIATED WITH OVERALL SURVIVAL.

Carlijn I. Buis¹, Harm Hoekstra¹, Jelle Adelmeijer², Elizabeth B. Haagsma³, Ton Lisman², Robert J. Porte¹. ¹HPB Surgery and Liver Transplantation, UMCG, Groningen, Netherlands; ²Surgical Research Laboratory, UMCG, Groningen, Netherlands; ³Hepatology, UMCG, Groningen, Netherlands

Introduction. CC chemokines and their receptors play a key role in postoperative immunomodulation after liver transplantation. Polymorphism of CC-chemokine receptor 5 (CCR5delta32) leads to an inactive receptor. This polymorphism has been associated with a lower rate of acute rejection and better graft survival after kidney transplantation, but it has been suggested as a strong risk factor for non-anastomotic strictures (NAS) after liver transplantation. Aim of our study was to determine the role of this polymorphism in the development of NAS and the impact on survival after liver transplantation.

Patients and methods. In a series of 486 adult liver transplant procedures, polymorphisms CCR5delta32 was determined. Demographic and clinical outcome data were extracted from a prospective database.

Results. Four-hundred four patients with wildtype CCR5 and eighty four patients with CCR5delta32 (2 homozygote, 80 heterozygote) were identified. NAS was detected in 80 out of 486 patients. Twenty two percent of the NAS patients possessed at least one CCR5delta32 allele versus 16% of the patients that did not develop NAS (p=0.24). Five-year survival in patients with at least one CCR5delta32 allele was significantly better, compared to patients with a wild-type genotype (p=0.01).

Discussion. In contrast to a previous study, we did not observe a higher rate of NAS in patients with CCR5delta32 polymorphism. However, in line with studies in kidney transplantation, we found a significantly better survival after liver transplantation in patients with the CCR5delta32 polymorphism. These findings suggest a critical role for CCR5 in liver transplantation.

Abstract# P-389

TRACKING OF TRANSPLANTED LIVER CELLS IN A PRECLINICAL LARGE ANIMAL MODEL. Igor M. Sauer¹,

Nathanael Raschzok¹, Kirsten Steinz¹, Anja Zielinski¹, Nils Billecke¹, Mehmet H. Morgül¹, Nora N. Kammer¹, Michaela K. Adonopoulou¹, Jens Pinkernelle², Ulf Teichgäber², Wolfgang Ruedinger³, Peter Neuhaus¹. ¹General, Visceral, and Transplantation Surgery, Charité Campus Virchow - Universitätsmedizin Berlin, Berlin, Germany; ²Radiology, Charité Campus Mitte - Universitätsmedizin Berlin, Berlin, Germany; ³Cytonet GmbH, Weinheim, Germany

Purpose: Transplantation of liver cells is a promising approach for treating certain liver diseases. Labeling with micron-sized iron oxide particles (MPIO) enables non-invasive detection of single cells by magnetic resonance imaging (MRI). The feasibility of preparing MPIO-labeled primary liver

cells detectable by clinical MR equipment was shown in vitro. Aim was to study the effects of MPIO-labeling on human hepatocytes and investigate the feasibility of tracking MPIO-labeled liver cells in a preclinical large animal model.

Methods: Primary human hepatocytes were isolated from 13 different donors and used for in vitro studies on biocompatibility of MPIO labeling. Porcine liver cells from 12 male landrace pigs were labeled with MPIO in adhesion and prepared for application. Particle uptake was quantified by light microscopy and continuum source atomic absorptions spectrometry. Labeled cells, native cells, or particles without cells were transplanted to the liver or spleen of 44 female MiniPigs. Immunosuppression was performed using cyclosporine and prednisolone. Animals were investigated by repeated 3.0 Tesla MRI and computed tomography (CT). Blood samples were taken on a regularly basis. Organs were harvested at day 3, 8, 15, or 29 following cell transplantation for histological analysis.

Conclusions: Labeling with MPIO had no adverse effects on human hepatocytes. Mean uptake of porcine liver cells was 25 particles per cell with 99% labeling efficiency. Viability of transplanted cells was 57.31 ± 8.99%. Signal extinctions were clearly detectable in the liver or spleen of labeled cell recipients. Artifacts by air bubbles were excluded by CT analysis. Control groups showed no signal changes. Adverse effects of MPIO-labeled liver cells compared to control groups were not observed. Results were verified by histological workup.

Our results demonstrate that labeling of liver cells with MPIO enables cell detection under conditions of clinical liver cell transplantation.

Abstract# P-390

ISCHEMIC PRECONDITIONING AND GLOBAL GENE EXPRESSION IN DECEASED DONOR LIVER TRANSPLANTATION. Ali Raza¹, George Dikdan¹, Kunj Desai¹,

Asif Shareef¹, Andrew N. dela Torre¹, Dorian Wilson¹, Andrian Fisher¹, Helen Fernandes², Patricia Soteropoulos³, Baburao Koneru¹. ¹Surgery, UMDNJ-NJMS, Newark, NJ, USA; ²Pathology, UMDNJ, Newark, NJ, USA; ³Applied Genomics, UMDNJ, Newark, NJ, USA

Background: The clear benefits of ischemic preconditioning (IPC) in reducing ischemia reperfusion injury (IRI) remain indistinct in human liver transplantation. To further understand the mechanistic aspects of IPC in human deceased donor liver transplantation (DDLT), we performed microarray analyses to determine global gene expression profiles associated with IPC administration.

Methods: We conducted a nested sub-study in 33/101 subjects enrolled in a prospective randomized trial of 10 min IPC in DDLT during 2003-2006. Liver biopsies were performed at the end of cold storage and at 90 minutes after allograft reperfusion. Six biopsy pairs from both IPC and No IPC (STD) groups within a narrow donor risk index range (1.6-1.8) were selected. Total RNA was extracted and hybridized with Affymetrix GeneChip Human Gene 1.0 ST Array. IPC effects were examined by comparing IPC vs. STD at both time points. Transcripts whose expression changed 2-fold with p<0.05 were considered significant.

Results: Donor and recipient characteristics in both groups were comparable. Clinical data from study subset closely matched outcomes from the whole trial. IPC increased expression of 10 transcripts at either time point with roles in: antioxidant defense(GSTM1, GSTM3), immunological response(IGJ, IGKC), lipid biosynthesis(FASN, ACSL4, GPAM, ELOVL6, THRSP), and xenobiotic metabolism(CYP1A1). IPC decreased the expression of 1 transcript involved in cell development (SLITRK3) at post-perfusion. Interestingly, the products of these genes corroborate the mixed clinical outcomes of IPC; GSTM1 and GSTM3 (glutathione-S-transferases, mu) decrease oxidative stress, while FASN (fatty acid synthase) has been implicated in increased IRI in fatty livers. Real time PCR evaluation of 5 genes validated our microarray data.

Summary: 1) IPC in DDLT increased the expression of antioxidant transcripts (glutathione-S-transferases) similar to studies in animal IPC, anesthetic, and remote IPC. 2) IPC increased expression of lipogenic transcripts, which may be relevant to the clinically observed increased IRI in our IPC group. 3) Our microarray findings support our clinical observations and are compatible with the varied outcomes of hepatic IPC studies in human liver transplantation.

Abstract# P-391

THE PROTECTIVE EFFECT OF NITRITE ON LIVER COLD ISCHEMIA REPERFUSION INJURY. Wei Li¹, Zihui Meng¹, Yuliang Liu^{2,3}, Jorge D. Reyes^{1,4}, John D. Lang^{2,3}. ¹*Surgery, University of Washington, Seattle, WA, USA;* ²*Anesthesiology, University of Washington, Seattle, WA, USA;* ³*VA Puget Sound Health Care System, Seattle, USA;* ⁴*Pediatric Transplantation, Children's Hospital & Regional Medical Center, Seattle, USA*

Liver ischemia/reperfusion injury (IRI) is a major cause of primary graft non-function or initial function failure post-transplantation, and leads to frequent episodes of both acute and chronic rejection. The effective therapies for the prevention and treatment of liver IRI are still lacking. Nitric oxide (NO) has been found to attenuate liver IRI through various mechanisms. In this study, we examined the therapeutic effect of the NO product, nitrite, with a particular focus on hepatocellular apoptosis following liver transplantation.

Methods: Mice livers were preserved for an extended period of time in either Lactate Ringer's (LR) solution or University of Wisconsin (UW) solution with or without the addition of nitrite. The syngeneic recipients of liver grafts were also treated with or without nitrite by i.p. injection. Liver function and hepatocellular apoptosis were evaluated by ALT, AST, and LDH assays, tissue H&E and TUNEL staining, and caspase 3 and Bcl-2 protein expression, etc. before or post-transplantation. **Results:** Liver ALT, AST, and LDH release were significantly reduced in both nitrite supplemented LR and UW preservation solution compared to the LR and UW only controls. The protective effect of nitrite was correlated with cold preservation time, the longer the more significant. In parallel with the reduction of enzyme release in the nitrite treated preservatives, the liver histological examination showed much better preserved morphology and architecture. Hepatocellular apoptosis was markedly reduced in the nitrite treated liver than in the LR and UW only control groups. Liver grafts with extended cold preservation time of 12 to 24 hours showed improved liver tissue histology and function at 2 hours post-reperfusion in either the nitrite supplemented preservation or nitrite treated recipients or combined treatments compared to the UW only control. **Conclusion:** Nitrite treatment affords significant protection to cold ischemic and reperfusion injury to the liver donor and improves liver graft acute function post-transplantation. The results from this study are very important for further assessment and guidance in the application of NO based (nitrite) therapy in liver transplantation.

Abstract# P-392

DEVELOPMENT OF A SEVERE VON WILLEBRAND FACTOR/ADAMTS13 DYSBALANCE DURING ORTHOTOPIC LIVER TRANSPLANTATION – A POSSIBLE RISK FOR POST-OPERATIVE THROMBOSIS? Ilona T. A. Pereboom¹, Jelle Adelmeijer¹, Yvonne van Leeuwen², Herman G. D. Hendriks¹, Robert J. Porte¹, Ton Lisman¹. ¹*University Medical Center Groningen, Groningen, Netherlands;* ²*Erasmus Medical Center, Rotterdam, Netherlands*

Patients with liver disease show profound changes in their hemostatic system, which may further change during liver transplantation. We previously demonstrated that highly elevated levels of the platelet adhesive protein von Willebrand factor (VWF) in patients with cirrhosis lead to an increased VWF-dependent platelet deposition under flow as compared to healthy controls. In this study we examined VWF parameters during the course of liver transplantation. We collected serial plasma samples from 20 patients undergoing liver transplantation in which we determined plasma levels of VWF and the VWF cleaving protease ADAMTS13. Furthermore, we performed functional tests of VWF-dependent platelet adhesion. We found persistently elevated levels of VWF during and after liver transplantation. The capacity of VWF to interact with platelets normalized during the course of transplantation, and flow-mediated VWF-dependent platelet adhesion remained at levels far exceeding those observed in healthy individuals during and after transplantation. Plasma levels of ADAMTS13 dropped during transplantation, and in 4 patients levels below 10% of normal were observed after reperfusion. We observed the development of a hyperreactive primary hemostatic system, as evidenced by high levels of fully functional VWF and a temporary ADAMTS13 deficiency, during liver transplantation, and speculate these changes contribute to postoperative thrombotic complications.

Abstract# P-393

MICROSURGICAL RECONSTRUCTION OF HEPATIC ARTERY WITHOUT CLAMPING THE GRAFT ARTERY IN LIVING DONOR LIVER TRANSPLANTATION: EXPERIENCES AND LESSONS FROM 101 CASES. Sheng Yan, Qi-Yi Zhang, Yu-Sheng Yu, Jiang-Juan He, Shu-Sen Zheng. *Division of Hepatobiliary and Pancreatic Surgery, Department of Surgery, First Affiliated Hospital, School of Medicine, Zhejiang University, Hangzhou, Zhejiang, China*

Background. Hepatic artery (HA) reconstruction is one of the key steps for living donor liver transplantation (LDLT). The incidence of hepatic artery thrombosis has been reduced by the introduction of microsurgical technique under high solution microscope or loops.

Methods. We report our experience in 101 cases of HA reconstruction in LDLTs using graft-artery-unclamp and posterior-wall-first technique. The reconstructions were completed by either plastic surgeon or transplant surgeon.

Results. The rate of HA thrombosis was 2%. The risk factors for failed procedures appeared to be reduced by participation of the transplant surgeon comparing with the plastic surgeon. For the graft with duplicate arteries, we considered no branches should be discarded even with positive clamping test.

Conclusions. HA reconstruction without clamping the graft artery is a feasible and simplified technique, which could be mastered by transplant surgeons with plenty of microsurgical training.

Key words: living donor liver transplantation, microsurgery, artery.

Abstract# P-394

EFFECTS OF COLD PRESERVATION ON INTRAHEPATIC BILIARY MICROCIRCULATION AFTER RAT LIVER TRANSPLANTATION. Jiahong Dong, Leida Zhang. *Hospital & Institute of Hepatobiliary Surgery, Chinese PLA General Hospital, Beijing, China; Institute of Hepatobiliary Surgery, Southwest Hospital, Third Military Medical University, Chongqing, China*

Background Graft Cholangiopathy still prevails and seriously impacts survival rate and life quality of the recipients with liver transplantation. This study aimed to evaluate some possible effects of cold preservation on intrahepatic biliary microcirculation, and to investigate the relationship between the microcirculation obstruction and intrahepatic biliary duct injury. Furthermore, we highlighted GSNO, an NO donor, which might decrease liver CP/RI through improving microcirculation.

Materials and methods Male SD rats were divided into four groups: SO group (sham operation group), CP-1h group (cold preservation for 1h in UW solution), CP-24h group and GSNO group (preserved for 24h with GSNO treatment). The expression of eNOS, iNOS, ET-1 and ICAM-1 in microvascular endothelial cells of hepatic portal area was detected by immunofluorescence and in situ hybridization. The concentrations of MPO and NO in liver tissue were determined by colorimetry.

Results The histological changes of intrahepatic bile duct were more severe in CP-24h group than in CP-1h group. The number of microspheres in portal area of implanted liver was increased significantly in CP-24h group than in CP-1h group at the same time point. Compared with CP-1h group, the expression of eNOS in CP-24h group significantly reduced, while ET-1 and ICAM-1 were significantly increased after liver transplantation. In comparison with CP-24h group, GSNO group showed a limited histological change in intrahepatic bile duct. The number of microspheres in portal area was much less in GSNO group than in CP-24h group at the same time point. The expression of eNOS in GSNO group significantly increased after liver transplantation, while the expressions of iNOS, ET-1 and ICAM-1 were reduced.

Conclusions Cold preservation exerts obvious effects on intrahepatic biliary microcirculation and the function status of vascular endothelial cell in liver grafts. The obstruction of microcirculation might play an important role in the reperfusion injury during liver transplantation. GSNO can indirectly protect intrahepatic bile duct from CP/RI by improving microcirculation of coldly preserved liver transplant. The effect of GSNO on intrahepatic biliary microcirculation may be related to NO release, eNOS upregulation and down-regulated expression of iNOS, ET-1 and ICAM-1.

Abstract# P-395

ROLE OF JNK IN THE BENEFICIAL EFFECTS OF PC IN RAT REDUCED-SIZE LIVER TRANSPLANTATION.

Sussagna Padrisa Altés¹, Rosa Franco Gou¹, Joan Roselló Catafau¹, Carmen Peralta². ¹Instituto de Investigaciones Biomédicas de Barcelona, Barcelona, Spain; ²IDIBAPS, Barcelona, Spain

The aim of the present study was to determine the role of JNK in rat reduced-size liver transplantation (ROLT).

Sprague-Dawley rats were used to perform reduced-size liver transplantation according to Kamada's technique. Ischemic preconditioning (PC) is a surgical strategy that protects the liver against I/R injury. Several groups were carried out: Sham-operated animals, ROLT group, ROLT+PC group, ROLT+JNK activator group and ROLT+PC+JNK inhibitor group. Samples were collected 24 hours after transplantation and analyzed.

JNK levels in liver were higher in the ROLT group than in the Sham group. Moreover, JNK levels were even higher in the ROLT+PC group than in the ROLT group.

Transaminases levels showed that the ROLT group had higher liver injury levels than the Sham group. But PC group had lower levels of hepatic injury than the ROLT group. Animals from the ROLT+JNK activator group showed similar hepatic injury levels to those of the ROLT+PC group, indicating that JNK plays a role in the protective mechanisms of PC. Furthermore, to confirm this, the PC+JNK inhibitor group showed similar hepatic injury levels to those of the ROLT group.

In terms of hepatic regeneration, likewise previous studies of our group, the ROLT group resulted in low liver regeneration. The PC group showed higher liver regeneration levels than the ROLT group. Livers from the ROLT+JNK activator group resulted in liver regeneration similar to those of the ROLT+PC group. On the other hand, livers from the ROLT+JNK inhibitors resulted in liver regeneration similar to those of the ROLT group. JNK seems to play a role in the protective mechanisms of PC in terms of both hepatic injury and liver regeneration.

In conclusion, JNK participates of the beneficial effects of PC in liver transplantation in rat, and opens new possibilities for the treatment of liver diseases.

Abstract# P-396

FASTING PROTECTS AGAINST HEPATIC ISCHEMIA-REPERFUSION INJURY AND HAS NO NEGATIVE EFFECT ON LIVER REGENERATION FOLLOWING PARTIAL HEPATECTOMY.

Marielle Verweij¹, Tessa M. van Ginhoven¹, James R. Mitchell³, Sandra van den Engel¹, Jan H. J. Hoeijmakers², Jan N. M. IJzermans¹, Ron W. F. de Bruin¹. ¹Department of Surgery, Erasmus Medical Center, Rotterdam, Netherlands; ²Department of Cell Biology and Genetics, Erasmus Medical Center, Rotterdam, Netherlands; ³Department of Genetics and Complex Diseases, Harvard Medical School, Boston, MA, USA

Introduction: Previously we have shown that 24-72 hours of fasting significantly protects mice against renal ischemia-reperfusion injury (IR). We asked whether the beneficial effect of fasting extends to the liver. Since the regenerative capacity of the liver is a key determinant of outcome after both transplantation and resection, we also studied the effect of fasting on liver regeneration following partial hepatectomy.

Materials and Methods: Male C57BL/6 mice were used. For IR experiments mice were fed ad libitum or subjected to 24-72 hours of fasting prior to surgery. 70% hepatic ischemia was induced for 75 minutes. For hepatectomy experiments, mice were subjected to 72 hours of fasting or fed ad libitum before resection of the left liver lobe. Liver damage and inflammatory markers were investigated in the IR experiments. Regenerative capacity after hepatectomy was assessed by glycogen content, liver-to-body-weight ratio, proliferation (PCNA staining), and protein-, and DNA content.

Results: 24-72 hours fasted animals were significantly protected from hepatic IR. ALAT at 6 hours post-reperfusion was significantly lower, and histology at 24 hours after reperfusion demonstrated significantly less hemorrhagic necrosis. mRNA levels for IL-6 and p-selectin were significantly lower at 6 hours post-reperfusion.

Livers of fasted animals contained significantly less glycogen before surgery, but after hepatectomy glycogen content increased, and was significantly higher on post-hepatectomy day (PHD) 5 compared to fed animals, likely as a result of increased postoperative feeding in the fasted group. Liver-to-body weight ratio was significantly reduced in fasted animals before surgery, but on PHD 5, liver-to-body-weight ratio of fasted animals was significantly increased compared to fed animals. Proliferation peaked on PHD 2, but was

not different between the groups. No difference in liver protein or DNA content was observed on PHD 5.

Conclusions: 24 – 72 hours of fasting significantly protects the liver against IR, and preserves the regenerative response after partial hepatectomy.

Abstract# P-397

MECHANISM OF IMMUNE HYPORESPONSIVENESS INDUCED BY RECIPIENT-DERIVED IMMATURE DENDRITIC CELLS IN RAT LIVER TRANSPLANTATION.

Li Li, Zhang Sheng Ning, Ran Jiang Hua, Liu Jing, Li Zhu. Hepato-Biliary-Pancreatic of Surgery, The First People's Hospital of Kunming, Kunming, Yunnan, China

Objective To study the mechanism of immune Hyporesponsiveness induced by donor-antigen-unloaded recipient-derived immature dendritic cell (imDC).

Methods Forty experimental rats were randomly divided into 4 group: control group, Cyclosporine A (CsA) group, mature DC (mDC) group and imDC group. In control group, Wistar rats only received liver transplantation. In CsA group, Wistar rats underwent liver transplantation plus CsA treatment (10mg/kg.d). For mDC group, recipient-derived mDC (1 × 10⁶) were infused intravenously through the penile vein to Wistar rats. For imDC group, imDC with the dose of 1 × 10⁶ were injected into Wistar rats via the dorsum vein of penis. In each group, five recipients were killed after the 10th day of transplantation, the other five recipients were left to observe survival time. The levels of ALT, AST, TBIL, IL-2, IFN-γ, IL-4 and IL-10 were detected. The acute rejection and the expression of FasL/Fas in the grafts were detected by HE and immunohistochemical staining. Western blot was used to detect Scurfin protein expression of CD4⁺ CD25⁺ T cells. **Results** The median survival time (MST) of the liver allografts in CsA group and imDC group were significantly longer than that in control group and mDC group (P<0.05). The levels of ALT and TBIL in control group and mDC group were significantly higher than that in CsA group and imDC group (P<0.05). Compared with CsA group and imDC group, the levels of IL-2 and IFN-γ were higher but the levels of IL-4 and IL-10 were lower in control group and mDC group (P<0.01). Slightly or no rejection reaction was found in CsA group and imDC group (P<0.05). The scurfin protein expressions of CD4⁺ CD25⁺ T cells of imDC group were significantly higher than that of other three groups. **Conclusion** Donor-antigen-unloaded recipient-derived imDC is an effective treatment in inducing immune hyporesponsiveness by blocking indirect recognition in rat liver transplantation model. The mechanism of immune hyporesponsiveness induced by imDC transfusion might be involved in some processes: T cell apoptosis, T cell anergy to allogeneic graft, immune deviation of TH1/TH2 cytokine net and inhibition of T lymphocytes responsiveness by regulatory T cells.

Abstract# P-398

HYPOXIA-INDUCIBLE FACTOR-DEPENDENT INDUCTION OF NETRIN-1 DAMPENS INFLAMMATION CAUSED BY HYPOXIA. Holger K. Eltzschig, Susan Mandell, Tobias Eckle, Peter Rosenberger. Department of Anesthesiology, University of Colorado Denver, Aurora, CO, USA; Department of Anesthesiology, Tuebingen University Hospital, Tuebingen, Germany

Previous studies implicated the neuronal guidance molecule netrin-1 in the coordination of inflammatory responses. Given that mucosal surfaces are particularly prone to hypoxia-elicited inflammation, we sought to determine the role of netrin-1 in hypoxia-induced inflammation. We detected hypoxia-inducible factor (HIF)-1α-dependent induction of netrin-1 gene (*Net1*) expression in hypoxic epithelia. Neutrophil transepithelial migration studies showed that by engaging A2B adenosine receptor (A2BAR) on neutrophils, netrin-1 attenuates neutrophil transmigration. Exogenous netrin-1 suppressed hypoxia-elicited inflammation in wild-type, but not A2BAR-deficient mice, and inflammatory hypoxia was enhanced in *Net1*^{-/-} compared to *Net1*^{+/+} mice. Taken together, these studies demonstrate that HIF-1α-dependent induction of netrin-1 attenuates hypoxia-elicited inflammation at mucosal surfaces.

Abstract# P-399

AN EFFECTIVE MODEL FOR PREDICTING EARLY ACUTE KIDNEY INJURY FOLLOWING LIVER TRANSPLANTATION. Xiao Xu, Qi Ling, Jian Wu, Lin Zhou, ShuSen Zheng. *Division of Hepatobiliary and Pancreatic Surgery, Department of Surgery, The First Affiliated Hospital, Zhejiang University School of Medicine, Hangzhou, Zhejiang, China; Division of Hepatobiliary and Pancreatic Surgery, Department of Surgery, The First Affiliated Hospital, Zhejiang University School of Medicine, Hangzhou, Zhejiang, China; Division of Hepatobiliary and Pancreatic Surgery, Department of Surgery, The First Affiliated Hospital, Zhejiang University School of Medicine, Hangzhou, Zhejiang, China*

Background: Acute Kidney injury (AKI) is a common complication in the early period post-liver transplantation (LT), posing an enormous obstacle to treatment efficiency and patient survival. However, the exact influencing factors of AKI are still unclear and a predicting model for AKI is desperately required in the clinics. **Methods:** Data of 102 consecutive liver transplants were reviewed in China, where most of patients underwent LT for hepatitis B-related liver diseases. A model for predicting early acute Kidney injury (EAKI) was established and further validated in a prospective study. EAKI was defined as an increased level of serum creatinine ($> 1.5\text{ mg/dL}$) or/and need for renal replacement therapy during the first week post-LT. **Results:** The incidence of EAKI was 34.3%. Compared with non-EAKI patients, EAKI patients showed a significant lower survival rate. Multivariate analysis demonstrated the independent influencing factors of EAKI were preoperative serum creatinine level $> 1.2\text{ mg/dL}$, intraoperative urine output $\leq 60\text{ ml/h}$, intraoperative hypotension status, and intraoperative use of noradrenaline. A model was then established and showed a sensitivity of 86.7%, a specificity of 100% and an accuracy of 95.5% in predicting EAKI. **Conclusions:** High preoperative serum creatinine level, low intraoperative urine output, and intraoperative hypotension contributed to the development of EAKI and intraoperative use of noradrenaline presented as a protective factor. The predictive model could potentially facilitate early prediction and surveillance of EAKI following LT especially in the patients with hepatitis-B related liver diseases.

KEY WORDS: Complications, liver transplantation, acute kidney injury.

Abstract# P-400

LIVER TRANSPLANTATION FOLLOWING DONATION AFTER CARDIAC DEATH: AN ANALYSIS USING MATCHED PAIRS. James Pine¹, Amer Aldouri¹, Alistair Young¹, Mervyn Davies², Giles Toogood¹, Stephen Pollard¹, Peter Lodge¹, Raj Prasad¹. *¹Department of Transplant Surgery, St James's University Hospital, Leeds, West Yorkshire, United Kingdom; ²Department of Hepatology, St James's University Hospital, Leeds, West Yorkshire, United Kingdom*

Introduction: Grafts from donation after cardiac death (DCD) donors are used to increase organs available for liver transplantation. There are concerns as the warm ischaemia may impair graft function. We compared our DCD recipients with a case-matched group of donation after brain death (DBD) recipients.

Method: Between January 2002 and April 2008 39 DCD grafts were transplanted. These were matched with 39 DBD recipients based on identified variables that had significant impact on mortality. These were used to individually match DCD and DBD patients with similar predictive mortality. We compared patient/graft survival, PNF and rates of complications.

Results: 6.1% of total liver transplantations were DCD grafts. PNF occurred twice in the DCD group. The incidence of non-anastomotic biliary strictures (NABS) (20.5% v 0%, $p=0.005$) and hepatic artery stenosis (HAS) (12.8% v 0%, $p=0.027$) in the DCD group was higher. 1-yr (79.5% v 97.4%, $p=0.029$) and 5-yr (74.4% v 92.3%, $p<0.0001$) graft survival was lower in the DCD group. 5-yr patient survival was also lower (76.9% v 94.9%, $p<0.0001$).

Discussion: Our study is the first to use case-matched patients and compare groups with similar predictive mortality. There was higher incidence of NABS and HAS in the DCD group. The NABS are likely a result of warm ischaemia. The HAS may be due to ischaemia or arterial injury during retrieval. The DCD group had significantly poorer outcomes but DCD grafts remain a valuable resource. With careful donor/recipient selection, minimisation of ischaemia and good post-operative care acceptable results can be achieved.

Abstract# P-401

FACTORS THAT PREDICT OUTCOMES OF RECIPIENTS TRANSPLANTED WITH LIVERS FROM DONATION AFTER CARDIAC DEATH. Roberto Hernandez-Alejandro, Paul J. Marotta, Cheryl H. Dale, Corinne M. Weernink, Douglas Quan, William J. Wall. *Multi-Organ Transplant Program, London Health Sciences Centre. University of Western Ontario, London, ON, Canada*

Background: Liver transplantation (LT) from donation after cardiac death (DCD) is a means of addressing the shortage of organs, but it is associated with a increased rate of primary non-function (PNF) and biliary complications (BC), as well as reduced patient and graft survival when compared to recipients transplanted with livers from brain dead donors. We attempted to identify donor factors that would predict PNF, BC and survival.

Method: We prospectively evaluated our initial 21 LT from DCD donors (2006-2008). Donor and recipients characteristics including donor hemodynamic parameters post-withdrawal of life support were collected. The outcome measures were PNF, BC and death within the first year. The median follow up was 16 months (range: 6-36).

Results: One-year patient and graft survival rates were 95.2% and 85.7%, respectively. The one death (4.7%) was from recurrent aggressive HCV. One patient (4.7%) developed PNF requiring re-transplantation (Re-LT). Five patients (23.8%) developed BC, one (4.7%) of whom had diffuse ischemic cholangiopathy (IC) that will eventually require Re-LT. The other four recipients developed extrahepatic biliary strictures at and/or proximal to the anastomosis and were successfully treated with endoscopic stenting.

The recipients who experienced PNF, BC or death within one year of transplant received livers from donors who had significantly longer periods of time with a mean arterial pressure below 50 mm Hg (MAP-50) during the withdrawal of life support phase ($29.4 \pm 5.4\text{ min}$ vs. $16.7 \pm 3.1\text{ min}$) ($P=0.0054$).

The mean warm ischaemia time was not significant between the patients that experienced complications compared to those without complications ($59 \pm 37.8\text{ min}$ vs. 31 ± 18.4) ($P=0.2055$), nor were donor age, MELD score, donor body mass Index, donor risk index and cold ischaemia time.

When MAP-50 greater than 20 min was combined with a donor age ≥ 55 years, it resulted in the single case of PNF, the one patient who died within a year and the one patient who developed diffuse IC.

Conclusion: Our one-year patient and graft survival is quite acceptable for DCD LT. Because of the uniformly poor outcome when MAP-50 greater than 20 min was combined with donor age ≥ 55 years, we currently exclude DCD donors who fit these criteria.

Abstract# P-402

OUTCOMES OF LIVER TRANSPLANTATION FROM HEPATITIS C POSITIVE DONORS BETWEEN 40 AND 65 YEARS OF AGE. Shakir Hussein, Thallis Christophides, Scot D. Henry, Jean C. Emond, James V. Guarrera. *Center for Liver Disease and Transplantation, Columbia University Medical Center, New York, NY, USA*

Introduction: Use of extended criteria donors (ECD) is an essential tool to help accommodate the demand for liver transplantation (LTx). Hepatitis C seropositive donors have been used with acceptable outcomes however many centers avoid using older ($>40\text{y}$) hepatitis C positive donor livers for fear of rapid progression of fibrosis. **Aim:** To evaluate results of patients receiving "older" HCV grafts (donors > 40 years old) compared to patients receiving Hepatitis C negative grafts from donors > 40 years old. **Methods:** All HCV infected patients who underwent primary whole organ LTx from brain dead donors > 40 years old during the period January, 1st, 2006 – December, 31st, 2007 in a single institution were identified. Donor age, recipient age, diagnosis, cold ischemia time, warm ischemia time, physiologic MELD score, length of stay were recorded. Post transplant variables of biopsy proven fibrosis, biliary complications, vascular complications, actual graft and patient survival were also recorded. The median follow up for the HCV+ group was 17 months (range: 11-33m) and 19 months (range: 9-31m) for the HCV negative grafts respectively. **Results:** Results are summarized in Table 1.

	HCV positive donors (n=22)	HCV negative donors (n=31)
Donor age (years)	48.8 (r, 41-65)	51.8 (r, 41-66)
Recipient age (years)	58.0 (r, 50-69)	62.7 (r, 48-71)
Cold ischemia time (min)	530 (315-705)	543 (360-810)
Warm ischemia time (min)	42.6 (35-60)	43.7 (35-70)
MELD score	18.6 (6-42)	16.9 (6-47)
Patients with HCC	12	19
Biliary complications	2	8
Length of stay (days)	15.7(5-111)	16.2 (6-64)
Actual Patient Survival	17/22 (77.3%)	27/31 (87.1%)
Actual Graft Survival	17/22 (77.3%)	26/31 (83.9%)
Fibrosis Progression		
No biopsy/No fibrosis	12 (54.4%)	20 (64.5%)
Early stage 1-2 fibrosis	8 (36.4%)	9 (29.0%)
Late stage 3-4 fibrosis	2 (9.1%)	2 (6.4%)

*** p=NS for all comparisons

Conclusion: HCV+ grafts from donors over 40 have acceptable results which are comparable to HCV- grafts. Longer follow up period is needed to further evaluate long term outcomes.

Abstract# P-403

USE OF LIVERS FROM HEPATITIS B CORE ANTIBODY POSITIVE DONORS IN LIVING DONOR LIVER TRANSPLANTATION. Onur Yaprak, Murat Dayangac, Koray Bas, Deniz Balci, Sahem Al Qusous, Yildiray Yuzer, Yaman Tokat. *Center for Organ Transplantation, Florence Nightingale Hospital, Istanbul, Turkey*

Transplantation of liver grafts from hepatitis B surface antigen negative [HBsAg (-)] and hepatitis B core antibody positive [anti-HBc (+)] donors into HBsAg (-) recipients carries a high risk of viral transmission. Although, effective prophylaxis regimens have been reported, there are no standardized protocols. We reviewed our own experience with the use of anti-HBc (+) donor livers in living donor liver transplantation (LDLT).

From July 2004 through July 2008, 150 living donor liver transplantations were performed. All live liver donors were routinely screened for anti-HBc as well as HBsAg, because of high prevalence of anti-HBc seropositivity in Turkey. Anti-HBc (+) donors were further tested for HBV-DNA and underwent liver biopsy for histologic assessment. Of 23 patients (15.3%) who received right liver grafts from anti-HBc (+) donors, 14 were transplanted for HBV-related disease.

In the remaining HBsAg (-) patients, the effectiveness of lamivudine monotherapy in preventing HBV transmission was assessed retrospectively. All 9 patients were started lamivudine prophylaxis immediately after LDLT. Mean follow-up was 21 months (range, 6-46 months) and patient survival was 100%. All donors were seronegative for HBV-DNA. One case of de novo hepatitis B occurred 22 months after transplantation. This patient discontinued lamivudine prophylaxis and subsequently developed hepatitis with an acute elevation of liver enzymes and was found with HBsAg and HBV DNA seropositivity. Lamivudine treatment was restarted immediately and serum DNA became undetectable although HBsAg remained positive.

Our data suggests that, livers from anti-HBc (+) donors can be safely transplanted into HBsAg (-) recipients with continuous lamivudine prophylaxis. However, given the fact that de novo hepatitis B can occur in patients who are noncompliant with lamivudine, these patients should be monitored with determination of HBsAg and HBV-DNA whenever there is allograft dysfunction.

Abstract# P-404

CLASSIFICATION AND MANAGEMENT OF BILIARY COMPLICATIONS IN DCD LIVER TRANSPLANTS. Roberto C. Lopez-Solis, Paulo Fontes, Vivek Sharma, Ruy Cruz, Deanna Blisard, Wallis Marsh, Michael de Vera. *Transplant Surgery, Thomas E. Starzl Transplantation Institute, University of Pittsburgh, Pittsburgh, PA, USA*

Donation after cardiac death (DCD) liver transplants are associated with a high rate of biliary complications. We analyzed our experience on the incidence and type of bile duct (BDC) complications, its management, and clinical outcomes, in a large series of patients.

METHODS: From 3/93 to 10/08, 141 patients underwent liver transplantation using allografts from DCD donors. Biliary complications were identified and classified according to the type of BD injury as follows: Type I, isolated anastomotic stricture; Type II, bile leak; Type III, ischemic cholangiopathy (intrahepatic strictures) with or without bile casts; Type IV, hepatic artery thrombosis-associated biliary complications. Two hundred eighty-two

patients who received donation after brain dead (DBD) donor livers served as control patients.

RESULTS: DCD and DBD patients were matched according to age, BMI, MELD scores, donor age, and cold ischemia time. DCD patients had lower 1-, 5-, and 10-year graft survival than DBD subjects (69%,56%,44% versus 82%,73%,63%, respectively, $p<0.0001$). Mean donor warm ischemia time in the DCD patients was 19.8 ± 8.8 minutes. BDC occurred in 36 (25%) DCD versus 28 (13%) DBD patients ($p<0.001$). Multivariate analysis using step-wise logistic regression of DCD recipient and donor variables showed that only donor age >60 years was significantly associated with the development of BDC (RR=5.61 (0.98 – 32.2), $p=0.05$). In the DCD group, 8 patients had Type I BDC; 7 were successfully treated with ERCP plus BD stenting/dilatation and one patient required retransplantation for cholestasis and biliary obstruction. One patient had a Type II BDC and died of biliary sepsis. Type III BDC occurred in 23 patients; 12 were managed successfully with ERCP without graft loss. The remaining 11 subjects developed graft failure: 5 were retransplanted, 4 died of liver failure and/or sepsis, 1 died from recurrent HCV, and 1 from respiratory failure with a functioning graft. Type IV BDC occurred in 3 patients; 2 required re-transplantation and 1 died of biliary sepsis.

CONCLUSIONS:

The occurrence of BD complications was significant in DCD patients, with the majority being Type III in nature. Biliary complications was not synonymous with graft failure, as 50% of the patients, including subjects with ischemic cholangiopathy, were successfully managed with ERCP.

Abstract# P-405

LIVER TRANSPLANTATION FROM UNCONTROLLED NON-HEART-BEATING DONORS. A CASE-CONTROL STUDY. Santos Jimenez-Galanes, Juan Carlos Meneu Diaz, Baltasar Perez-Saborido, Almudena Moreno Elola-Olaso, Yiliam Fundora Suarez, Manuel Abradelo Usera, Alberto Gimeno Calvo, Enrique Moreno Gonzalez. *Surgery and Abdominal Organs Transplantation Department, 12 de Octubre University Hospital, Madrid, Spain*

INTRODUCTION

Due to the organ shortage Non-Heart-Beating Donor (NHBD) had been proposed among the possible sources of grafts for Liver Transplantation (LT).

MATERIALS AND METHODS

A prospective case-control study on adult patients undergoing LT has been designed. A 2:1 matching was performed between the study group (LTNHBD) and the control group (LTDBD). Matching variables included age, sex, Model for End-stage Liver Disease (MELD) score, and body mass index (BMI).

RESULTS

Between January 2006 and March 2008 a total of 43 NHBD were transferred to our hospital with the aim of performing cannulation and organ procurement. In 20 cases we obtained organs suitable to be implanted, representing 46.5% of the whole procedures.

Therefore, a total of 60 patients had been included, 20 in the study group and 40 in the control group. No differences were observed between the two groups in terms of distribution by age, MELD score or BMI.

The incidence Ischemic Cholangiopathy (IC) was 5% (n=1) in the group of LTNHBD and none patient in the control group presented this postoperative complication ($p=0.15$). The rate of Primary Non Function (PNF) on LTNHBD was 10% (n=2) and 2.5% (n = 1) for LTDBD ($p = 0.21$), being cause of graft lost in all of them. We did not observe the presence of hepatic artery thrombosis (HAT) in either group. Three patients were retransplanted in LTNHBD group (15%), 2 of them due to FPI and one by IC, no patient was retransplanted in control group ($p = 0.012$).

After a mean follow-up of 330.42 ± 224.94 days, one-year cumulative patient survival was 85.5% for the LTNHBD group and 87.5% for the LTDBD ($p = 0.768$). Cumulative Survival rate at one-year for grafts was 80% in LTNHBD group and 87.5% in the THDME ($p = 0.774$). So, Survival rates were higher in LTDBD but not significantly different from those obtained in LTNHBD group.

DISCUSSION

Despite the questionable results obtained with the NHBD in the initial reported experiences. In our study we did not find statistically significant differences neither in terms of postoperative complications nor in survival rates.

CONCLUSIONS

Uncontrolled NHBD is a potential organ donor source for LT with encouraging outcomes and comparable to those reached with DBD.

Abstract# P-406

SUCCESS OF ORGANS TRANSPLANTED FROM TWO DONORS VICTIMS OF CARBAMATE INSECTICIDES INTOXICATION. Jose H. Garcia, Geraldo A. Marques, Klebia A. de Lima, Leda F. Miranda, Flavia A. Campos, Marineuza Lucena, Auricelio Tavares, Gustavo R. Coelho, Jose T. Valenca, Jr., Joao B. Marinho. *Surgery, Fedral University of Ceara, Fortaleza, Ceara, Brazil*

The shortage of organs for transplantation has made it necessary to extend the criteria for the selection of donors, among others including those patients who die because of toxic substances such as carbamate insecticide, aldicarb. The toxicity of insecticidally active organophosphorus and carbamate esters to human is attributed to their ability to inhibit acetylcholinesterase (AChE, choline hydrolase), which is a class of enzymes that catalyzes the hydrolysis of the neurotransmitting agent acetylcholine (ACh). The signs and symptoms of acute aldicarb-poisoning are characteristic of that of other organophosphorus and carbamate insecticides. Poisoning results primarily from nicotinic and parasympathetic effects produced by inhibition of acetylcholinesterase in the peripheral somatic and autonomic nervous system. This report documents successful transplantation of the liver, kidney, heart and cornea from a 12-year-old girl and another 14-year-old donors organs. Both died after the accidental ingestion of carbamate insecticides. Predonation laboratory values were not remarkable, and liver and kidney biopsy results were normal. All organs in the recipients had immediate function, and no recipient had any clinical evidence of transmitted toxin. All recipients are well except the second recipients of liver transplantation, she died from primary non-fuction (PNF) of the graft. Poison carbamate insecticides intoxication does not seem to be a contraindication to organ donation.

Abstract# P-407

THE IMPACT OF MARGINAL DONOR ON SURVIVING LIVER TRANSPLANTATION IN EMERGENCY CASES. Vesna Vegar Brozovic, Ivo Brozovic. *Anesthesiology and ICU, Univer:Hosp.Centre Zagreb, Rebzo, Zagreb, Croatia; Internal Ward, Univ. Hosp Centre Zagreb, Rebzo, Zagreb, Croatia*

Marginal donor present in most cases of emergency liver transplantation the key point for surviving rate of recipient. Emergency transplantation show in same time adequate surgical manners, good and appropriate anesthetic conduction during transplantation time, well done early postoperative management in rehydration, immunosuppressive therapy, appropriate kidney filtration, respiratory support, with no problems of septic episodes as well with no situation as compartment, revision of surgical field and on the end good perfusion of transplanted organ.

Liver is for the moment in our transplant field the biggest problem for marginal donors. Entering in Eurotransplant Organisation especially in emergency operation we decide to answer positively for any organ so we found ourselves in compromised situation for good and well done liver transplantation. Marginal donors make the length of stay in ICU much longer, about 80% longer as well the use of CVVH nearly 100% more.

Haemodynamic status is as well compromised so the use of vasoactive support and inotropes is much longer and higher. Starting with CVVH method as early as possible we shortened the use of higher doses in diuretics with no good results.

Recipients in our cases were not the patients with long intrahospital stay. From the beginning septic episodes came or from ventilator associated pneumonia or as answer to immunocompromised status of recipient. The main bacterial species was MRSA or Acinobacter by origin.

Surviving rate for the moment is not high (34%) because of all this problems amelirating from month to month with knowledge that marginal donor very often show the need for quick retransplantation for which in this moment we are not ready from technical point of view as well because there is not suitable organ to allocate.

Abstract# P-408

MARGINAL ORGANS DO NOT IMPAIR LIVER ALLOGRAFT RECIPIENT ONE YEAR OVERALL AND ORGAN SURVIVAL. Andreas A. Schnitzbauer, Axel Doenecke, Marcus N. Scherer, Hans J. Schlitt. *Department of Surgery, Regensburg University Hospital, Regensburg, Bavaria, Germany*

Background: The number of patients awaiting liver transplantation is steadily increasing with a growing shortage of donor organs. Furthermore, a large number of organs allocated has to be regarded as marginal organs. These organs have to be accepted by transplant centers to be able to overcome organ shortage.

Patients and Methods: Between 2003 and 2007 a total of 179 whole organ orthotopic liver transplants were performed in 160 patients. Marginal organs (MO) were defined as organs showing at least one of the following attributes in the donor as stated in the guidelines for organ transplantation (§16 TPG) of the Deutsche Ärztekammer: donor > 65 years, sodium > 165 mmol/L, BMI > 30, histologic steatosis > 40%, ICU + ventilation > 7d, GOT or GPT > 3-fold elevated, bilirubin > 3 mg/dl. MO-recipients were compared with a group of non-marginal organ (NMO)-recipients. The primary end-point was one year survival. Secondary end-points were 1-year graft survival, number of retransplantations and acute rejections, biliary complications and liver function after one year.

Results: Ninety-eight patients (61%) received a MO and 62 (39%) received a NMO. Demographic data and MELD scores were similar in both groups. One year survival was 81% in the MO and 86% in the NMO group revealing no significant differences between groups (p=0.546) and overall survival was 74% for the MO and 77% for the NMO-group (p=0.810) after a median follow up of 625d (5 to 1717d). One year graft survival was MO 75% vs. NMO 81% (p=0.491), acute rejections MO 20% vs. NMO 22% (p=0.918) and proportion of retransplantations between 2003 and 2008 in MO: 13% vs. NMO: 10% (p=0.748) did not reveal significant differences between groups. Biliary complications MO 36% vs. NMO 21% showed a trend towards a major incidence in the MO-group (p=0.066).

Conclusion: Marginal donor organs do not impair one year overall and organ survival but result in an increased number of biliary complications.

Abstract# P-409

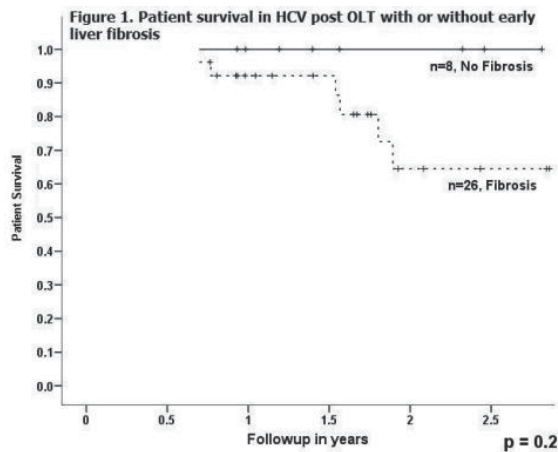
PREDICTORS OF EARLY HEPATIC FIBROSIS POST LIVER TRANSPLANTATION IN HEPATITIS C RECIPIENTS. Sameh A. Fayek, Raghava Muni Venkatappa, Rolf N. Barth, Linda Ridge, Alina Macovei, Benjamin Philosophie. *Surgery - Division of Transplantation, University of Maryland Medical Center, Baltimore, MD, USA*

Recurrent hepatitis C virus (HCV) infection after orthotopic liver transplantation (OLT) has been associated with progression to cirrhosis in approximately 20% by 5 years. Development of early hepatic fibrosis (12 month post OLT) is an important prognostic factor of poor evolution. This study aimed at evaluating predictors of early hepatic fibrosis post OLT in HCV patients.

We performed a retrospective analysis of OLT performed in our center for HCV patients during the period 2005-2007. Information collected included recipient data (age, race, MELD, viral genotype, prior OLT), donor data (age, type, virology status), operative data (simultaneous organ transplant, cold ischemic time (CIT)) and induction therapy used. Post OLT liver biopsy results, patient & graft survival were analyzed. Patients were divided into fibrosers or non-fibrosers based on presence of any evidence of hepatic fibrosis before or at 12 month liver biopsy. These 2 groups were compared using Chi square, T-test binary logistic regression and Kaplan-Meier analysis was performed.

53 OLT were performed for HCV recipients. Mean follow up 19 months. 34 patients (64%) had liver biopsies at or before 12 months, of them 26 were fibrosers (76.4%) and 8 were non-fibrosers (23.5%). In the fibrosers 18 patients had stage 1 fibrosis, 6 had stage 2 and stage 3 and 4 each had 1 patient. All other patients did not have clinical indication to require an early biopsy. ROC analysis showed that recipients with CIT > 41/2 hours were at a significantly higher risk for developing early liver fibrosis (Odds Ratio 10, P=0.03). Other factors were not statistically significant.

Fibrosers had clinically significant worse outcome with 1 and 2.5 year survival of 92 and 64% vs. 100% in non-fibrosers.



Early hepatic fibrosis of any stage after OLT for HCV patients is associated with worse outcome. Minimizing CIT is important to avoid early fibrosis. Protocol liver biopsy at 12 month to detect clinically stable fibrosers who may benefit from early antiviral therapy should be encouraged.

Abstract# P-410

DONOR AGE PREDICTS RECURRENT DISEASE IN LIVER TRANSPLANTATION RECIPIENTS WITH HEPATITIS C. Marcus Bahra, Volker Schmitz, Carsten Kamphues, Ruth Neuhaus, Peter Neuhaus, Ulf P. Neumann. *Department of Transplant Surgery, Humboldt-University, Charité, Berlin, Germany*

Background: The impact of donor age on outcome in hepatitis C positive liver transplant recipients has been shown in a number of studies. However, analyzing large liver transplant databases this effect has been proven for all other indications as well. Despite this fact donor shortage is responsible for the increased acceptance of marginal grafts in all patients. Aim of our study was to analyze donor age related increase of fibrosis progression and mortality after liver transplantation (OLT) in hepatitis C virus (HCV)-infected patients based on protocol liver biopsies.

Methods: Overall 283 hepatitis C positive liver transplants in 259 recipients were analyzed. Protocol liver biopsies were performed after 1-, 3-, 5-, 7-, and 10 years and staged according to the Scheuer score.

Results: Overall post transplant patient survival figures were 86% at one year, 78% at 3 years, and 72% at 5 years. Hepatitis C related patient death occurred in 41/259 (16%) of the patients. Donor age was significantly associated to overall survival, hepatitis C related graft loss, and fibrosis progression.

The risk of hepatitis C related graft loss increased from 4.9% in patients receiving a graft from a donor below 30 years to 14.2% in transplants with a donor age between 30-50 years, to 27.1% in transplants with donor age between 50-65 years and 30% in older donors.

Conclusion: Donor age was significantly associated to all relevant outcome parameters in hepatitis positive patients after liver transplantation. The strongest increase in the frequency of hepatitis C related death was detected in transplants utilizing donors > 50 years.

Abstract# P-411

PROGNOSIS OF SEVERE RECURRENCE OF HCV INFECTION AFTER LIVER TRANSPLANTATION IN A LARGE COHORT OF HIV INFECTED PATIENTS. T. M. Antonini¹, A. M. Roque-Afonso^{2,4,5}, M. Sebah^{3,4,5}, B. Roche^{1,4,5}, R. Sobesky^{1,4,5}, C. Guettier^{3,4,5}, D. Samuel^{1,4,5}, J. C. Duclos-Vallee^{1,4,5}.

¹Centre Hepato-Biliaire, AP-HP Hopital Paul Brousse, Villejuif, France; ²Laboratoire de Virologie, AP-HP Hopital Paul Brousse, Villejuif, France; ³Laboratoire Anatomie Pathologique, AP-HP Hopital Paul Brousse, Villejuif, France; ⁴UMR-S 785, Univ Paris-Sud, Villejuif, France; ⁵U 785, INSERM, Villejuif, France

Background and Aim : Liver transplantation (LT) in HIV infected patients is characterized by recurrence of HCV infection on the liver graft. The aim of this study was to determine the prognosis of severe fibrosis and fibrosing cholestatic hepatitis (FCH) after liver transplantation in HIV infected patients.

Patients and Methods: Between December 1999 and January 2008, 68 HIV+ infected patients with a median age of 44.7 years (29-62), predominantly male (82%) underwent Liver Transplantation because of HCV related cirrhosis (HCV+ (n=43), HBV/HCV or HBV/HDV/HCV (n= 5), alcohol (n=5), hepatocellular carcinoma (n=15). Distribution of HCV genotype was as follows: genotype 1 (n=35), genotype 2 (n=1), genotype 3 (n=17) and genotype 4 (n= 9).

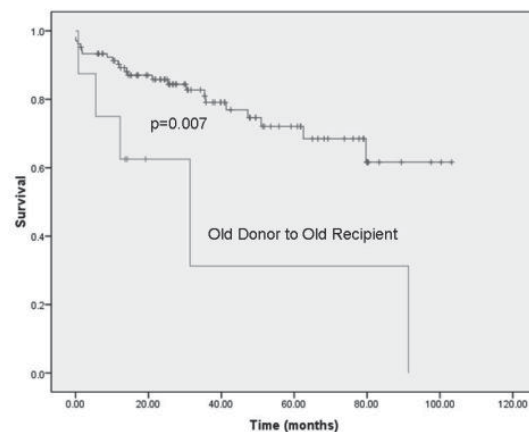
Results: Using METAVIR score, 15 patients developed severe fibrosis: F3 (n=3) and F4 (n=12) with a mean delay of 18.9 (2-48) months after LT. Nine patients developed FCH with a mean delay of 6 (2-14) months after LT. Anti HCV therapy was administrated in 12 patients; 1 patient had a sustained response, 2 patients were relapsers and the 9 remaining patients developed severe intolerance (n=2) or were non responders (n=7). Twelve patients died (80%) with a mean delay of 25 (4-88) months after LT: 3 patients because of a disease non-related to HCV and 9 patients because of HCV recurrence. Among patients who died because of severe HCV recurrence, 7 patients developed FCH and 2 patients developed mitochondrial toxicity. At time of diagnosis of FCH, mean HCV viral load was 6.9 log10 copies/mL (5.6-9).

Conclusions: In our cohort of 68 liver transplanted HIV-HCV coinfectd patients, 19.1% developed cirrhosis and 13% a fibrosing cholestatic hepatitis with a mean delay of 18.9 (2-48) and 6 months (2-14) respectively. A high mortality rate (80%) was observed in this subgroup of patients. Anti-HCV therapy should be started earlier after Liver Transplantation in HIV infected patients.

Abstract# P-412

COMBINED DONOR AND RECIPIENT AGE IMPACTS SURVIVAL IN PATIENTS WITH HEPATITIS C UNDERGOING LIVER TRANSPLANTATION. Patrick McHuge, Hoonbae Jeon, Thomas Johnston, Dinesh Ranjan, Roberto Gedaly. *Department of Surgery, University of Kentucky, Lexington, KY, USA*

PURPOSE: The aim of this study was to identify predictors of outcome in patients with HCV undergoing liver transplantation. **METHODS:** A review of liver transplant recipients with HCV was performed at our institution. Demographic, socioeconomic, laboratory and donor data were captured. Uni- and multivariate analyses of prognostic factors for patient survival were performed. **RESULTS:** Between January 2000 and July 2008, 113 patients underwent liver transplantation for HCV. Of these, 77 were male (68.1%), with a mean age 52.8 ± 7.5 years. With a median follow-up of 27.4 months, overall survival was 88.2%, 76.1%, and 69.5% at 1, 3, and 5 years respectively. Univariate analysis showed that recipients > 55 years receiving allografts from donors > 60 years was associated with decreased survival (p=0.007).



These patients had 1- and 3-year survival rates of 62.5% and 31.2% respectively. Multivariate analysis under control for donor and recipient factors (ischemic time, presence of hepatocellular cancer, gender, and abnormal liver function tests at 6 months) demonstrated that the combination of donor age >60 and recipient age > 55 was an independent factor associated with poor survival (p=0.011). **CONCLUSION:** Satisfactory results can be obtained in patients undergoing liver transplantation for HCV. Our data showed that the utilization of older donors for older recipients with HCV is strongly associated with poor patient survival. This should be considered when evaluating potential organ donors for patients with HCV.

Abstract# P-413

HISTOLOGY FOLLOW UP OF INTERFERON TREATED PATIENTS RETRANSPLANTED FOR HEPATITIS C WITH SUSTAINED VIRAL RESPONSE. Rolland C. Dickson¹,

Raouf Nakhleh², Marwan Ghabril³, Jaime Aranda-Michel¹, Hugo Bonatti⁴. ¹Transplantation, Mayo Clinic, Jacksonville, FL, USA; ²Pathology, Mayo Clinic, Jacksonville, FL, USA; ³Gastroenterology, Clarian/Indiana University DDC, Indianapolis, IN, USA; ⁴Surgery, University of Virginia, Charlottesville, VA, USA

Background: Retransplantation (re-LT) in patients with Hepatitis C virus (HCV) is controversial due to concerns over HCV recurrence and poor outcomes. There is little histologic data on sustained viral response(SVR) following re-LT for HCV. Aims: To determine outcomes of re-LT in HCV patients with SVR. Methods: Forty-eight patients with HCV underwent re-LT at our center between 2/1998-4/2004. Treatment outcomes were assessed. In patients with SVR histology was assessed (Ishak system) by a single pathologist(RN) in a blinded fashion. Results: Median time to re-LT was 247 (range 2-1972) days; 25 patients underwent re-LT for recurrent HCV. Three patients with SVR following first LT remained serum RNA negative following re-LT. Of the 17 (35%) serum RNA (+) patients treated for recurrent hepatitis C, 9 (53%) had an end of treatment response and 8 (47%) an SVR. 3/8 patients with SVR had failed therapy after the first LT. Those with SVR and treatment failure had similar mean treatment duration (19 vs. 19 months), genotype distribution and type of interferon used. All 9 patients with end of treatment response are alive with functioning graft. 2/8 nonresponders died from recurrent HCV. One patient progressed to graft loss and death with biopsy findings consistent with HCV despite negative serum HCV RNA prior to and after reLT. 6/8 patients with SVR had follow up biopsies. All patients but one had either improvement or stabilization of inflammation and fibrosis during a mean follow up period of 1778 days.

Histologic Findings(Ishak's grade and stage) in Sustained Viral Response

Patient	LT to Treatment (days)	Treatment Duration months	Inflammation baseline	Fibrosis Baseline	Biopsy Time from initiation of treatment days	Inflammation follow up	Fibrosis follow up
1	139	12	5	0	2480	9	3
2	162	11	1	0	3232	1	0
3	304	14	4	2	1199	3	1
4	95	12	10	3	1360	0	0
5	139	33	7	0	1402	0	0
6	483	14	6	1	992	0	1
Mean	220	16	6	1	1778	2	1

The only patient with progression developed a persistent plasma cell infiltration following clearance of virus. Conclusion: SVR following re-LT of HCV patients results in long term histologic stabilization.

Abstract# P-414

FACTORS PREDICTIVE OF SVR IN PATIENTS TREATED WITH PEG-IFN AND RIBAVIRIN FOR RECURRENT HCV AFTER LIVER TRANSPLANTATION. Reem Ghalib, Cheryl Levine, Praveena Lammata, Joann Cheah, Abdullah Mubarak, Parvez Mantry, Jeffrey Weinstein, Tiffany Anthony, Edward Dominguez, Alejandro Mejia, Stephen Cheng. *Liver Institute at Methodist Dallas, Dallas, TX, USA*

Purpose: To identify factors predictive of SVR with PEG IFN alfa-2b 1.5 mcg/kg/wk plus ribavirin (800-1200 mg/day) in the OLT patient with recurrent hepatitis C.

Methods: This is a retrospective cohort study of post OLT patients whose treatment began >90 days post transplant. Growth factors were used. Therapy continued for 48-60 weeks. Patients were discontinued for null response at week 12 or week 24 viral positivity.

Results: 44 patients were treated with 28 (63.6%) completing treatment, 11 (25%) discontinuing for nonresponse, and 5 (11%) discontinuing for adverse events. Majority of the sample was White (35/44, 79.5%). Age range was 37-67 years (mean 51.6 ± 5.9). Sustained viral response (SVR) was achieved in 23 (52%) including 5/13 females (38.5%) and 18/31 males (58%; p=0.3). SVR was achieved in genotype 1 in 12/30 (40%), genotype 2 in 4/5 (80%) and genotype 3 in 7/9 (78%, p=0.058). Mean HCV RNA at baseline was 7.3 million IU/mL (range 0.04-50 million IU/mL). Patients with baseline HCV RNA <2 million IU/mL had SVR in 10/15 (67%) vs. >2 million IU/mL had 13/29 (44.8%; p=0.2). SVR was achieved in 22/30 (73.3%) patients who were HCV RNA negative at week 12 and 1/14 (7%) who remained virus positive (p=0.0001). SVR response by BMI group was 5/7 (71%) in normal, 9/23 (39%) in overweight, and 9/14 (64%) in obese (p=0.18). In patients with <1 year post OLT, 12/20 (60%) achieved SVR vs. 11/24 (46%) with >1 year (p=0.4). Evaluating SVR response by baseline fibrosis stage 0-1 vs. stage

2-4 revealed 12/18 (67%) and 11/26 (42%), respectively (p=0.07). Logistic regression for SVR identified the week 12 HCV RNA negativity and genotype non-1 vs. 1 as significant variables (-2 log likelihood 39.1; model Chi-square 21.8, df=2, p<0.0001).

Conclusions: The 2 most predictive factors for SVR in this post liver transplant population with recurrent hepatitis C were week 12 HCV RNA negativity (73% if negative vs. 7% if positive) and genotype non-1 vs. 1 (78.6% and 40%, respectively). Trends toward improved SVR response were found in patients with baseline HCV RNA <2 million IU/mL and fibrosis stage 0-1. Further investigation of predictive factors of viral response is needed in the OLT population to guide selection of appropriate treatment candidates and therapies.

Abstract# P-415

OUTCOMES OF LIVER TRANSPLANTATION IN 14 HIV-INFECTED PATIENTS WITH A MINIMUM FOLLOW-UP OF 2 YEARS. Mikel Gastaca¹, Jose R. Fernandez², Miguel

Montejo³, Milagros Testillano², Patricia Ruiz¹, Andres Valdivieso¹, Javier Gonzalez¹, Javier Bustamante², Maria J. Suarez², Alberto Ventoso¹, Jorge Ortiz de Urbina¹. ¹Hepatobiliary Surgery and Liver Transplantation Unit, Hospital Universitario de Cruces, Bilbao, Vizcaya, Spain; ²Hepatology Unit, Hospital Universitario de Cruces, Bilbao, Vizcaya, Spain; ³Infectious Diseases Unit, Hospital Universitario de Cruces, Bilbao, Vizcaya, Spain

Active antiretroviral therapy has made liver transplantation (LT) feasible for HIV-infected patients with end-stage liver disease. Nevertheless, HCV coinfection in HIV-positive patients appears to be related with a more severe recurrence and a decreased patient survival.

Methods: A prospective analysis was performed of the HIV-positive patients who underwent LT in our institution with a minimum follow-up of 2 years. HIV-infected patients were compared with a control group of non-HIV patients transplanted during the same period. Survival was analyzed for the overall HIV-infected patients and specifically for the HCV RNA-positive coinfecting patients. Severe HCV recurrence was defined as cholestatic or fibrosis stage ≥2 within the first post-transplant year.

Results: Fourteen HIV-infected patients and 188 non-HIV patients underwent LT between September 2003 and October 2006 and were followed until October 2008. Steroid treated acute cellular rejection (ACR) rate was comparable: 20% for the HIV group and 13% for the non-HIV group (P=0.62).

Actuarial 3- and 5-year posttransplant survival rates were 85% and 77.9% for the HIV-positive patients and 90% and 88.2% for the non-HIV patients (log rank P=0.39). Ten HCV RNA-positive coinfecting patients were compared to a group of 54 monoinfected patients. Severe HCV recurrence was similar in coinfecting and monoinfected patients, 50% and 46.3% respectively (P=0.5). Actuarial 2- and 4-year survival rate were 81.8% and 71.6% and 88.9% and 84.6% for the coinfecting and monoinfected patients respectively (log rank P=0.31). Seven HIV-positive patients were treated with anti-HCV therapy and sustained viral response was only achieved in three genotype 3 patients. No recurrence was observed in 5 HIV/HBV-positive patients treated with HB-immunoglobulins and antiviral therapy (lamivudine and/or tenofovir).

Conclusion: Outcome after LT in HIV-infected patients was comparable to non-HIV patients in terms of incidence of steroid treated ACR, overall survival and survival of the HCV-positive patients.

Abstract# P-416

INCIDENCE OF HEPATIC FIBROSIS AFTER CADAVERIC ORTHOTOPIC LIVER TRANSPLANTATION DUE TO HCV CIRRHOSIS. Mario H. M. M. Meine, Maria Lucia Zanotelli,

Guido P. C. Cantisani, Claudio A. Marroni, Ajácio B. M. Brandão, Eduardo S. Schlindwein, Ian Leipnitz, Guillermo Kiss, Marcos Mucenic, Marcus V. Osório. *Grupo de Transplante Hepático, Santa Casa - Porto Alegre, Porto Alegre, RS, Brazil*

Introduction: Hepatic fibrosis related to Hepatitis C Virus (HCV) recurrence after Orthotopic Liver Transplantation (OLT) is becoming a major issue. Some data suggest that the incidence of fibrosis and its progression has been accelerated in the last decade.

Method: From January 1997 to March 2007, 307 patients were submitted to OLT due to HCV cirrhosis. All post-transplant (241) percutaneous needle biopsies were reviewed and classified on the METAVIR fibrosis score. Biopsies were done on demand, only on patients with altered liver function tests and not as a routine protocol.

Results: Mean age at transplantation was 54,5 years (SD 7,8). Women had a mean age of 56,9 years (SD 8) and men 52,2 years (SD 7,6). The shorter follow-up time until biopsy was 1 year, in 7 patients (2,9%), and the longer was 170 months (14 years). No fibrosis (F0) was found on liver biopsy in 105 patients (43,5%), and any stage (F1, F2, F3 or F4) fibrosis in 134 patients (55,6%). The distribution of METAVIR stages and follow-up time until altered biopsy is on Table 1.

Incidence of Fibrosis by Metavir Score and Follow-up Until Altered Biopsy (Table 1)

METAVIR Score	Incidence (n° patients)	Mean Follow-up Until Altered Biopsy (SD / CI 95%)
F1	31% (75)	114 months (4.7 / 104.9 to 123.3)
F2	11.2% (27)	146 months (3.9 / 137 to 152.2)
F3	13.3% (32)	144.5 months (3.9 / 137 to 152.2)
F4	6.6% (16)	153.5 months (3.6 / 146.5 to 160.6)

The overall death prevalence in 241 patients was 21,5% (52 patients). Eleven patients died due to complications directly related to cirrhosis recurrence, being 4,7% of overall patients and 9% of the patients with fibrosis. Four patients (1,7%) were retransplanted due to cirrhosis complications after disease recurrence.

Conclusion: Our data suggest that after histological HCV recurrence has been established (METAVIR F2 or F3), the progression to cirrhosis (METAVIR F4) is completed within one year. All efforts should be done to stop this process before stage F4 has been achieved, to avoid the risk of complications, including death. Despite these findings, it remains unclear what happens with a significant percentage of our population (43,5%) that stays with METAVIR F0 for a long time. More data is needed to elucidate which factors are protective to this subgroup.

Abstract# P-417

INFLUENCE OF OKT3 THERAPY FOR STEROID-RESISTANT REJECTION ON THE RECURRENCE OF HEPATOCELLULAR CARCINOMA FOLLOWING LIVER TRANSPLANTATION. Michael A. Zimmerman, Mara A. Kelly, Jeffrey Campsen, Susan Mandell, James R. Burton, Igal Kam. *Division of Transplant Surgery, University of Colorado at Denver, Aurora, CO, USA*

Introduction. Tumor recurrence is a formidable problem following orthotopic liver transplantation (OLT) for end-stage liver disease and concomitant hepatocellular carcinoma (HCC). Several pathologic risk factors have been identified that may promote severe recurrent HCC following OLT. The influence of monoclonal anti-CD3 antibody (OKT3), used for steroid-resistant rejection (SRR), is unclear. While our center has a robust experience with OKT3 administration, we sought to determine the effect of OKT3 on the reemergence of HCC, and severe hepatitis C (HCV) recurrence within 12 months, following OLT.

Methods. Patients undergoing OLT for HCC were identified from our transplant database. We controlled for 9 clinicopathologic variables (gender, age, Child's class, largest tumor diameter, vascular invasion, nodularity, differentiation, pTNM stage, and graft type). Cox proportional hazards regression was used to examine the effect of OKT3 on overall mortality as well as HCC and HCV recurrence-free survival. Logistic regression analysis was used to test the association between OKT3 and recurrent malignancy. Additionally, we analyzed the association between OKT3 and severe recurrent HCV within the first year of transplant.

Results. From 1997 to 2007, 142 patients underwent OLT for HCC. Of those, 29 patients received OKT3 for steroid-resistant rejection. Overall, no effect was detected of OKT3 on mortality, recurrence-free survival, or recurrence of HCC or HCV ($p>0.05$).

Conclusions. Despite two previous reports that suggest OKT3 administration is a predictive factor for tumor recurrence, we were unable to detect an association in this single-center experience. Furthermore, anti-CD3 therapy had no influence on severe post-transplant reemergence of HCV with the first year of transplant.

Abstract# P-418

EVEROLIMUS RESCUE THERAPY IN LIVER TRANSPLANTATION. 12 DE OCTUBRE UNIVERSITY HOSPITAL EXPERIENCE. MADRID, SPAIN. Yiliam Fundora, Vanessa Barra, Santos Jiménez, Juan Carlos Meneu, Carlos Jiménez, Baltasar Pérez, Alberto Gimeno, Manuel Abradelo, Vanessa Lopez, Manuel Octavio Salinas, J. S. Ignacio Serrano, Enrique Moreno. *Digestive Surgery and Abdominal Organs Transplant, 12 de Octubre University Hospital, Madrid, Spain*

Objectives: To describe the indications, efficacy and safety of rescue therapy with everolimus in liver transplantation. **Material and Methods:** A prospective and longitudinal. The study period began in January until September 2008. A total of 1347 patients transplanted in our hospital, 20 patients (1%) have been informed and have accepted the change in monotherapy or in combination with calcineurin inhibitors or acid micofenolico. We included patients with tumor recurrence or de novo tumors. In the case of patients at high risk of HCC tumor in the liver and native IRC. As rescue by intolerance Sirolimus or antimetabolites. Statistical analysis was performed through the SPSS for Windows version 10. **Results:** Of a total of 84 patients treated with inhibitors of proliferation, 23% received everolimus. We included a total of 20 patients. 65% of the cases involved patients with cancer. The most common ($n = 7$, 35%) was renal failure in patients with a history of HCC in the native liver at high risk of relapse, followed by patients diagnosed with tumors novo or relapse ($n = 3$, 15%). The average age was 60 ± 9 years. The mean interval from transplantation to conversion to everolimus was 42 ± 5 months. The follow-up was 6 ± 3 meses. The scheduled starting dose was 1.5 ± 0.5 mg / day, with an average 5.30 ± 1.8 ng / ml. In three cases liver biopsy was performed subcutaneously, for disturbing the liver profile (15%), the findings were acute rejection grade 1 ($n = 1$), grade 2 ($n = 1$) in a patient who had stopped treatment voluntarily and a third patient toxicity excessive immunosuppression. No patient had infections during or after the move to everolimus. Lymphedema of the lower limbs was present in 15% of patients in all three cases required treatment with diuretics. **Conclusions:** The indication in patients at risk of developing tumor recurrence or de novo, it is an alternative to develop. The incidence of rejection after the conversion was low. Among the side effects dyslipidemia and lymphedema were the most common side effects, although drug treatment improved the symptoms.

Abstract# P-419

MYCOPHENOLATE MOFETIL IMPROVE THE FIBROSIS COURSE IN HCV TRANSPLANT RECIPIENTS. Tommaso Maria Manzia, Luca Toti, Andrea Monaco, Roberta Angelico, Daniele Sforza, Irene Bellini, Luciano Perrone, Manuele Berlanda, Giuseppe Tisone. *U.O.C. Trapianti d'Organo, Sant'Eugenio Hospital, The Tor Vergata University, Rome, Italy*

Background: Hepatitis C virus recurrence after orthotopic liver transplantation (OLT) is almost universal. The optimal immunosuppression for these patients is still under discussion. We designed a prospective case-control study to evaluate the effect of mycophenolate mofetil (MMF) monotherapy treatment in patients with recurrent hepatitis C. **Material and Methods:** Fifteen patients with histologically proven hepatitis C recurrence after OLT were under MMF treatment from 48 months. We matched them with 15 calcineurin inhibitors (CNI) treated liver transplant recipients with the same follow up. Baseline biopsies of both groups were comparable in terms of fibrosis rate. Liver protocol biopsies were obtained yearly during the study. Histological changes were evaluated utilizing the Ishak score. **Results:** Comparison of fibrosis showed no impairment of histological findings in the MMF group [2.6 ± 1.5 (baseline) vs 2.7 ± 1.8 (after 48 months MMF treatment), $p = 0.6$]. In contrast, histological findings of the 15 CNI patients showed a significant increase of fibrosis [2 (baseline) vs 3.2 (after 48 months CNI), $p = 0.0002$]. In addition the MMF group showed a yearly fibrosis progression rate of 0.05 ± 0.44 vs 0.33 ± 0.24 of CNI group ($p = 0.04$). Viral load was similar in both groups when alanin amino transferase (ALT) levels, measured during MMF treatment, showed a significant decrease [74 ± 40.5 UI/L vs 40.3 ± 22.0 , $p = 0.01$]. In addition MMF group showed a favourable impact on the cholesterol [162.9 ± 39.3 vs 143.0 ± 34.3 mg/dl, $p = 0.01$], triglycerides [148.9 ± 57.9 vs 116 ± 44.8 mg/dl, $p = 0.02$] and creatinine [1.9 ± 0.9 vs 1.3 ± 0.3 mg/dl, $p = 0.001$] course levels.

Conclusion: MMF monotherapy showed a positive effect on fibrosis progression and ALT levels compared to CNI transplant patients. Furthermore this study confirm the favouring impact on metabolic assay in MMF treated patients.

Abstract# P-420

COMPLETE STEROID AVOIDANCE IN ADULT LIVER TRANSPLANTATION WITH 1-YEAR FOLLOW-UP: A SINGLE CENTER EXPERIENCE. Carlo B. Ramirez¹, Cataldo Doria¹, Adam M. Frank¹, Victor Navarro², Steven Herrine³, Simona Rossi², Mark Chaballa³, Silvia Vaccino¹, Stephen T. Armenti⁴, Yoogoo Kang⁵, Ignazio R. Marino¹. ¹*Surgery, Thomas Jefferson University, Philadelphia, PA, USA;* ²*Medicine, Thomas Jefferson University, Philadelphia, PA, USA;* ³*Pharmacology, Thomas Jefferson University Hospital, Philadelphia, PA, USA;* ⁴*NYU School of Medicine, New York University, New York, NY, USA;* ⁵*Anesthesiology, Thomas Jefferson University Hospital, Philadelphia, PA, USA*

Purpose: to study the effects of a completely corticosteroid (CS)-free immunosuppressive (IS) regimen in adult liver transplantation (OLT). **Methods:** A 2-yr, prospective, randomized trial of CS (grA) and no-CS (grB) IS regimen with basiliximab (Bsx) at 20mg intra-operatively and POD 4, tacrolimus (Tac) at 0.1mg/kg/day and enteric-coated mycophenolate sodium (EC-MPS) at 720mg BID was performed with 40 patients (pts); (grA:20; grB:19); 1 pt in grB required re-OLT and was excluded from analysis. GrA received methylprednisolone at 1g IV intra-operatively followed by prednisone taper to 20mg PO QD and weaned off within 6 months. HCV pts had HCV PCR pre-OLT, .5, 1, 3, 6 months post-OLT. Protocol liver biopsies were performed at baseline, 2wks and 3-6 months post-OLT. Results: Pt characteristics were similar between groups for sex, race, MELD, Cold and Warm Ischemia Time, diagnosis except for recipient age, p= 0.0498. HCV was the primary etiology for OLT (GrA:12;GrB:14). Six pts were switched to cyclosporine micro-emulsion (CsA-ME) due to neurotoxicity (5) and nephrotoxicity (1). Mean follow up was 19 ± 1 months. Mean duration on CS was 174 days. One (5%) biopsy-proven acute cellular rejection was observed in each group, CMV and malignancy (none) was similar between groups. No significant statistical difference from baseline to 1 year follow up was observed between groups for hypertension, cholesterol levels, infection rates, or HCV recurrence. Of note, grB presented a trend toward lower weight gain (p= 0.079). Kaplan-Meier pt and graft survival at 1-year and at last follow-up were similar between groups.

Pt and graft survival

	GrA	GrB	P
1-year survival	100%	95%	0.305
Survival at last follow-up	92%	89%	0.578

Conclusion: A CS-free IS regimen with Bsx, Tac/CsA-ME and EC-MPS is as safe and as effective in adult OLT recipients as a CS-IS regimen. A longer follow-up and more subjects are necessary to validate this conclusion.

Abstract# P-421

APOPTOSIS-RESISTANT T-CYTOTOXIC-MEMORY CELLS ASSOCIATE WITH REJECTION-PRONE CHILDREN WITH LIVER AND/OR SMALL BOWEL TRANSPLANTATION. Chethan Ashokkumar, Mylarappa Ningappa, Ankit Gupta, Qing Sun, Rakesh Sindhi. *Hillman Center for Pediatric Transplantation, Children's Hospital of Pittsburgh and University of Pittsburgh, Pittsburgh, PA, USA*

Background: Rejection-free outcomes are indicative of graft acceptance, and attributed in part to the elimination of graft-specific inflammatory T-cells by apoptosis. Apoptosis of T and B-cells is also one immunosuppressive mechanism of rabbit anti-human thymocyte globulin (rATG). Caspase-3 is a key enzyme in the apoptotic cascade, but has never been used to evaluate apoptosis as a potential surrogate marker of rejection or non-rejection outcomes in ex vivo assays.

Methods: Subjects included children with LTx (n=22) and SBTx (n=15), induced with rATG. Rejectors were those recipients who experienced biopsy-proven cellular rejection within the first 60 days after transplantation. PBL from 20 Rejectors and 17 Non-rejectors. PBL were incubated for 16 hours at 37°C in 5% CO₂, with increasing concentrations of rATG (0-200 µg/ml). Unstimulated and rATG-stimulated expression of Caspase-3 in naïve (N) and memory (M) T-helper (Th) and T-cytotoxic (Tc) was measured with flow cytometry. The T-cell subset best associated with rejection was determined by logistic regression, leave-one-out-cross-validation, and ROC analysis.

Results: Among T-cell subsets, unstimulated Caspase-3+TcM, best associated with rejection outcomes with a sensitivity and specificity of 76.5% and 83.3%, below a threshold of 22.9% Caspase-3+TcM. The frequency of Caspase-3+TcM induced by rATG was significantly higher among Non-Rejectors, compared with Rejectors for all concentrations of rATG tested (Table 1).

Conclusions: Increased circulating apoptotic TcM may be indicative of rejection-free outcomes. Resistance of TcM to rATG-induced apoptosis may characterize the rejection-prone LTx and/or SBTx.

Table 1

rATG concentration	%Caspase-3+TcM		p-value
	Non-Rejector	Rejector	
0µg/ml	38	17	0.006
5µg/ml	48	28	0.029
20µg/ml	60	38	0.027
200µg/ml	89	69	0.002

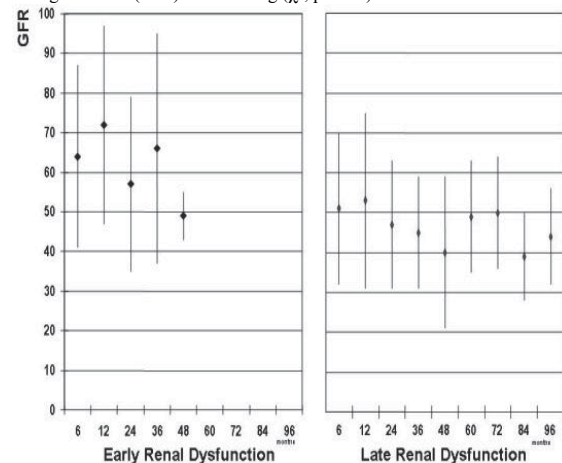
Abstract# P-422

TEN YEAR RESULTS OF MYCOPHENOLATE MOFETIL (MMF) AND LOW DOSES OF CALCINEURIN INHIBITORS (LDCI) IN PATIENTS WITH RENAL DYSFUNCTION AFTER LIVER TRANSPLANTATION. A. W. Avolio¹, R. Barbarino¹, L. Vargiu¹, M. C. Lirosi¹, B. Annicchiarico², S. Agnes¹, M. Siciliano², F. Frongillo¹. ¹*Dept of Surgery - Transplantation Service, "A.Gemelli" Catholic University of Rome, Rome, Italy;* ²*Dept of Internal Medicine, "A.Gemelli" Catholic University, Rome, Italy*

Background. Renal dysfunction (RD) after liver transplantation (LTx) is a relatively common event (from 10 to 78%). Recent implementation of MELD as prioritization rule increased prevalence of candidates with RD.

Methods. This is a prospective single-center study started on Jan 1999 and completed on Dec 2008. After written consent, 100 pts were enrolled in a MMF-LDCI trial. MMF was used as renal sparing agent associated with low doses of calcineurin inhibitors (LDCI). Inclusion criteria: age >18; stage 3 chronic kidney disease (glomerular filtration ratio, GFR 30-59 ml/min/1.73m²). Exclusion criteria: previous steroid resistant acute rejection, WBC count <2000/mm³. GFR was calculated according to Levey formula (GFR=186 x serum creatinine^{-1.154} x age^{-0.203} x K, where K is = to 1 for males and = to 0.742 for females). Pts were stratified in groups according to the starting time of the MMF-LDCI association. There were: Early Renal Dysfunction group (ERDg, before 30th pod, N=24) and Late Renal Dysfunction group (LRDg, after the 30th pod, N=53). In a third group (control group, N=23) the MMF-LDCI association was adopted soon after LTx in absence of RD.

Results. Median age was 52.7 years (23-71). Median time from LTx to enrolment was 16.6 months (0.2-4.6). Median follow up was 43.1 months (2-125). At the enrolment, 69% of pts were on CsA and 31% on TAC. After the introduction of MMF, renal function was stable in the 3 groups. LRDg presented the lowest GFR (p<0.05). Prevalence of renal failure (continuous dialysis need) was equal to 4% (N=1) in the ERDg and to 11% (N=6) in the LRDg (χ², p<0.05). Prevalence of acute rejection (AR) was 6% (N=3) in the LRDg and 33% (N=8) in the ERDg (χ², p<0.05).



Discussion. Use of MMF as a renal-sparing agent is safe and efficacious in ERDg and LRDg. LRDg showed an higher prevalence of renal failure and a lower AR rate. We suggest the MMF-LDCI association in LTx pts with RD.

Abstract# P-423

AN UNUSUAL PALATE LESION IN A POST-TRANSPLANT PATIENT. Katherine Metzger, Nayan Patel, Ester Little, Mark Wong, Alberto Ramos, Geetha Kolli, Moore Ann, Fox Kaya, Manch Richard. *Liver Disease Center, Banner Good Samaritan Hospital, 1300 North 12th Street, Phoenix, AZ, USA*

Invasive fungal infections are a major complication of immunosuppression. With the increase in solid organ transplants in recent years, a higher incidence of Zygomycetes infections have been seen. The authors describe the case of a liver transplant recipient who developed infection secondary to Zygomycosis, genera Rhizopus.

Case Report: A 53 year old male patient with HCV cirrhosis underwent orthotopic liver transplantation on 10/22/07. Four days later he developed oropharyngeal pain, right facial edema, and the sensation of a mass on his palate. On exam, a 5x2cm mass like lesion, with surrounding erythema and an area of central necrosis was seen on the upper palate. Biopsy showed invasive hyphal forms consistent with zygomycosis. CT showed extensive sinus involvement. The fluconazole, for coccidiomycoses prophylaxis post-transplantation, was changed to caspofungin after the biopsy result. Patient underwent radical debridement of the infected tissues, with palatectomy, nasal septectomy, bilateral medial maxillectomy, total ethmoidectomy, and bilateral sphenoidectomy. Post surgery treatment was changed to amphotericin B, to cover the species Rhizopus, isolated from biopsy specimens. The patient remained intubated post operatively for airway protection, on tube feeds, and eventually discharged home 24 days after admission. A year after transplant he is doing well, with no evidence of fungal infection, on fluconazole therapy.

Discussion: A recent study indicated that zygomycosis accounted for 5.7% of all opportunistic mold infections in solid organ transplant patients. Rhinocerebral zygomycosis is the most common manifestation of zygomycosis, with the most common species being Rhizopus. Our patient presented with a classic diagnostic sign of painful necrotic eschar on the palate and despite aggressive and timely medical treatment, required extensive surgery. Rhinocerebral zygomycosis is an increasingly common infection with high morbidity and mortality in immunosuppressed patients. Early recognition is paramount and will often determine the level of success in treating these patients.

Abstract# P-424

RENAL TUBULER ACIDOSIS IN LIVER TRANSPLANT RECIPIENTS: THE EFFECT OF CALCINEURIN INHIBITORS. Ramazan Idilman¹, Zeki Karasu², Guldane Cengiz¹, Kenan Keven³, Sadik Ersoz⁴, Sule Sengul³, Selcuk Haznedaroglu⁴, Acar Tuzuner⁴, Unal Aydin², Secil Olut², Ali Ozden¹. ¹Gastroenterology, Ankara University Faculty of Medicine, Ankara, Turkey; ²Gastroenterology, Ege University Faculty of Medicine, Izmir, Turkey; ³Nephrology, Ankara University Faculty of Medicine, Ankara, Turkey; ⁴Surgery, Ankara University Faculty of Medicine, Ankara, Turkey

Background/Aim: The aim of this study was to investigate the association and development of renal tubular acidosis (RTA) in stable liver transplant recipients (LTR).

Methods: Between January 2007 and March 2008, 94 liver transplant recipients (male/female, 57/37; mean age, 46.8 years), who were consecutively seen at two different centers were enrolled into the study. Patient with serum creatinine level ≥ 1.4 mg/dL, unstable allograft function, diarrhea and respiratory disease were excluded. RTA was diagnosed on the basis of low arterial bicarbonate level (<22 mEq/L) and pH (<7.37) together with normal serum anion gap and positive urine anion gap. The mean post-transplant follow-up period was 53.6 $\pm$ 29.5 months.

Results: The causes for liver transplantation were hepatitis B virus-induced cirrhosis in 48 patients, hepatitis C virus-induced cirrhosis in 9 patients, autoimmune liver diseases in 10 patients, cryptogenic cirrhosis in 7 patients, and other etiologies in 16 patients. Four patients had acute liver failure. Thirty-six patients had orthotopic liver transplantation and the remaining 58 had living-related partial liver transplantation. Sixty-two recipients were on tacrolimus, 25 were on cyclosporine, and 11 were on sirolimus.

RTA was detected in 8 recipients (male/female: 5/3, mean age: 50.9 $\pm$ 11.5 years). Seven were distal type 2, one was distal type 4. Six were on tacrolimus, whereas two were on cyclosporine therapy. The mean glomerular filtration rate (62.4 $\pm$ 16.1 ml/min/1.73m² vs 78.8 $\pm$ 21.4 ml/min/1.73m²), the arterial pH (7.35 vs 7.43) and the plasma bicarbonate level (19.1 $\pm$ 1.9 mEq/L vs 24.1 $\pm$ 2.5 mEq/L) were lower, and the plasma chloride level (107.9 $\pm$ 4.5 mEq/L, vs 105.0 $\pm$ 3.3 mEq/L) was higher in recipients with RTA, as compared with in

recipients without RTA ($p<0.05$). There were no significant difference in terms of age, gender, etiology of the liver disease, the type of transplantation, type of immunosuppression, and the duration of post-transplant period between recipients with/without RTA observed.

Conclusion: Based on the result of this study, it appears that RTA is a relatively common in LTR.

Abstract# P-425

RENAL IMPROVEMENT AFTER CONVERSION TO MMF PREDICTS LONG-TERM SURVIVAL IN LIVER TRANSPLANT PATIENTS WITH CNI-RELATED NEPHROPATHY. Arno Kornberg¹, Bernadett Küpper², Katharina Thrum², Olaf Habrecht¹, Annette Sappeler¹. ¹General, Visceral and Vascular Surgery, Friedrich-Schiller-University, Jena, Germany; ²Surgery, Rhön Klinikum, Bad Berka, Germany

Background:

Conversion from a calcineurin-inhibitor (CNI) based immunosuppressive regimen to mycophenolat mofetil (MMF) with subsequent CNI reduction results in short-term renal function improvement in liver transplant patients with CNI-related nephropathy. The aim of this trial was to evaluate the long-term efficacy of this medical concept on kidney function and patient survival.

Methods:

In 43 liver recipients with increased serum creatinine levels, 2 g MMF per day were administered, followed by a significant CNI dose reduction. Renal function was assessed by determination of serum creatinine levels and creatinine clearance (CCl). The impact of several clinical parameters on long-term survival post-conversion was analysed by uni- and multivariate analysis.

Results:

There was no case of allograft rejection after switch to MMF. At 60 months post-conversion, mean creatinine level has significantly decreased from 199,7 $\pm$ 66,8 μ mol/L at conversion to 158,2 $\pm$ 83,3 μ mol/L, and mean creatinine clearance has significantly increased from 40,7 $\pm$ 14,6 ml/min at conversion to 51,5 $\pm$ 18,6 ml/min ($P < 0,001$). Thirty-one patients (72,1%) showed sustained renal function improvement after 5 years, while 5 patients (11,6%) developed chronic renal failure with need of renal dialysis. Persistent renal function improvement was identified as independent predictor of long-term survival post-conversion (hazard ratio: 6,8). In patients without improved renal function, 5-year survival rate post-conversion was significantly lower (60%) than in patients with kidney recovery (94%, $P = 0,002$). Early conversion to MMF (<24 months), short-time duration of nephropathy (<24 months) and full-dose MMF therapy (2g/day) were significantly associated with renal function improvement ($P < 0,05$).

Conclusion:

We were able to clearly demonstrate that sustained improvement of renal function after conversion to MMF promotes significantly patient long-term survival. Switch of immunosuppression should, therefore, be performed early after transplantation with first signs of renal insufficiency and, if tolerable, using a full-dose of MMF medication.

Abstract# P-426

CONVERSION TO EVEROLIMUS-BASED IMMUNOSUPPRESSION IN MAINTENANCE LIVER TRANSPLANT RECIPIENTS. Mélanie Vallin¹, Olivier Guillaud¹, Isabelle Morard², Marie Claude Gagnieu¹, Gilles Menthia², Mustapha Adham¹, Emmanuel Morelon¹, Olivier Boillot¹, Emiliano Giostra², Jérôme Dumortier^{1,2}. ¹Edouard Herriot Hospital, Lyon, France; ²University Hospital, Geneva, Switzerland

Everolimus is a proliferation signal inhibitor used as immunosuppressive drug after organ transplantation. The aim of this study was to evaluate the tolerance of the conversion from CNI to everolimus (ERL) in maintenance liver transplant (LT) recipients.

From January 2005 to March 2008, everolimus was introduced after LT in maintenance immunosuppressive therapy because of *de novo* or recurrent cancer after LT, pre-existing liver carcinoma on the liver explant, associated with bad histological features, or CNI toxicity. CNI dosage was progressively reduced after ERL introduction, until discontinuation.

The study population included 94 patients (68 men and 26 women), of median age 57 $\pm$ 10. The median delay between LT and everolimus introduction was 5 $\pm$ 5 years (ranging 1 month to 17.8 years). The reason for ERL introduction was adverse effects of CNI in 54% of patients (n=51), previous cancer on liver explant in 11% (n=10), or *de novo* or recurrent post-LT cancer in 35%

(n=33). After a median follow-up of 12 ± 7 months, 70% of the patients under everolimus did present at least one side-effect. The median dosage of ERL was 2 mg per day at the beginning and 3 mg at the end of follow-up. The median trough level of ERL was 6 ng/ml at the end of follow-up. The main side-effects were: hyperlipidemia (37%), dermatitis (19%), mucitis (15%), proteinuria > 300mg/day (18%), edema (7%), hematotoxicity (4%), anemia (n=2), neutropenia (n=1), pancytopenia (n=1)) infection (3%), and lymphorrhea (3%). Biopsy-proven acute rejection occurred in 9% of patients. Global everolimus discontinuation rate was 21% (16% because of side-effects) after a median delay of 7 ± 8 months. Predictive factors of side effects were initial ERL dosage and trough level, age, male gender and the physician's experience.

Our results suggest that ERL introduction in LT maintenance therapy induces adverse effects in the vast majority of patients. These side-effects usually decreased or disappeared with ERL dosage adjustment, and/or symptomatic treatment, but led to treatment discontinuation in 16% of the patients. Further investigations must be led to evaluate the impact of everolimus on cancer patient survival and renal function evolution, in order to assess the long term benefit of this conversion.

Abstract# P-427

EARLY COMPLICATIONS IN LIVER TRANSPLANT PATIENTS TREATED WITH TACROLIMUS OR CYCLOSPORINE. Juan J. P. Miranda, Jaime J. Ponichik, Danny D. Oksenberg, Jorge J. Contreras, Jose J. Ibarra. *Unidad Trasplante, Hospital Clínico Universidad de Chile, Santiago, Independencia, Chile*

Objective: To compare the incidence of medical and surgical complications, acute cellular rejection and mortality in OLT patients, treated with tacrolimus versus cyclosporine, at a 3-month post-transplant period. **Method:** Descriptive study, from 2005-2007. Eighteen OLT patients receiving an immunosuppressive regimen, either bi or tri-associated with generic tacrolimus (T-Inmun®), mycophenolate mofetil and/or steroids, and 18 patients with cyclosporine, mycophenolate mofetil and/or steroids, were randomly selected. Demographic, clinical complications and mortality features were analyzed over three initial post-transplant months. Analysis was performed in stata 10.0. **Results:** The sample comprised 36 liver transplants in 34 patients, average age 48.4 ± 13.5 (21-66) years, 15 male (44.1%) and 19 female (55.9%). Patients were distributed into 2 groups: Cyclosporine (C) and Tacrolimus (T). Average age T= 45.8 ± 14.5 (21-66) and C= 51 ± 12.3 (25-66) years p=ns per group. Transplant etiology: 7 (19.4%) alcoholic hepatic cirrhosis, 7 (19.4%) hepatic cirrhosis due to HCV, 4 (11.1%) autoimmune hepatic cirrhosis and 4 (11.1%) nonalcoholic esteatohepatitis hepatic cirrhosis, p=ns per group. Group C received a cyclosporine dose of 15 mg/kg/day, divided into two oral doses every 12 h, with dose adjustments based on C2 plasma levels between 800-1200 ng/ml. Group T received a Tacrolimus dose of 0.05 to 0.15 mg/kg/day, divided into two oral doses every 12 h, and adjusting doses in order to maintain T trough plasma levels between 10-15 ng/ml, over the three initial post-transplant months. Each group also received steroids with or without mycophenolate mofetil. Complications: 4 patients (22.2%) showed acute cellular rejection in group C v/s 1 (5.5%) in group T p<0.015. Eight patients (33.3%) showed infections in group C v/s 2 (11.1%) in group T p=ns; there were no differences in the medical and surgical complications and in the hospitalization periods between groups. Two patients required retransplant, 1 (5.5%) from each group, p=ns. Two (11.1%) deaths were reported in group C v/s 0 in group T, p=0.04, due to infectious complications. **Conclusions:** T shows a significantly lower incidence of acute cellular rejection and mortality than C over the 3 initial post-transplant months.

Abstract# P-428

SELF-REPORTED NON-ADHERENCE TO IMMUNE-SUPPRESSANTS IN LIVER TRANSPLANT RECIPIENTS: DEMOGRAPHIC, INTERPERSONAL AND INTRAPERSONAL FACTORS. Sangeeta Lamba, Kunj K. Desai, Bart Holland, Shaun Chun, Baburao Koneru. *Surgery, UMDNJ, New Jersey Medical School, Newark, NJ, USA*

Adherence to immune-suppressant therapy, as well as to a multifaceted follow-up care regimen is important in achieving optimal long term outcomes after organ transplantation. There are few studies which address the unique characteristics of liver recipients in order to identify an individual patient's risk for non-adherence to immune-suppressants. This study uses a cross-sectional, descriptive design to explore the prevalence and correlates of non-adherence to immune-suppressant therapy as well as office visits among

liver recipients at a large urban transplant program. 572 liver recipients (all at a minimum of one year post transplant), were sent anonymous questionnaires by mail. The survey domains consisted of; 1) adherence barriers to immune-suppressants, 2) patient's knowledge and information about immune-suppressants, 3) demographics, socio-cultural and alcohol/substance use, 4) perceived social support, 5) medical co-morbidity issues, and 6) healthcare locus of control beliefs.

Overall response rate was 57.2% (281 divided by 572 minus 81 undelivered mails). Respondents report a non-adherence rate of 50% (141/280) and identify the 2-5 year post transplant phase as the time period during which they are at risk to skip immune-suppressants (74/145, 51 %). We find the highest immune-suppressant non-adherence rates in; divorced recipients (31/43, 72%, p 0.0246), African-American recipients (12/22, 64%, p 0.0445), recipients with a prior history of alcohol or substance abuse (48/78, 62%, p 0.0221), recipients with mental health needs (58/97, 60%, p 0.024), recipients who miss clinic appointments (23/39, 79%, p <0.0001) and recipients who do not keep a diary/medication log (85/145, 59%, p 0.0067). In conclusion, half of our self-report survey respondents report some level of non-adherence to immune-suppressants. Factors identified above may assist clinicians to gauge risk status in an individual patient and target resources accordingly. Simple strategies to increase adherence to medications may include emphasizing to patients; the value of consistent office appointments, maintenance of a log/diary and of developing a daily routine.

Abstract# P-429

HYPERACUTE REJECTION: REALITY IN LIVER TRANSPLANTATION – REPORT OF CASES. Bianca Della-Guardia, Marcio D. Almeida, Torres A. Margareth, Venco Filadelfio, Rogerio C. Afonso, Meira-Filho P. Sergio, Ben-Hur Ferraz-Neto. *Liver Transplant, Hospital Albert Einstein, Sao Paulo, Brazil*

Introduction: Hyperacute rejection (HAR) is rare in ABO compatible liver transplant (OLT). The lesion mechanism is mediated by the donor's preformed antibodies developing graft loss in few days. **Aim:** We describe two cases of ABO compatible OLT with HAR needing retransplant as treatment. **Case 1:** A 27 year-old male, blood group A with fulminant hepatic failure due hepatitis B in agreement with the O'Grady criteria, receive a ABO compatible graft developed important fever, hypotension, oliguria and coagulopathy in the first 48 hours of postoperative, ultrasonography (US) revealed total thrombosis of portal vein with pervious hepatic artery and absence of dilatation of bile ducts. **Case 2:** A 32 year-old man, blood group O with Familial Amyloidotic Polyneuropathy (Val30Met), receive a ABO compatible graft developed progressive jaundice initiating in the fourth day after transplant, US and posterior computadorized tomography revealed microthrombosis of distal branches of hepatic artery. Both were retransplanted and had a good evolution. The explants exams revealed thrombosis of portal vein intra-hepatic branches with venous and ischemic infarcts compatible with the diagnosis of HAR. The anti-HLA antibodies researches were negative in both cases. **Discussion:** HAR is characterized by progressive elevation of bilirubin and thrombocytopenia associated to signs of hepatic failure during the first days after OLT. The cases described are usually associated to the presence of high titles of anti-donor antibodies. In these cases the histological findings were compatible with HAR having been excluded the diagnosis of hepatic artery thrombosis and biliary obstruction. The association of histological and clinical findings, the short ischemic time and the good evolution after liver retransplantation favor the diagnosis of HAR. In spite of the anti-HLA antibodies research negative the diagnosis cannot be excluded, therefore other antibodies classes and the presence of isoagglutinins are described in the physiopathology of HAR. Due to the gravity of HAR cases in ABO compatible liver transplant and the possibility of resolution with precocious indication of the retransplant, the diagnosis should be considered even in the absence of anti-HLA antibodies preformed since the diagnoses of thrombosis of hepatic artery and primary dysfunction of graft have been discarded.

Abstract# P-430

SURVIVAL ANALYSIS AFTER LIVER TRANSPLANTATION IN CHILEAN PATIENTS RECEIVING CYCLOSPORINE OR TACROLIMUS AS PRIMARY IMMUNOSUPPRESSION. Juan J. P. Miranda, Danny D. Oksenberg, Jaime J. Ponichik, Jorge J. Contreras, Jose J. Ibarra. *Unidad Trasplante, Hospital Clínico Universidad de Chile, Santiago, Independencia, Chile*

Background: Cyclosporine or tacrolimus are widely used as primary immunosuppression to prevent rejection in liver transplant recipients. Both are calcineurin inhibitors but with different immunosuppression

potency and some differences in their secondary effect profile. In Chilean liver transplantation patients, the implications of these differences are not assessed.

Aim: We evaluated results and survival from a prospective trial that compared cyclosporine microemulsion (CsA-me) and Tacrolimus (Tac) for primary immunosuppression.

Methods: From July 2002 to December 2007, 86 liver transplantation from cadaveric donors were performed in the Hospital Clínico Universidad de Chile. Sixty three (73,3%) received CsA-me or generic tacrolimus (T-Inmun®) as primary immunosuppression. We studied demographic and clinical variables. Statistical analysis was performed with Stata 10.0.

Results: Fifty three (82,8%) received CsA-me and 11 (17,2%) received Tac. Median age was 53,5 years. Causes for transplantation in CsA-me group were HCV 24,5%; alcoholic cirrhosis 17%; NASH 15,1%; cryptogenic cirrhosis 11,3%; other 32,1% and in the Tac group: autoimmune hepatitis 27,3%; HCV 18,2%; alcoholic cirrhosis 18,2%; NASH 18,2%; other 18,2% (p=ns by group). Patient Survival analysis of group CsA-me at six months, 1 year and 5 year were respectively 86,8%, 84,9% and 77,4%, and on group Tac were 100%, 100% and 90,9% respectively (log rank p<0.0001). Differences were not seen with respect to infections (50,9 v/s 54,6%), acute kidney failure (39,6 v/s 27,3%), de-novo insulin-requiring diabetes mellitus (18,4 v/s 11,8%) and graft rejections (24,5 v/s 27,2%).

Conclusion: In the Chilean population Tacrolimus has demonstrated to be as effective as Cyclosporine in improved patient survival. Tacrolimus seems to be a more appropriate drug to be used for primary immunosuppression in liver transplantation.

Abstract# P-431

VALIDATING GRAFT AND STANDARD LIVER SIZE PREDICTIONS IN RIGHT LIVER LIVING DONOR LIVER TRANSPLANTATION. See C. Chan¹, Chung M. Lo¹, Yik Wong², Kelvin K. Ng¹, Siu H. Chok¹, Sheung T. Fan¹. ¹Department of Surgery, University of Hong Kong, Hong Kong, China; ²Department of Radiology, Queen Mary Hospital, Hong Kong, China

A formula was derived from 159 living liver donors to estimate the liver size of a normal subject in our previous study. Standard liver weight (g) = 218 + body weight (kg) x 12.3 + 51 (if male). The standard liver volume (SLV) is attained by a conversion factor of 1.19 mL/g.

In order to assess the accuracy of this formula, the total liver volume (TLV) of each of the subsequent consecutive 126 living liver donors was determined using the right liver graft weight (RGW) on the back-table, right/left liver volume ratio on computed tomography, and the conversion factor. The estimated right liver graft weight (ERGW) of each donor was determined by the right liver volume on computed tomography and the conversion factor. The SLV and ERGW were compared with the TLV and RGW respectively for each donor by paired sample t-test.

The donor characteristics of both series were similar. The SLV and TLV were 1,099.6 ± 139.6 mL and 1,108.5 ± 175.2 mL, respectively (p = 0.435) (R² = 0.476). The difference between the SLV and TLV was only -8.9 ± 128.2 mL (-1.0 ± 11.7%).

The ERGW and RGW were 601.5 ± 104.1 g and 597.1 ± 102.2 g, respectively (p = 0.332) (R² = 0.781). The conversion factor from liver weight to volume for this series was 1.20 mL/g. The difference between the ERGW and RGW was 4.3 ± 49.8 g (0.3 ± 8.8%). The ERGW was smaller than the RGW for over 10% (range 0.21 to 40.66 g) in only 18 of these 126 right liver donors. None had underestimation of the RGW by over 20%.

Standard liver size and graft weight estimations were accurate using the formula and conversion factor.

Abstract# P-432

EVALUATION OF 707 ADULT RIGHT HEPATIC LIVE (RHL) DONORS IN A LARGE WESTERN CENTER. Elizabeth Pomfret, Mary Ann Simpson, Denise Morin, David Burns, Kristen Robson, James Pomposelli. *Lahey Clinic, Burlington, MA, USA*

The use of live RHL donors for transplantation is now an accepted procedure. We utilize a sequential evaluation process designed to maximize donor protection while containing costs.

Methods

Records of all potential donors who presented to our program were reviewed. Potential donors undergo preliminary screening, appointment with program director for detailed description of donation process, and volumetric 3D CT scan. If all results are acceptable and the donor remains willing, evaluation by the independent donor advocate (IDA) team (gastroenterologist, psychiatrist,

social worker) proceeds. Liver biopsies are performed selectively if history or test results warrant.

Results

Between December 1998 and December 2008, 707 potential donors were evaluated (373 men, 334 women, NS). BMI was higher in men (28.2) versus women (26.6) (p=0.001) as were liver volumes (men – 1920 g vs women – 1520 g, p=0.001). However, predicted graft weight to body weight ratios (1.32 vs 1.29, NS) and ages (men-38.3, women 39.8, NS) were similar in accepted candidates. Liver biopsies were performed in 132 candidates (18.9%); 23 showed significant pathology and were rejected. No unexpected pathology was found during donor hepatectomy. Average number of donor candidates per recipient was 1.67 (range = 1-11). 27 donors were eliminated at initial screen (3.8%) and 38 withdrew after session with program director (70% of withdrawals).

Table 1

Accepted (193)	Rejected (202)	Evaluation Stopped (239)	Eval Stopped -Recip. Reasons (111)
RHL Donation (180)	Sig. Medical Issues (69)	Recipient DDTx (38)	Recip. Too Sick (48)
Aborted Hepatectomy (3)	Elevated BMI (25)	Defer- other donor (89)	Recip. Died (19)
Recip. Not Ready (6)	Unsafe Anatomy (27)	Recipient Issues (111)	Progression HCC (15)
Recip. DDTx (2)	ABO Incompatible (22)	Donor to lose weight (1)	PVT Thrombosis (4)
RHL Donation Pending (2)	Hepatic Steatosis (19)		Recip. Improved (10)
	Other abn liver Bx (7)		Care at Other Center (7)
	Inadequate liver volume (18)		Positive Tox. Screen (3)
	Psychosocial (6)		Other (5)
	Other (9)		

Conclusions

1) This model resulted in elimination of 9.2% of potential candidates prior to CT; 2) early CT exam identifies an additional 6.3% as unsuitable prior to work-up by IDA team; 3) early exposure to donation realities appears to reduce number of donor withdrawals later in the process; and 4) selective criteria for liver biopsy allows 81% to avoid an invasive procedure.

Abstract# P-433

ANALYSIS OF COMPLICATIONS IN HEPATIC RIGHT LOBE LIVING DONORS. Ayman Zaki Azzam, Kinji Uryuhara, T. Ito, Y. Takada, H. Egawa, Kiuchi Tanaka. *Liver Transplantation and Immunology, Kyoto University, Kyoto, Japan; Liver Transplantation and Immunology, Kyoto University, Kyoto, Japan; Liver Transplantation and Immunology, Kyoto University, Kyoto, Japan; Liver Transplantation and Immunology, Kyoto University, Kyoto, Japan; Liver Transplantation and Immunology, Kyoto University, Kyoto, Japan; Liver Transplantation and Immunology, Kyoto University, Kyoto, Japan; Liver Transplantation and Immunology, Kyoto University, Kyoto, Japan*

Background Living donor liver transplantation (LDLT) has been expanding the territory to adult recipients by using right lobe grafts. However, the incidence of complications is more frequent than that involving left lobe graft.

Objective Donor safety is always the top priority in LDLT, so we aimed to analyze the postoperative complications in right lobe liver donors as a step to improve the results of the donor side.

Methods 311 right lobe donors between February 1998 and December 2003 were retrospectively subjected for the study.

Results Median age was 44 years old (19-64). Body mass index was 22.1 (16.6-34.3). Duration of the operation was 6.58±1.25 hours, and blood loss was 289±254 ml. Estimated residual liver volume was 42.2% of the whole liver (20.6-60.3%). Hospital stay was 14.5 days (6-267). All but one donor are alive and healthy, although 30% of the donors experienced one or more complications. The most common complication was biliary leakage then persistent abdominal fluid collection. Others include pleural effusion, wound infection, biliary stricture, small bowel obstruction, ascites, pulmonary embolism and portal vein thrombosis. One donor died of liver failure due to small remnant liver (26%) and concomitant non-alcoholic steatohepatitis, which was diagnosed postoperatively, in spite of rescue domino transplant. The Clavien classification was used to record surgical complications. In this study, there was 123 complications occurred in 104 donors (33.4%). Grade I was 71 (57.7%), grade II was 9 (7.3%), grade III_a was 39 (31.7%), grade III_b was 3 (2.5%) and grade V was one (0.8%).

Conclusion Right lobe liver donation is an acceptable procedure which results in the expansion of the indication for LDLT to large-sized recipients. However, remnant liver size and anatomical variations in the biliary tree may represent important risk factors for the postoperative complications.

Abstract# P-434

SAFETY OF SMALL-FOR-SIZE GRAFT IN ADULT-TO-ADULT LIVING DONOR LIVER TRANSPLANTATION.

Ju Ik Moon, Milljae Shin, Jong Man Kim, Jae Min Chun, Gum O. Jung, Gyu Seong Choi, Jae Berm Park, Choon Hyuck David Kwon, Sung-Joo Kim, Jae-Won Joh, Suk-Koo Lee. *Department of Surgery, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, Korea*

Introduction: Graft size problem is one of the critical limiting factors for expansion of adult-to-adult living donor liver transplantation (A to A LDLT). We compared the outcome of A to A LDLT recipients who received grafts with GRWR<0.8% and with 0.8%≤GRWR<1%. We analyzed the risk factors affecting graft survival after A to A LDLT using small-for-size grafts.

Methods: Between June 1997 and April 2008, 99 patients underwent LDLT using GRWR<1% grafts at department of surgery at Samsung Medical Center. All patients received a right lobe graft. Patients were 92 males and 7 females in this study. Recipients were divided into two groups; group A: GRWR<0.8% (n=28) and group B: 0.8%≤GRWR<1% (n=71). We retrospectively evaluated the recipient factors (indication of LDLT, age, sex ratio, MELD score, Child-Pugh score, urgency), donor factors (age, sex ratio, liver fatty change), operative factors (cold ischemic time, warm ischemic time, anhepatic time, blood loss volume, middle hepatic vein drainage) through the medical record.

Results: Median follow-up of recipients was 34 months (range: 1.0-87.0 months). The recipient factors, donor factors and operative factors did not show differences between the groups. Graft survival rates at 1 year, 3 years and 5 years of group A and group B were 84.4%, 82.9% and 82.9%; 88.4%, 84.7% and 75.9% respectively. There was no significant difference between the groups (p=0.580). However graft survival rates of recipients using donor age <40 years grafts were significantly higher than using donor age ≥40 years grafts in the group A (100% versus 58.3%, p=0.002). And graft survival rates of recipients with MHV tributary drainage were significantly higher than recipients without MHV tributary drainage in the group A (100% versus 60.6%, p=0.013).

Conclusion: Small-for-size graft of GRWR<0.8% may be used safely in A to A LDLT if a recipient receive a graft with younger donor (donor age <40 years) and reconstruction of middle hepatic vein tributaries.

Abstract# P-435

PREOPERATIVE RISK FACTORS FOR EVALUATING THE PROGNOSIS AFTER ADULT-TO-ADULT LIVING DONOR LIVER TRANSPLANTATION.

Masato Fujiyoshi¹, Masahiko Taniguchi¹, Minoru Ota³, Kenichiro Yamashita¹, Tomomi Suzuki², Tsuyoshi Shimamura³, Toshiya Kamiyama¹, Michiaki Matsushita¹, Hiroyuki Furukawa², Satoru Todo¹. ¹Department of General Surgery, Hokkaido University, Sapporo, Hokkaido, Japan; ²Department of Organ Transplantation, Hokkaido University, Sapporo, Hokkaido, Japan; ³Division of Organ Transplantation, Hokkaido University, Sapporo, Hokkaido, Japan

<Background and aim>

Several scoring systems of preoperative risk factors for evaluating postoperative prognosis are proposed in deceased donor liver transplantation. However, no reliable model for predicting the prognosis after adult-to-adult living donor liver transplantation (AA-LDLT) exists. We verify preoperative risk factors and evaluate the integrated impact of these factors in AA-LDLT.

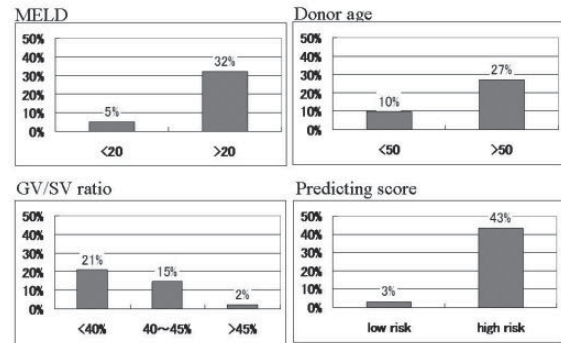
<Patients and methods>

Between November 1996 and June 2008, 124 patients underwent AA-LDLT at Hokkaido university. The following parameters were investigated: the age and sex of recipients and donors, Model for End-Stage Liver Disease (MELD) score, diagnosis of underlying disease, hepatitis B/C state and graft volume/standard volume (GV/SV) ratio. The 6-month survival was used as outcome variable.

<Result>

Among preoperative factors, MELD score (>20), donor age (>50) and GV/SV ratio remained as independent risk factors for 6-month survival by univariable analysis. These three parameters were also significant with a multivariable analysis using logistic regression analysis. Using regression coefficient, a predicting score was defined as following formula: predicting score = 2.375 (if MELD score >20) + 1.495 (if Donor age >50) - 7.591*GV/SV ratio. All cases were divided into 2 groups setting threshold of the predicting score -1.0. The 6-month mortality was 43% in high risk group and 3.2% in low risk group.

Risk factors and 6-month mortality



<Conclusion>

In this study, higher MELD score (> 20), older donor age (> 50) and smaller GV/SV ratio were tend to be significant preoperative risk factors for 6-month survival. Predicting score (> -1.0) correlated strongly with higher 6-month mortality. New quantitative and integrated evaluation system will be useful for donor selection and survival prediction in AA-LDLT.

Abstract# P-436

RIGHT DONOR HEPATECTOMY IS ASSOCIATED WITH PERSISTENT THROMBOCYTOPENIA AND SPLENOMEGALY.

Benjamin Samstein, Dianne L. Rudow, Jean C. Emond. *Surgery, Columbia University, New York, NY, USA*

Long-term outcomes of donors undergoing hepatectomy for living donor liver transplantation have not been widely reported. Although thrombocytopenia is a common occurrence after Right lobe liver donation, we sought to characterize the persistent of thrombocytopenia and if there was an associated evidence of splenic enlargement.

Materials: At our center, over 170 patients have undergone donation for living donor liver transplantation. We analyze the 110 patients who had undergone right lobe donor hepatectomy for pre-op platelet count, post-operative platelet count, spleen size and related morbidities.

Results: Eight patients were found to have persistent thrombocytopenia (7.2%). Although platelet counts improved somewhat over time they remained significantly lower than pre-operative counts. There was associated splenomegaly in 3 of eight patients (37.5%). No patient has experienced morbidity related to thrombocytopenia with average follow-up of 6.6 years.

Conclusions: Right donor hepatectomy is associated with a low but not significant incidence of thrombocytopenia and splenomegaly. Donors should have long-term surveillance these findings.

Abstract# P-437

SEVERE HYPOPHOSPHATEMIA MAY PREDICT LIVER DYSFUNCTION AFTER LIVE LIVER DONATION.

Bo Li, Ding Yuan, Yonggang Wei, Lunan Yan, Tianfu Wen. *Liver Transplantation Center, West China Hospital, Sichuan University, Chengdu, Sichuan, China*

Objective Hypophosphatemia after live-donor liver donation was reported to be associated with a significant increase in postoperative complications. In this study, we investigated the relationship between postoperative hypophosphatemia and complications as well as laboratory test in live liver donors.

Methods Data of 102 live donors underwent right (n=96) and left (n=6) hemihepatectomy from Mar 2006 to Jul 2008 at liver transplantation center of West China Hospital were prospectively collected. All donors received routine TPN from 2nd post operative day (POD). Severity of hypophosphatemia was categorized as follows: mild (1.5-2.5mg/dL), moderate (1.1-1.5mg/dL), and severe (<1.0mg/dL). The complications were further compared among groups. In addition, we investigated the possible related factors with the nadir phosphorus levels following liver donation.

Results 100 cases (98%) developed hypophosphatemia postoperatively, including mild (n=56), moderate (n=25) and severe (n=19). Serum phosphate level began to fall on POD 2, reached nadir (1.91±0.72 mg/dL) on POD 3., There was no significant difference in ICU stay (P=0.198) and length of

hospital stay (P=0.702) among groups. The incidence of overall complications was not significantly different among three groups (P=0.313). However, there was a significant difference in incidence of postoperative liver dysfunction among three groups (7.1%, 16%, 31.6% respectively, P=0.027). Moreover, correlation between the incidence of postoperative liver dysfunction and the hypophosphatemia grade was also identified (r=0.549, P=0.023). Postoperative serum phosphate levels was found to correlated with TB levels (P<0.01) and not with actual graft volume (P=0.840), remnant liver volume (P=0.36), ratio of actual graft weight to donor body weight, and the postoperative increase of ALP (P=0.484).

Conclusions Incidence of hypophosphatemia is common after live-donor liver donation. In most cases, it is self-limited and unlikely to induce serious postoperative outcome. But in severe cases, hypophosphatemia may be an indicator of upcoming liver dysfunction. Furthermore, we thought that hypophosphatemia following hepatectomy are correlated not with hepatic regeneration but with the degree of liver injury.

Abstract# P-438

LOW INCIDENCE OF GRAFT FAILURE SECONDARY TO SMALL-FOR-SIZE SYNDROME (SFSS) FOLLOWING LIVING DONOR LIVER TRANSPLANTATION (LDLT). Khashayar Vakili, Yee-Lee Cheah, James J. Pomposelli, Mohamed Akoad, William D. Lewis, Roger L. Jenkins, Elizabeth A. Pomfret. *Department of Transplantation, Lahey Clinic, Burlington, MA, USA*

Background: Using a partial liver graft may be associated with SFSS resulting in hyperbilirubinemia, ascites, coagulopathy, and eventual graft failure. Survival rates below 50% have been reported with SFSS. Studies have shown a minimum graft-to-body weight ratio (GWBWR) of 0.8% to be a safe cutoff. Careful donor and recipient selection to avoid SFSS after LDLT is critical. The aim of our study was to evaluate the incidence of clinically significant SFSS resulting in graft failure following LDLT.

Methods: Review of our transplant database and patient records was performed. During the period from 1999-2008, 167 patients underwent LDLT using a right-lobe liver graft without the middle hepatic vein. Pre-operative CT based reconstructions were used to assess liver volumes, biliary and vascular anatomy. Our aim was to obtain a GBWR of 0.8%. Venous outflow reconstruction of significant middle hepatic vein tributaries from segments 5 and 8 was performed in 44/167 (26.3%) patients.

Results: Of the 167 patients, 11 patients had early (<30 day) graft loss from which 4 patients (2.4%) had a clinical picture consistent with SFSS. Etiology of liver disease in the SFSS group was alcohol (2), hepatitis C, and autoimmune. GBWR was less than 0.9% in 26/167 patients with 3 patients developing SFSS (11.5%).

Patient	Age	GWBWR	Outflow recon.	Seg 5/8 patent on US	GWBWR w/seg. outflow compromise	Graft survival(d)	Pt. survival(d)
1	26	0.76	5+8	Y	0.76	19	20
2	47	0.87	8	N	0.68	6	10
3	51	1.2	8	Y	1.2	20	20
4	37	0.69	5	N	0.51	25	164

Patient 3 received a living donor graft, which contained significant lipofuscin pigment in hepatocytes without evidence of steatosis or fibrosis. Patients 1, 2, and 4 underwent re-transplantation with a deceased donor liver. The GBWR of 167 patients who underwent LDLT was 1.2±0.33%. The mean actual GBWR of those with SFSS was 0.88% and the adjusted GBWR after segmental outflow compromise was 0.79%. Outflow compromise of the reconstructed segments was the likely contributing factor in graft failure in patients 2 and 4, comprising 4.5% (2/44) of patients who had segment 5 and/or 8 reconstruction.

Conclusion: Careful preoperative planning and aggressive outflow reconstruction of MHV tributaries can result in a low rate (2.4%) of SFSS resulting in graft loss following LDLT.

Abstract# P-439

REGIONAL COLLABORATION IN LIVER TRANSPLANTATION FOR FILIPINOS. Vanessa de Villa¹, Allan Concejero¹, Germana Gregorio¹, Janus Ong¹, Eternity Labio¹, Ramon Santos-Ocampo¹, Chao Long Chen², Chung Mau Lo³, Sheung Tat Fan³. ¹Center for Liver Disease Management and Transplantation, The Medical City, Pasig, Philippines; ²Chang Gung Memorial Hospital, Kaohsiung, Taiwan; ³Queen Mary Hospital, The University of Hong Kong, Hong Kong, China

Liver transplantation (LT) as a therapeutic option for ESLD has come of age in Asia. Several mature programs now exist in the region. While there is a demand for LT in the Philippines, there has not yet been a successful LT program in the country. Individual Filipino specialists with special links to various centers of excellence in LT in Asia have established collaboration with these centers in order to facilitate the treatment of Filipinos in need of liver replacement. This study aims to describe the experience of LT in Filipinos performed at 2 centers overseas. Over a 10-year period (1998-2008), 24 Filipinos underwent LT overseas, 18 in Taiwan and 6 in Hong Kong. In the majority of these patients, pretransplant evaluation was performed in the Philippines. Once ready, the patients travelled abroad for LDLT, each with a corresponding live directed donor. Once stable, they returned home where follow-up (FU) was continued by local specialists. There were 19 pediatric and 5 adult recipients aged 14 mos to 55 yrs. 18 of the children had biliary atresia. In the adults cirrhosis was due to HBV in 3, alcohol in 1 and cryptogenic in 1. 3 of the 24 patients had HCC. The donors included parents (n=14), close relatives (n=7), spouses (n=2) and a friend (n=1). 3 pediatric patients expired in the early postop period due to portal vein thrombosis, thrombotic thrombocytopenic purpura and pulmonary sepsis, respectively. One adult patient who had hyperacute rejection in the immediate posttransplant period expired 5 mos later due to recurrent rejection. The rest are alive to date with functioning grafts. The overall patient and graft survival is 83% at a median FU of 28 mos (range 0.5-126 mos). All donors are alive and well. The availability of transplant specialists in the home country has facilitated consultation, patient selection and evaluation, and has allowed continuity in posttransplant care. While this kind of collaboration in a highly demanding field is appreciated in a climate of globalization of health care, the cost, the cultural differences and the inconvenience of temporary relocation remain valid concerns. This experience highlights the need for the establishment of a local LT program in the Philippines.

Abstract# P-440

THE MINIMAL DONOR VOLUME FOR RIGHT LOBE LIVING-DONOR LIVER TRANSPLANTATION. Salvatore Gruttadauria, Fabrizio Di Francesco, James Wallis Marsh, Amadeo Marcos, Bruno Gridelli. *Istituto Mediterraneo Trapianti e Terapie ad Alta Specializzazione, University of Pittsburgh Medical Center Italy, Palermo, Italy*

Introduction: The majority of Western centers involved in adult-to-adult living-related liver transplantation (ALRLT) adopt the Body Surface Area (BSA) Vauthey formula to calculate liver volumes, including the Minimal Donor Volume for avoiding post-resection liver failure.

Materials and Methods: In our experience in 75 right hepatectomies (Couinaud segment 5-8) performed for ALRLT, in 21 (28%) cases we used the donor's right lobe, despite the fact that the Minimal Donor Volume according to the BSA Vauthey formula was higher than the real left lobe volume calculated by CT scan. The 75 donors, who were completely homogeneous for gender and age, were divided into two groups: A (Minimal Donor Volume according to BSA Vauthey formula) and B (Minimal Donor Volume below the cut-off in the BSA Vauthey formula). Total length of stay, surgical complications (stratified according to the most recent version of the Clavien classification of postoperative surgical complications) and trend of total bilirubin, international normalized ratio (INR) and transaminases (ALT/AST) in the serum, were analyzed.

Results: Of those 21 patients, the difference between the Minimal Donor Volume identified by the BSA Vauthey formula and the CT-scan-calculated left lobe volume ranged from 14.57 cm³ to 134.29 cm³ (median 64.33 cm³). The difference was below 50 cm³ in 8 patients, between 51 and 100 cm³ in 8 patients and above 101 cm³ in 5 patients. Comparing Group A with Group B we found no statistically significant difference in total length of stay (p = 0.635), or onset of surgical complications (occurring within ninety days of surgery) (p = 0.132).

A further analysis regarded the trend of total bilirubin in the serum, INR, and ALT/AST during the first post-operative week. Those liver function tests

showed no statistically significant difference in the two groups ($p > 0.05$), with the peak in post-operative day 3 and normalization in post-operative day 7. There was no mortality in either group.

Conclusions: Despite the fact that the BSA Vauthey formula has been validated in a meta-analysis as a precise and unbiased approach to estimating total liver volume, right lobe living-donation can be safely accomplished when the difference between the Minimal Donor Volume identified by the BSA Vauthey formula and the real remnant volume calculated by CT scan is below 150 cm³.

Abstract# P-441

ANALYSIS OF RIGHT HEPATECTOMIES IN THE NSQIP DATABASE DETERMINES BENCHMARK MORBIDITY AND MORTALITY RATES FOR LIVING RELATED LIVER TRANSPLANT DONORS. Thomas A. Aloia, Stephen L. Jones, Nadine Haykal, David Michel, Linda W. Moore, Andrea Duchini, Joseph Galati, Barbara L. Bass, Ahmed O. Gaber, R. M. Ghobrial. *Department of Surgery, The Methodist Hospital, Houston, TX, USA*

Background: In the US, acceptance of living related liver transplantation (LDLT) has been impeded by an inability to provide the public with donor risk benchmarks. The multi-institutional National Surgical Quality Improvement Program (NSQIP) provides a unique opportunity to identify preoperative risk factors and to establish objective morbidity and mortality rates for this procedure.

Methods: Examination of the 2005-2007 NSQIP Participant Use File identified 510 right hepatectomy procedures. To create a case-matched cohort similar to LDLT, analysis was limited to elective procedures in patients without recent chemotherapy, diabetes or coronary disease (Final N=388). For each case, 36 preoperative risk factors and 52 postoperative complications were assessed. Multivariate Cox proportional hazards models were used to identify factors independently associated with poor outcome.

Results: The median age of study patients was 49 years, with an equivalent sex distribution. The overall 30-day mortality rate was 2.3% (9/388) and the 30-day major morbidity (MM) rate was 24.5% (95/388). Multivariate analysis identified serum albumin <4.0 gm/dL and alkaline phosphatase >80 gm/dL as the only independent preoperative risk factors for death ($p < 0.01$). Risk factors associated with MM included serum bilirubin >1.2 gm/dL and WBC >10 ($p < 0.01$). For those patients who developed MM, the median length of stay was longer (10 vs 6 days, $p = 0.001$) and the mortality rate was higher (8.4% vs 0.3%, $p = 0.001$).

Conclusions: Analysis of the multi-institutional NSQIP experience indicates that the current mortality and major morbidity rate benchmarks for right hepatectomy are 2.3% and 24.5%, respectively. Poor outcomes were associated with nutritional status and abnormal liver laboratory values. These data should be utilized by LDLT programs to counsel potential donors on their individual risk profile and to assist with liver donor selection.

Abstract# P-442

A SINGLE INSTITUTION EXPERIENCE WITH LIVE DONOR LIVER TRANSPLANTATION FOR ACUTE-ON-CHRONIC HEPATITIS B LIVER FAILURE. Zheyu Chen, Tianfu Wen, Yong Zeng, Jichun Zhao, Lunan Yan. *Liver Transplantation Center and Hepato-Bilio-Pancreatology Department, West China Hospital, West China Medical School of Sichuan University, Chengdu, Sichuan, China*

BACKGROUND: The survival results of patients demonstrating acute-on-chronic liver failure and undergoing live-donor liver transplantation (LDLT) have been reported to be poor. This study reports the preliminary experience of LDLT for the patients of acute-on-chronic liver failure (AoCLF) caused by hepatitis B. **METHODS:** 47 patients who demonstrated acute-on-chronic hepatitis B liver failure with mean (+/- standard error of mean) Model for End-Stage Liver Disease scores of 39.2±5.1 were divided by the transplantation group (n=19) and the non-transplantation group (n=28) according to whether or not performing LDLT. At the same time, thirty hepatitis B cirrhosis recipients performed LDLT and not reach the criteria of acute-on-chronic liver failure were selected as the control group (n=30). In the transplantation group, veno-venous bypass, molecular adsorbent recirculating system (MARS) and continuous renal replacement therapy (CRRT) were introduced. The intraoperative data, post-transplant complications and mortality were analyzed retrospectively. **RESULTS:** There were no significant differences in survival rates of one month, six months and twelve months and the postoperative complications except for

pneumonia and diabetes between the control group and the transplantation group ($P > 0.05$). Recurrence of hepatitis B wasn't found in the recipients of the control group and the transplantation group.

CONCLUSION: If GRWR at least greater than 0.8%, right-lobe LDLT combined MARS, CRRT and veno-venous bypass is an effective therapeutic option for patients with acute-on-chronic hepatitis B liver failure.

Abstract# P-443

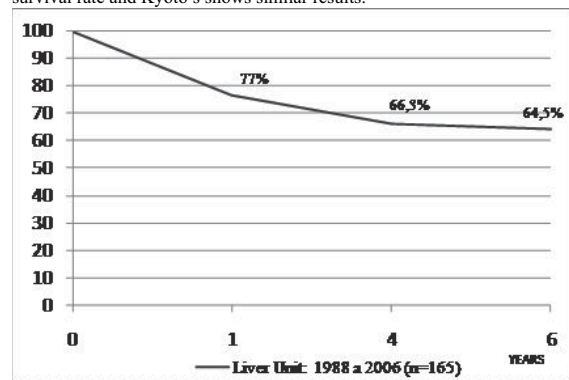
HUNDRED AND SIXTY SIX CASES OF LIVING-DONOR LIVER TRANSPLANTATION: SINGLE-CENTER EXPERIENCE IN BRAZIL. Thomson M. Palma, Rafael Pecora, Carlos E. S. Baia, Marilia I. Leonardi, Ana Suely C. N. Zan, Leonardo R. Ferraz, Osvaldo I. Pereira, Ana Olga N. G. F. Mies, Eloiza H. D. Quintela, Margareth P. Lalle, Fabricio G. Souza, Maira S. C. Santos, Leonardo Weissmann, Edna A. F. S. Pedro, Marcio M. Paredes, Sergio Mies. *Liver Unit, Instituto Dante Pazzanese de Cardiologia, Sao Paulo, SP, Brazil*

Introduction: São Paulo's Liver Unit is the oldest liver transplantation program in South America. From 1985 to June 30th, 2008 it accumulated a thousand and thirty (1030) transplants on nine hundred and thirteen (913) patients. From this total of transplants, eight hundred and twenty eight (828) were from deceased donors, hundred and sixty six (166) from living-donors (three children – left lobe) and thirty six (36) were domino transplants. Liver Unit was the first to describe living-donor liver transplant procedure in 1989 and today this procedure represents more than 15% of its casuistic.

Objective: Describe the survival rate of hundred and sixty five living-donor liver transplantations performed by Sao Paulo's Liver Unit.

Method: Data was collected from patient's files. Kaplan-Meier methods were used to estimate patient survival until June 30th, 2008. One patient was excluded by lack of data.

Results: Global survival rate of Liver Unit's living-donor transplant program at 1, 4 and 6 years was respectively 77%, 66.3% and 64.5% as showed below in the figure. Recently Marioka, D. et al published Kyoto's experience of 335 adult patients transplanted between 1994 and 2003 (Ann Surg., 245:315-25, 2007.). Survival rate in this casuistic at 1, 4 and 6 years was respectively 73.1%; 67.7% and 64.7%. The comparison between Sao Paulo's Liver Unit survival rate and Kyoto's shows similar results.



Conclusions: Liver Unit described the first living-donor liver transplantation in 1989. Its living-donor transplant program has good outcome with patient survival rate comparable with others centers in the world.

Abstract# P-444

IS RIGHT HEPATECTOMY FOR LIVER LIVING DONATION REALLY COMPARABLE TO RIGHT HEPATECTOMY FOR BENIGN LIVER LESIONS? Fédérica Dondéro¹, Guido Llido¹, Magaly Zappa², Valérie Vilgrain², Jacques Belghiti¹. *¹HBP Surgery, Beaujon Hospital, Clichy, France; ²Radiology, Beaujon Hospital, Clichy, France*

Introduction: Right hepatectomy (RH) for adult to adult living liver donation (LD) remains risky despite major progress in the last 10 years. In order to elucidate factors explaining this lower tolerance of a standardized procedure we prospectively studied the outcome of patients (pts) who underwent a RH for benign lesions (BL) in comparison with RH for LD.

Materials and methods: From 2001 we studied prospectively the pre- and post-operative data, including volumetric variations of 26 RH for BL. This group was matched with 26 LD which underwent a RH in the same period.

The two groups (BL vs LD) were similar for age (43 ± 11 vs 46 ± 11 years), sex and BMI (25 ± 4 vs 23 ± 3). All pts have the same pre- and post-operative assessment (preoperative CT scan with volumetric measurements and study of coagulation profile, biological tests every day until POD 7, including an abdominal CT scan on POD 7).

Results: The comparison of the two groups (BL vs LD) showed that operation duration was longer in LD group (320 ± 76 vs 382 ± 65 min) ($p=0.004$). The blood loss was similar (623 ± 260 vs 590 ± 350 mL). Postoperative biochemical data showed that total serum bilirubin was significantly higher in LD group in POD 2, 3, 5 and 8. Morbidity classified with the Clavien's system was similar in both groups 38% vs 42% $p=ns$. The mortality was nil. After subtraction of the tumor's volume (mean 421 ± 530 cc) in the BL group the total liver volume was similar in both groups (1438 ± 226 vs 1460 ± 318 cc) but the left remnant liver volume was higher in the BL group (650 ± 216 vs 455 ± 152 cc) ($p<0.001$) representing $35 \pm 7\%$ in BL group vs $31 \pm 7\%$ in LD group ($p=0.03$). The ratio remnant weight/body weight was higher in BL pts (1 ± 0.32 vs 0.7 ± 0.23) ($p<0.001$). At POD 7 the left remnant liver was similar in the two groups (947 vs 862 cc) demonstrating a regeneration rate of 57% in BL group as compared to 84% in LD group ($p=0.009$).

Conclusions: This study demonstrates that RH for LD is not comparable to the same procedure in pts with BL. The left liver which is smaller in LD group acquires the same volume at day 7 reflecting a higher process of regeneration. These results showing that in LD an important deprivation of liver volume restored by a significant and sudden regeneration in the first postoperative week may be the background promoting fatal complications.

Abstract# P-445

HOW IMPORTANT INTRAOPERATIVE CINE-PORTOGRAM IS? IN ORDER TO SUPPLY ADEQUATE PORTAL FLOW TO THE PARTIAL LIVER GRAFT IN ADULT-TO-ADULT LIVING DONOR LIVER TRANSPLANTATION. Deok-Bog Moon, Sung-Gyu Lee, Chul-Soo Ahn, Shin Hwang, Ki-Hun Kim, Tae-Yong Ha, Gi-Won Song, Dong-Hwan Jung, Kwan-Woo Kim, Nam-Kyu Choi, Gil-Chun Park, Joo-Dong Kim, Young-Dong Yu. *Hepato-Biliary Surgery and Liver Transplantation, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea*

(purpose) Adequate portal inflow is essential to the regeneration of a partial liver graft after adult living donor liver transplantation (LDLT). A recipient having large spontaneous portosystemic collaterals with or without portal vein (PV) stenosis would require surgical interruption of large collaterals and/or correction of PV stenosis to prevent postoperative "portal flow steal phenomenon". We began to utilize intraoperative cine-portogram (IOCP) to reveal the anatomy including portal vein stenosis and large portosystemic routes, and then monitoring the treatment process. **(Methods)** We made it a rule to perform IOCP as followings, when portal inflow was insufficient regardless of collateral ligation, or complete collateral interruption was doubtful even though portal inflow was gone on IOUS, or persistent portal vein stenosis after surgical correction interfered portal inflow. For IOCP, the inferior mesenteric vein was isolated just lateral to the Treitz ligament and the Cobra catheter was punctured after ligation of its distal side. When the inferior mesenteric vein was not available, an ileocolic or jejunal branch of the superior mesenteric vein was isolated. **(Results)** From January 2007 to December 2007, 286 LDLT were performed and IOCP was held in 41 patients. Sex consisted of 34 male and 7 female, and the age was 53 ± 6.6 years. In 19 (46%) patients, coil embolization was performed for remaining collaterals after surgical ligation. In 14 (34.1%) patients, PV stent placement was performed because of remaining stenosis of intrapancreatic PV despite PV plasty with recipient's saphenous vein. In 8 (19.5%) patients, IOCP only was performed without any procedures because collateral vessel was already completely interrupted and/or PV stenosis was relieved after PV plasty. Even though PVs were stenotic and complicated collaterals were present in 41 patients, there was no in-hospital mortality and no portal flow steal related liver dysfunction. **(Conclusions)** IOCP is very useful tool to change complicated liver transplantation to simple and easy, and secure good regeneration of partial liver graft by supplying of adequate portal inflow.

Abstract# P-446

LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA WITH TUMORS DIAGNOSED BEFORE TRANSPLANTATION SHOWS BETTER IN SURVIVAL AND LOWER TUMOR RECURRENCE OVER THE YEARS. Nicholas Onaca, Gary L. Davis, Linda W. Jennings, Robert M. Goldstein, Goran B. Klintmalm. *Transplant Services, Baylor Regional Transplant Institute, Dallas, TX, USA*

Improved patient survival after liver transplantation (LTX) for hepatocellular carcinoma (HCC) made LTX a legitimate treatment of the disease. We analyzed trends of LTX for HCC with tumors known before transplantation in 902 patients in a large international registry, across 3 periods: 1983-1990, 1991-1996, and 1997-2005. Patient survival improved gradually across eras, with 5-year survivals of 25.3%, 44.4%, and 67.8%, respectively ($p<0.0001$), and 5-year tumor recurrence rate declined from 59% to 41.3% and 15%, respectively ($p<0.0001$). The number of HCC nodules and tumor size decreased over time and there were fewer moderately or poorly differentiated tumors. Tumors > 5 cm decreased from 54.5% to 31.7% and 11.7%, respectively ($p<0.0001$), and LTX with 4 nodules decreased from 38.9% to 23.5% and 15.1%, respectively ($p=0.0044$). Poorly differentiated tumors decreased from 37.2% to 31.8% and 20.3%, respectively ($p=0.0005$). Tumor microvascular invasion remained at 21.2-23.8% despite changes in patient selection over time ($p=0.7124$). Stepwise Cox regression analysis ($n=502$) showed significant risk for tumor recurrence and patient survival for transplants before 1997 [hazard ratio (HR) 1.82 and 1.88, respectively], tumor size > 6 cm (HR 2.09 and 1.76), microvascular invasion (HR 1.75 and 1.69, respectively), and AFP > 200 (HR 2.45 and 2.32, respectively).

Conclusions: Outcome after liver transplantation for HCC has improved continuously over the past twenty years. Improved perioperative care and better patient selection may partially explain the improved outcome after LTX for HCC.

Abstract# P-447

LONG-TERM OUTCOME OF PATIENTS WHO UNDERWENT LIVER TRANSPLANTATION (LT) FOR HCC WITH A PREVIOUS LIVER RESECTION (LR). Gonzalo Sapisochin¹, Dopazo Cristina¹, Amaia Gantxegi¹, Mireia Caralt¹, Laia Blanco¹, Jose Luis Lazaro¹, Itxarone Bilbao¹, Luis Castells², Helena Allende³, Joaquin Balsells¹, Ramon Charco¹. ¹HBP and Transplant Department, Hospital Universitario Vall d'Hebron, Barcelona, Spain; ²Hepatology Department, Hospital Universitario Vall d'Hebron, Barcelona, Spain; ³Pathology Department, Hospital Universitario Vall d'Hebron, Barcelona, Spain

INTRODUCTION

LT is a treatment option for cirrhotic patients with HCC recurrence after previous LR. There are controversial studies regarding the outcome of these patients and which patients should be transplanted.

AIM

To ascertain the outcome of patients transplanted due to HCC who underwent a partial LR for previous HCC.

MATERIAL AND METHODS

Cirrhotic patients who underwent LT for HCC recurrence, with a previous LR, composed the study group. A case-control study was designed comparing (1:2) these patients with patients who underwent primary LT for HCC, without a previous LR, transplanted before and after each patient of the study group (control group). All data were prospectively collected and retrospectively analysed. Median follow-up was 70 months (r: 12.7-203).

RESULTS

From 1990-2007, 208 cirrhotic patients with HCC underwent LT in our Department. Seventeen formed the study group and 34 of 191 with primary HCC the control group.

No differences were found between groups at the time of LT regarding demographics, operative and pathological data, hospital stay, postoperative mortality and morbidity. However, overall recurrence was higher in study group vs control group (29% vs 12%, respectively, $p=ns$). One, 3 and 5-year actuarial patient survival in the study group vs control group was 59, 52, 52% and 85, 76, 65%, respectively, $p=ns$. Disease-free survival at 1, 3 and 5-year in the study group vs control group were 86%, 68%, 8% and 97%, 93%, 89%, respectively $p<0.04$. Patients of the study group were divided in two groups according to the time to recurrence after the first LR (Group 1, patients who recurred during the first year; group 2, patients who recurred after the first year). Recurrence after LT was 75% in group 1 vs 15.4% in group 2, $p<0.03$. One, 3 and 5-year actuarial patient survival was 25%, 0%, 0% in group 1 and 69, 69, 69% in group 2, $p<0.02$.

CONCLUSIONS

LT in patients with a previous LR has an acceptable outcome compared with LT in patients with primary HCC. However, LT should not be applied in patients whose HCC recurrence appears during the first year after LR due to a poor survival achieved after LT.

Abstract# P-448

HEPATOCELLULAR CARCINOMA ON CIRRHOSIS: LIVER RESECTION, LIVER TRANSPLANTATION OR BOTH SURGICAL TREATMENTS? AN INTENTION TO TREAT ANALYSIS. Massimo Del Gaudio, Giorgio Ercolani, Matteo Ravaioli, Matteo Cescon, Augusto Lauro, Marco Vivarelli, Alessandro Cucchetti, Matteo Zanello, Gaetano Vetrone, Chiara Zanfi, Alessandro Dazzi, Francesco Tuci, Cristina Morelli, Gian Luca Grazi, Antonio Daniele Pinna. *Liver and Multiorgan Transplantation Unit, University of Bologna - S. Orsola-Malpighi Hospital, Bologna, Italy, Italy*

Background: The management of patients with cirrhosis and early hepatocellular carcinoma (HCC) meeting the Milan criteria is controversial.

Methods: From January 1996 to November 2008, 360 consecutive patients with transplantable hepatocellular carcinoma (HCC) according to Milan criteria were treated by liver resection (LR)(n = 128) or liver transplantation (LT) (n = 232 of 426 listed for LT) at our institution.

Results: Among 128 patients eligible for transplantation who underwent LR, 51 (40%) developed HCC recurrence and 38/51 (74%) of these patients presented HCC recurrence into Milan criteria. Only 18 of the 51 patients underwent LT as salvage procedure, with a transplantation rate of 35% of patients with HCC recurrence.

According to intention-to-treat analysis of transplantable HCC patients who underwent LR (n = 128), compared to all those listed for transplantation (n = 426), 5-year overall survival was 71% in the LR group versus 62% in patients listed for LT, respectively (p = NS); 5-year disease-free survival was 41% in the LR group versus 54% in patients listed for LT (p = NS).

Among 18 patients with HCC recurrence after LR, the median time from resection to transplantation was 2.1 years (0.8–5.5).

Comparable 5-year overall (62% vs. 73%, p = NS) and disease-free (48% vs. 71%, p = NS) survival rates were obtained for salvage LT and primary LT for HCC, respectively. The mean time on the waiting list was similar (5.5 ± 6.4 vs. 8.2 ± 6.5 months) in the primary and salvage LT groups, respectively.

Operative mortality was 0% versus 5% in the salvage and primary LT groups, respectively (p = NS).

Conclusion: Resection should not be viewed as opposing transplantation. Rather, hepatic resection should be seen as complementary to transplantation. The best therapeutic strategies for patients with early HCC and well-compensated cirrhosis should be selectively perform resection as first-line therapy followed by salvage transplantation. Such a strategy spares the use of liver grafts, avoids potential problems with prolonged waiting times, and provides the patient with rapid access to an effective therapy.

Abstract# P-449

100 PATIENTS WITH LIVER TRANSPLANTATION FOR HCC PRETREATED BY SEQUENTIAL TACE: IMPACT OF TUMOR CHARACTERISTICS ON RECURRENCE. Gerd Otto¹, Fernandes Bittinger², Maria Hoppe-Lotichius¹, Michael Heise¹, Michael Pitton³. *¹Transplantation and Hepatobiliarypancreatic Surgery, University of Mainz, Mainz, Germany; ²Institute of Pathology, University of Mainz, Mainz, Germany; ³Institute of Diagnostic and Interventional Radiology, University of Mainz, Mainz, Germany*

We have introduced a novel protocol to pre-treat patients suffering from hepatocellular carcinoma (HCC) by repeatedly performed transarterial chemoembolization (TACE) before liver transplantation (LT). The protocol has been approved by the local ethics committee. We report on the first 100 patients undergoing LT after inclusion into this protocol focussing on changes in prognostic parameters after TACE.

Patients and Methods: One-hundred-seventy-eight patients with HCC younger than 71 years of age were included into the protocol and sequential TACE using lipiodol and mitomycin was repeatedly performed every 6 weeks. Patients with macrovascular involvement but not patients exceeding the Milan Criteria (MC) were excluded from the protocol. Patients with initial response to TACE (n=100) were selected for LT.

Results: Five (median; range 2-14) TACE sessions were performed before

LT. Five-year survival of the 100 patients undergoing LT was 64%. Twenty-six patients died, 11 from and 15 without recurrence. Eight patients are presently alive with recurrence (total 19 recurrences). According to the CT scan before TACE, 41 and 59 patients were meeting and exceeding the MC, respectively. According to the surgical specimen the respective numbers were 57 and 43 (34 patients changed the Milan category). Neither the initial nor the MC in the specimen did impact the recurrence rate (P=0.306 and 0.218, respectively). In the univariate analysis the following tumor characteristics significantly influenced tumor recurrence: number of nodules, grading, micro-angioinvasion, and persisting stable (or regressive) disease during TACE. Recurrence was not correlated to VEGF or angiopoietin but to AFP. In the Cox model only tumor progress during TACE and AFP proved significant (P=0.011; RR=3.34 and P=0.017; RR=3.13, respectively).

Conclusion: MC, aside from being unreliably assessed by radiologic imaging, do not influence recurrence of HCC in patients pre-treated by sequential TACE. Most predictors for tumor recurrence, such as tumor size, number of nodules, grading and angioinvasion, lose their importance while biological factors (high AFP and first of all tumor instability during TACE) impact recurrence rate.

Abstract# P-450

DE NOVO SOLID ORGAN MALIGNANCY AFTER LIVER TRANSPLANTATION. Gazi B. Zibari, Hany M. Dabbous, Robert MacMillan, Hosein Shokouh-Amiri. *Transplant Surgery, Willis-Knighton/Louisiana State University Health Sciences Center, Shreveport, LA, USA*

Introduction: De Novo Malignancies in immunosuppressed patients is one of the most serious complications after Liver Transplantation. Skin cancers, Kaposi sarcoma, different solid organ malignancies and Post Transplant Lymphoproliferative disorder (PTLD) have been reported in Transplant recipients. Oncogenic activation due to infectious agents, alcohol consumption, acute rejection episodes, type and dose of immunosuppressive drugs as well as history of malignancy in the donor are all possible risk factors.

Aim of the study: to determine the types of De Novo Solid Organ Malignancies in Post Liver Transplant recipients as well as possible risk factors. Patients and methods: A retrospective, IRB approved, chart review of all OLTs at a single center from July 1991 to March 2008 was performed. 291 OLT were done for 268 patients. Patients who developed PTLD as well as those that were transplanted for HCC or proved to have HCC in the pathology after transplant were excluded from the study. Donor and recipient age, sex, race, CMV status, blood group as well as indication for transplantation, type of immunosuppressive therapy and acute rejection episodes were determined as well as type of the tumor that occurred after transplant and time of occurrence.

Results: Nine (3.35%) patients developed de novo solid organ malignancy after liver transplantation.

SERIAL	AETIOLOGY OF LIVER DISEASE	TYPE OF MALIGNANCY	TIME OF OCCURENCE/ YEARS
1	ETOH	ANGIOSARCOMA OF THE LIVER	13
2	ETOH	METASTATIC LUNG CANCER	7
3	HCV	HCC	5
4	ETOH	METASTATIC ADENOCARCINOMA IN LUNG UNKNOWN PRIMARY	4
5	CRYPTOGENIC	SMALL NON CLEAVED HIGH GRADE NHL	3
6	PSC,UC	RECTAL CANCER	5
7	HCV	METASTATIC LUNG CANCER,SQUAMOUS CELL CARCINOMA OF RIGHT PIRIFORM SINUS	7
8	CRYPTOGENIC	GASTRIC LYMPHOMA	3
9	HCV,ETOH	LUNG CANCER	3

All of them received cyclosporine and steroids, 3 mycophenolate mofetil and 2 azathioprine as immunosuppressive therapy. Two of them had CMV infection,one had parvovirus and one had recurrent HCV. All of them died despite functioning graft.

Conclusion: De novo solid organ malignancy can occur in liver transplant recipient without prior history of malignancy leading to patient mortality despite functioning graft. Suspected risk factors are still not identified.

Abstract# P-451

HEPATOCELLULAR CARCINOMA (HCC) IN A 9-MONTH-OLD GIRL WITH BILIARY ATRESIA. Vincenzo Pugliese^{1,2}, Katia C. Leite¹, Eduardo Carone^{1,2}, Eduardo A. Fonseca^{1,2}, João Seda-Neto^{1,2}, Gilda Porta^{1,2}, Renata P. S. Pugliese^{1,2}, Paulo Chapchap^{1,2}. ¹Liver Transplant Unit, Hospital Sirio Libanês, São Paulo, Brazil; ²Liver Transplant Unit, Hospital do Cancer, São Paulo, Brazil

We present a case of a 9-month-old girl with biliary atresia referred to our institution because of persistent jaundice and hepatosplenomegaly. She was treated with a living donor liver transplant. (PELD:15). Her native liver showed a cholestatic cirrhosis and a 7 mm yellowish tumor was incidentally found in a sub-capsular area. The histological study confirmed the diagnosis of hepatocellular carcinoma (HCC). The postoperative course was uneventful and she is well without evidence of recurrence 3 months after the transplant. The occurrence of HCC is extremely rare in children under 1-year old, nonetheless pathologists, pediatricians and surgeons should be alert to this complication in the course of biliary atresia.

Abstract# P-452

DIFFERENCES BETWEEN CLINICAL AND PATHOLOGICAL EVALUATIONS OF HCC TUMOR LOAD DO NOT IMPACT ON 5-YEAR DISEASE-FREE SURVIVAL AFTER LIVER TRANSPLANTATION. Otmame Nafidi¹, Denis Marleau¹, André Roy², Marc Bilodeau¹. ¹Medicine, CHUM, Montréal, QC, Canada; ²Surgery, CHUM, Montréal, QC, Canada

Orthotopic Liver transplantation (OLT) is now recognized as the treatment of choice for many patients with hepatocellular carcinoma (HCC). This study was designed to review our experience in that setting. **Materials and methods:** Data of 147 patients with histologically-proven HCC transplanted between 1990 and 2008 were retrospectively analyzed. Variables associated with 5-year survival were evaluated using the Cox Proportional-hazards regression model. **Results:** Of the 147 HCC-patients, 34 were women and 113 men. All patients with known pre-transplant HCC fulfilled preoperative Milan criteria except 1 with fibrolamellar HCC. Pathological examination confirmed the diagnosis of HCC in 67 patients who were already suspected as having HCC before OLT and showed 80 unsuspected HCC. According to pathological criteria, 108/147 HCC patients fulfilled Milan criteria, 126/147 patients fulfilled UCSF criteria and 139/147 had a total tumoral volume (TTV) $\leq 115\text{cm}^3$. The proportion of patients who were within Milan criteria was identical between suspected and unsuspected cases (73%). The mean follow-up time was 53 $\pm$ 4 months. Overall and disease-free 5-year survivals were 71.4% and 70.1% respectively. Disease-free 5-year survival was 74.6% in patients with suspected HCC and 66.2% in unsuspected cases (p=0.384). Disease-free 5-year survival was 70.4% in patients fulfilling Milan criteria (n=108) and 69.2% in those who were found to be outside Milan (n=39) (p=0.939). Eighteen patients (12.2%) had evidence of tumor recurrence with a mean delay of 30 $\pm$ 8 months. Survival was only 8.8 $\pm$ 2.0 months after recurrence. Time to recurrence was longer in pT1 than pT2 (p=0.071), in stage I than stage II (p=0.04) but not different between patients within and outside Milan. Time to recurrence was also not significantly different between suspected and unsuspected cases. Preoperative alpha-fetoprotein levels and history of pre-transplant neoadjuvant therapy had no impact on 5-year survival (p=0.95 and 0.28 respectively). **Conclusion:** Patients who are listed within Milan criteria and who are found, on pathological examination, to have intra- and extra-Milan disease do not have different 5-year disease-free survival. The group of patients who are diagnosed with HCC only at the time of the examination of the explant also have a similar prognosis to those who were known to have HCC before transplantation.

Abstract# P-453

RADIOFREQUENCY ABLATION PRIOR TO LIVER TRANSPLANTATION: FEASIBILITY OF A NOVEL BIPOLAR DEVICE. Robert M. Eisele, Julia Zhukowa, Sascha S. Chopra, Sven C. Schmidt, Peter Neuhaus, Guido Schumacher. General, Visceral & Transplantation Surgery, Charité Virchow-Clinic, Berlin, Germany

Purpose: Radiofrequency ablation (RFA) is now an established tool for treating hepatocellular carcinoma (HCC) prior to liver transplantation. Monopolar RFA is currently the accepted standard. However, the variability

of the ablation shape and size impedes their further advancement and leads to local recurrence rates exceeding occasionally 50%. We were interested in the evaluation of a new bipolar device for technical feasibility.

Patients and Methods: We have treated five patients with HCC with a total of six tumors using a new bipolar RFA device consisting of two separate needles each with deployable electrodes. The treatment approaches included two percutaneous, three laparoscopic, and one open surgical. Average tumor size was 2.5 cm. Follow-up examinations were performed at intervals of 3 months and included computed tomography, 18FDG-PET, magnetic resonance imaging and B-mode ultrasound.

Results: All tumors could be ablated successfully. Electrode placement was accurate and visualization in transabdominal, laparoscopic or intraoperative ultrasound was excellent. Because of the requirement of positioning two needles simultaneously, particularly in the laparoscopic RFA, the procedures were more time-consuming (average 104 min.) than placing a single needle. Local tumor control after a follow-up of 6 months was 100%. No major complication occurred.

Conclusion: Successful ablation of HCC using the new bipolar device is feasible without complications. The procedure is technically demanding, however local tumor control seems to be superior as compared to other RFA devices. If bipolar RFA is a valuable tool in the pre-treatment of HCC patients, who are liver transplant candidates, remains to be evaluated.

Abstract# P-454

RECURRENT HEPATOCELLULAR CARCINOMA IN LIVER TRANSPLANT RECIPIENTS WITH HEPATITIS C. Ivan Zendejas, Shugo Mizuno, Alan W. Hemming, Robin D. Kim. Transplantation Surgery, University of Florida College of Medicine, Gainesville, FL, USA

Hepatitis C (HCV) is the most common cause of liver disease in patients transplanted with hepatocellular carcinoma (HCC) in the West. As HCC recurrence decreases recipient survival, we examined the potential predictors of recurrence in liver transplant recipients with HCV.

METHODS: From September 1997 to June 2006, 53 patients with HCC and HCV underwent liver transplantation (LT). Data regarding demographics, liver disease, operative details, HCC and HCV, and HCV recurrence (including protocol liver biopsies 4 months post-transplant) were collected. Differences in these data between HCC recurrence and non-recurrence groups were detected by student's t test or chi square test. These data were also analyzed as potential risk factors for HCC recurrence by logistic regression multivariate analysis. Log rank test of Kaplan-Meier curves detected differences in overall survival between HCC recurrence and non-recurrence groups.

RESULTS: The average age was 55.2 years (41.5 to 77.9 years), 8 were female (15.1%), and the median calculated MELD score was 14 (7 to 21). Eleven of 53 patients (20.8%) developed HCC recurrence at a median interval of 15 months (2 to 55 months). Median Knodell Histology Activity Index (HAI) (4 versus 2, p=0.0049), AST (146.7 versus 82.1, p=0.045) and ALT (202.5 versus 104.5, p=0.034) at 4 months were significantly greater in patients with versus without HCC recurrence. Predictors of HCC recurrence were post-transplant HAI of 4 or greater at 4 months (p=0.029), ALT ≥ 100 at 4 months (p=0.039), and vascular invasion in the explanted liver (p=0.036). During a mean follow-up of 39.5 months (4.3 to 103.7 months), 15 patients died. Patients with HCC recurrence had significantly decreased survival versus those without recurrence (3 and 5 years survival of 83% and 83% versus 50% and 13%, respectively (p<0.0001).

CONCLUSION: HAI of 4 or greater and ALT of 100 or greater at 4 months, and the presence of vascular invasion in the explanted liver predict HCC recurrence in transplant recipients with HCV and HCC. HCC recurrence decreases survival. These data suggest a role for surveillance and treatment of HCV following liver transplantation as adjuvant treatment for HCC.

Abstract# P-455

PROGNOSTIC FACTORS AFFECTING SURVIVAL AFTER RECURRENT IN PATIENTS WHO UNDERWENT LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA. Woo Young Shin, Kyung-Suk Suh, Joohyun Kim, Tae Hoon Kim, Nam-Joon Yi, Jai Young Cho, Kuhn Uk Lee. Surgery, Seoul National University College of Medicine, Seoul, Korea

BACKGROUND Liver transplantation is regarded as good treatment for early hepatocellular carcinoma (HCC). However, some patients experience recurrence and show rapid progression of disease. In present study, we

investigated prognostic factors affecting survival after recurrence in patients who underwent liver transplantation for HCC.

METHODS From October 1992 to December 2005, 105 patients underwent liver transplantation for HCC. Among these 23 (21.9%) recurrent patients were retrospectively reviewed. Mean age was 54.6 years. There were 18 men and 5 women. All patients had past history of hepatitis B virus infection. There were 4 deceased donor liver transplantations and 19 living donor liver transplantations. Univariate and multivariate analyses were performed to analyze factors affecting survival after recurrence.

RESULTS Mean recurrence time was 8.9 months. Mean survival time after recurrence was 13.1 months and 1- and 3-year survival rates after recurrence were 43.5% and 7.2% respectively. Initially, 4 patients showed multi-organ involvement, however in the follow up 18 patients had multi-organ involvement. On univariate analysis, preoperative AFP > 400ng/ml, maximal size of tumor > 5cm, beyond pathologic UCSF criteria, major vessel invasion, Edmondson-Steiner grade III and IV, 6th AJCC T3 and T4, recurrence within 4 postoperative months, AFP > 400ng/ml at recurrence, and extrahepatic recurrences were related with shorter survival after recurrence. On Multivariate analysis, recurrence within 4 postoperative months (HR=18.3, p=0.004), Edmondson-Steiner grade III and IV (HR=8.4, p=0.001) and preoperative AFP > 400ng/ml (HR=3.5, p=0.025) were identified on independent prognostic factors of survival after recurrence. **CONCLUSION** After transplantation, recurrent HCC has a tendency to involve multi-organs, and prognosis is very poor. Hence, adjuvant treatment may be considered in patients with preoperative AFP > 400ng/ml and/or high grade tumor.

Abstract# P-456

PRIMARY VERSUS SALVAGE LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA WITHIN MILAN CRITERIA – A SINGLE CENTER EXPERIENCE. Kelvin K. Ng, Chung-Mau Lo, Sheung-Tat Fan. *Department of Surgery, The University of Hong Kong, Hong Kong, Hong Kong*

Background: Under the pressure of the shortage of deceased liver graft, the application of primary liver transplant (PLT) for hepatocellular carcinoma (HCC) within Milan criteria is limited. The approach of primary hepatic resection and salvage liver transplant (SLT) for intrahepatic recurrence is then increasingly adopted. However, the comparison of survival outcome between PLT and SLT for HCC is controversial in the literature.

Aim of study: To compare the long-term survival outcome between PLT and SLT for HCC within Milan criteria

Patients and methods: From July 1995 to December 2007, a total of 75 patients who underwent liver transplant for HCC within Milan criteria were retrospectively analyzed. There were 67 patients receiving PLT (Group 1) and 8 patients receiving SLT after primary hepatic resection for recurrence (Group 2). Clinicopathologic characteristics, perioperative outcome and long-term survival were compared between the two groups.

Results: Patients in group 2 had better liver function in terms of lower Child-Pugh score and MELD score than those in group 1. There was higher proportion of patients receiving living donor liver transplant in group 2 (7 of 8 patients; 87.5%) than group 1 (50 of 67 patients; 74.6%). Waiting time was shorter and graft weight to standard liver weight ratio was lower in group 2 than group 1. Other clinicopathologic characteristics were comparable between the two groups. There were no significant differences between group 1 and 2 in morbidity rate (81 % vs. 75%) and mortality (15% vs. 13%). With median follow-up period of 36 months (range 4 – 120 months), the overall recurrence-free survival was significantly worse in group 2 than group 1 (1-year: 87.5% vs. 92.5%; 3-year: 72.9% vs. 86.1%; 5-year: 36.4% vs. 81.5%).

Conclusion: Despite strict selection criteria based on tumor size and number, patients who underwent SLT had significantly worse recurrence-free survival than those receiving PLT for HCC.

Abstract# P-457

LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA: INCIDENTAL VERSUS NO TUMOR.

Burckhardt Ringe, Gary Xiao, David Sass, Sherry Shang, Timothy Maroney, Alexander Trebelev, David Reich, Kenneth Rothstein. *Center for Liver, Biliary and Pancreas Disease, Drexel University College of Medicine, Philadelphia, PA, USA*

Liver transplantation (LTx) is the treatment of choice for cirrhotic patients with hepatocellular carcinoma (HCC) in TNM stages I and II (Vauthey 2007). Since patient selection is primarily based on imaging, it is limited

by underestimation of the tumor stage in 27 % (Mazzaferro 1996). This is a retrospective analysis to review the accuracy of our own transplant evaluation.

19 patients (age 31-70 years) had LTx for HCC or showed tumor on the liver explant. Etiology of cirrhosis was: HCV infection and alcohol in 8, HCV in 5, alcohol in 3, HBV infection in 2, and cryptogenic in 1 patient. Evaluation included sonography, contrast enhanced computed tomography and magnetic resonance imaging. 13/19 patients were transplanted for HCC (group I), with hypervascular lesions on imaging/elevated alpha fetoprotein in 10, and positive histology in 3 cases. 9 patients had pre-transplant transarterial chemoembolization, radiofrequency ablation or liver resection. 6/13 had stage I/II HCC, and 7/13 showed no/necrotic lesions in their explants. 6/19 recipients had incidental HCC not diagnosed before LTx (group II), with pTNM stages I/II. Median MELD scores in group I were 24 as compared to 29 in group II. Median waiting times were 171 days in group I and 126 days in group II. 4/19 patients have died from non-tumor related causes including HCV recurrence. 15/19 patients have a tumor-free survival with a median follow up of 54 months.

The results of this small series raise a number of questions. 32 % false-negative (6/19 incidental HCC) and 36 % false-positive (7/19 no tumor) findings on liver explants are certainly higher than expected. One may question the quality of our transplant evaluation, however, all studies were reviewed by multiple specialists. No tumor identified on pathology was beyond accepted transplant criteria probably accounting for the good outcome. These data also emphasize that our current selection criteria for LTx in HCC are not ideal. Since survival is closely related to pathologic tumor stage, imaging is not enough to predict the individual prognosis. In light of an increasing number of patients in need of LTx for HCC, it is time to reconsider current selection and allocation algorithms, and include biologic criteria, e.g. response to locoregional treatment as suggested before (Majno 1997).

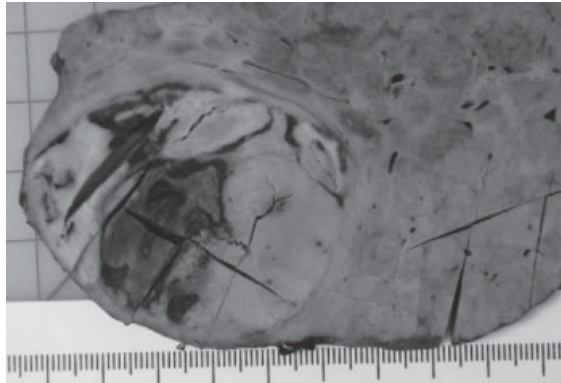
Abstract# P-458

THE USE OF YTTRIUM⁹⁰ MICROSPHERE RADIOEMBOLIZATION OF HEPATOCELLULAR CARCINOMA AS DOWNSTAGING BRIDGE FOR LIVER TRANSPLANTATION: CASE REPORT. Hatem Khalaf¹,

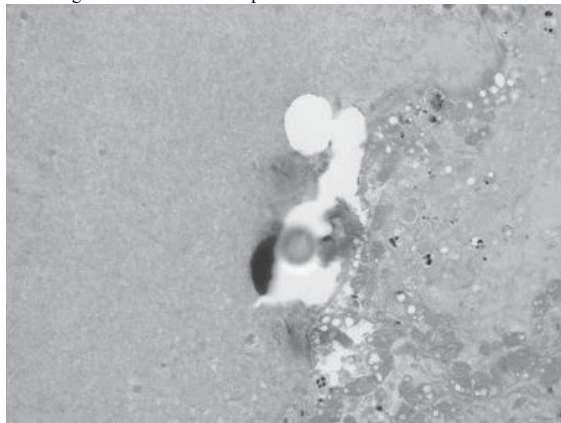
Hamad Al-Suhaibani², Abdulaziz Al-Sugair², Hadeel Almana³, Abdulmonem Almutawa³, Mohammed Al-Sebayel¹. ¹*Department of Liver Transplantation & Hepatobiliary-Pancreatic Surgery, King Faisal Specialist Hospital & Research Center, Riyadh, Saudi Arabia;* ²*Department of Radiology, King Faisal Specialist Hospital & Research Center;* ³*Department of Pathology, King Faisal Specialist Hospital & Research Center*

Background: Yttrium-90 microspheres radioembolization (Y90-RE) has been recently introduced as promising modality of treatment in patients with hepatocellular carcinoma (HCC) who are not otherwise candidates for local ablation, surgical resection nor liver transplantation (LT). However, its use in downstaging HCC or as a bridge for liver transplantation is still unclear. Herein we present one case where Y90-RE was used for both downstaging and as a bridge for LT.

Case Report: We report a 54 yr old lady who was known to have hepatitis C virus cirrhosis in addition to two hepatic focal lesions in liver segments 5 and 8, measuring 1.5 and 6.5 cm respectively. Extrahepatic spread was aggressively ruled-out. It was clear that this tumor was beyond both Milans's and UCSF criteria for LT in HCC patients, however, we offered the patients Y90-RE in attempt to downstage the tumor and as a bridge for LT. Y90-RE was performed targeting the large lesion and the patient underwent cadaveric LT two months thereafter. Gross examination of the explant showed necrotic tumor with obvious signs of irradiation-induced damage.



Microscopic examination of the explant showed Y90 microspheres trapped in the large tumor with near-complete tumor necrosis.



This patient completed one year post-LT follow-up with no signs of tumor recurrence.

Conclusions: The use Y90-RE in HCC might be useful in downstaging or as a bridge for LT.

Abstract# P-459

LIVER RESECTION VERSUS LIVER TRANSPLANTATION AS TREATMENT OF EARLY HEPATOCELLULAR CARCINOMA: A CASE-CONTROL STUDY. Roberto Montalti, Valentina Serra, Gianluca Rompianesi, Fabrizio Di Benedetto, Nicola De Ruvo, Michele Masetti, Nicola Cautero, Roberto Ballarin, Rosa M. Iemmolo, Gian Piero Guerrini, Giorgio E. Gerunda. *Liver and Multivisceral Transplantation, Azienda Ospedaliero-Universitaria di Modena - Policlinico, Modena, Italy*

Background and aim. The choice of the best surgical strategy for early hepatocellular carcinoma (HCC) on well-compensated cirrhosis is still controversial. In several series, 5-years patient survival after liver resection (LR) and after Liver Transplantation (LT) is similar, but all studies are based on retrospective comparisons of cohorts of heterogeneous patients in pre-surgical characteristics. We designed a retrospective, 1:1 ratio case-controlled study between patients affected by HCC on well compensated cirrhosis undergoing LT vs LR. Aim of the study is to evaluate morbidity, mortality, patient survival and disease-free survival (DFS) of the two considered groups.

Materials and Methods. Since 10-2000 to 01-2008 in our transplant centre, 129 LT and 105 LR were performed for histological confirmed HCC. Thirty-five liver transplant recipients (Transplant Group, TG), without a previous liver resection, were paired with 35 patients that underwent a liver resection (Resection Group, RG), not afterwards been transplanted, matched by: MELD ≤ 15 , HCC fulfilling Milan criteria, gender, age, surgical year and liver disease etiology (HBV/HCV/alcoholic). DFS events were defined as HCC recurrence or end-stage liver failure due to primary indication recurrence.

Results. Overall patients average follow-up was 52 months. The overall patient survival at 1, 3, 5 yrs was, respectively, 82.4%, 71.7% and 71.7% in TG vs 94.3%, 65.6% and 22.0% in RG ($p=0.014$). The DFS at the same time points was 96.7%, 83.9% and 83.9% in TG vs 65.7%, 32.4% and 9.2% in

RG ($p=0.000$). Morbidity in terms of: infections, renal impairment, and also the complications occurring exclusively following LT, resulted statistically higher in TG. HCC recurrence occurred in 5.7% of patients of TG vs 60% of patients of RG.

Discussion. In patients with HCC within Milan criteria on well compensated cirrhosis, LT and LR during early and middle term follow-up allow to obtain similar results in terms of patient survival and DFS, whereas in the long term the advantage of LT is manifest.

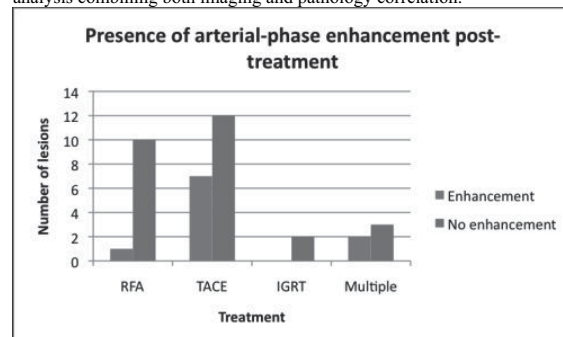
Abstract# P-460

EFFICACY OF VARIOUS INTERVENTION MODALITIES ON HEPATOCELLULAR CARCINOMA. Gene M. Weinstein, Raffi Karagozian, Hannah Lee, Lawton Shick, Kathy Theal, Richard Freeman. *Division of Transplantation, Tufts Medical Center, Boston, MA, USA*

Objective: Hepatocellular carcinoma (HCC) patients on the wait list for liver transplantation (LT) often undergo loco-regional ablative treatments (ATs). We compared the efficacy of transcatheter arterial chemoembolization (TACE), radiofrequency ablation (RFA), and image-guided radiation therapy (IGRT) as measured by the size/viability of the tumor post treatment, extent of necrosis on explant pathology, and the long-term survival of LT recipients. **Methods:** 56 patients were diagnosed with HCC between 1/02 and 6/08, of which 35 received LT, and 39 received at least one of the ATs. We analyzed each tumor lesion for AT-induced change in tumor viability, defined as complete loss of arterial enhancement on imaging, using CT/MRI images before and after AT. Radiologic staging pre-AT and pathologic staging post-LT were compared for each patient receiving AT as was K-M survival.

Results: Both RFA and TACE were effective at decreasing tumor viability (10/11 lesions showed decreased enhancement after RFA and 12/19 showed decreased enhancement after TACE) and a trend toward more tumors completely losing enhancement for RFA, but there was no statistically significant difference in efficacy ($p=.09$ chi square) [Fig 1]. Only 2/15 patients receiving an AT had more advanced pathology stage than imaging stage. There was no difference in projected survival between the groups with 2.41 years median follow-up (K-M analysis).

Discussion: In the lesion-based study, our results suggested a trend toward RFA being more efficacious for treating HCC as defined by our criteria. Although we could not demonstrate a statistically significant difference for type of AT, ongoing analysis of AT efficacy will require a lesion by lesion analysis combining both imaging and pathology correlation.



Abstract# P-461

LIVING DONOR LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA: TWO-CENTER PRELIMINARY RESULTS. Yaman Tokat¹, Sezai Yilmaz², Vedat Kirimlioglu², Hale Kirimlioglu², Cuneyt Kayaalp², Yildiray Yuzer¹. ¹Florence Nightingale Hospital, Istanbul, Turkey; ²Inonu University Turgut Ozal Medical Center, Malatya, Turkey

Background/Aims: Liver transplantation is the treatment of choice for early hepatocellular carcinoma in patients with end-stage liver disease but is limited by the availability of donor organs. Living donor liver transplantation has become an alternative therapeutic option for non-resectable hepatocellular carcinoma. The Milan criteria is widely accepted as a standard selection criteria for liver transplantation. We present data of cirrhotic patients with hepatocellular carcinoma submitted to living donor liver transplantation in our two-center.

Patients and Methods: Between July 2004 and December 2008, 311 patients underwent living donor liver transplantation in our centers. Seventy-seven

patients with hepatocellular carcinoma and associated terminal cirrhosis who underwent living donor liver transplantation were reviewed. Forty-nine patients (63 %) met the Milan criteria for living donor liver transplantation, whereas 28 patients (37 %) exceeded them.

Results: The overall survival rates at 1, 2, and 3 years were 74 %, 68 %, and 58 %, respectively, with a median follow-up of 23 months. Eight patients (10 %), all of them were beyond Milan Criteria, died due to tumor recurrence.

Conclusion: Living donor liver transplantation is a promising treatment option for patients with hepatocellular carcinoma. However, we should carefully select the patients with hepatocellular carcinoma beyond the Milan criteria.

Abstract# P-462

PERCUTANEOUS RADIOFREQUENCY (PRFA) AS A BRIDGE TO LIVER TRANSPLANTATION (LT) FOR HEPATOCELLULAR CARCINOMA (HCC): CLINICO-PATHOLOGICAL RESULTS. A. Smail, R. Adam, M. Sebah, E. Vibert, C. Salloum, F. Perdigo, D. Azoulay, D. Samuel, C. Guettier, D. Castaing. *AP-HP Hopital Paul Brousse, Villejuif, France*

Neo-adjuvant treatment is presently used in the majority of patients (pts) awaiting LT for HCC to prevent tumor progression and drop out from the waiting list.

Aim of the study : To evaluate the risk and the efficacy of RFA through the comparison of criteria of necrosis on pre-transplant imaging and on histopathology of the explanted liver.

Patients and Methods : From 1998 to 2007, 27 pts (21 male, 6 female) with HCC on cirrhosis were treated by pRFA in the waiting time for LT. All but 3 pts had a single nodule. Mean size of the tumor was 24.5 mm (10-41) with 4 pts with a size between 30-40 mm. Grading of cirrhosis was Child Pugh A in 16 pts, B in 5 and C in 6 pts. A complete work up excluded any extrahepatic deposit. Efficacy of the treatment was assessed on abdominal CT scan, 1 month after the procedure, through the total devascularization of the tumor on the arterial phase. Follow up was conducted for every 3 months up to LT.

Results : There was no mortality related to the procedure and 3 pts (11%) presented a minor complication. Total devascularization of the tumor on CT was obtained in 96%, 89%, 85% and 85% at 1,3,6 and 12 months respectively after pRFA. pRFA was considered successful in 23 pts (85%). One pt underwent a second pRFA at 3 months for recurrence and 3 pts still presented persistent active tumor on the treated lesion. The mean waiting time for LT was 12.9 months (1-35) from the onset of RFA. On the liver specimen after LT, among the 23 pts with complete response on pre-transplant imaging, a total tumor necrosis was demonstrated in 13 pts (55%) and a necrosis > 50% in 10 pts (45%).

From the 4 pts with incomplete response on imaging, 2 had a total tumor necrosis on the specimen. Independent of the treated nodules, additional HCC were found in the explanted liver in 12 pts (44%). After a mean follow up of 32.5 months after LT, 20 pts were alive without recurrence, 1 alive with recurrence, and 6 died, 2 of whom from tumor recurrence.

Conclusion : pRFA is safe and locally efficient in the majority of patients with HCC waiting for LT. However, despite apparent efficacy on imaging, only 55% of the patients demonstrate complete pathological necrosis at LT and 44% had additional undiagnosed nodules. Combination of RFA to other therapies seems likely to optimize the control of the tumor in the pretransplant setting.

Abstract# P-463

EFFICACY OF ABLATIVE THERAPY IN HEPATOCELLULAR CARCINOMA (HCC) PATIENTS UNDERGOING LIVER TRANSPLANTATION – STUDY OF TUMOR NECROSIS ON EXPLANT PATHOLOGY. Parvez S. Mantry¹, Abdullah Mubarak¹, Travis VanMeter², Reem Ghalib¹, Jeffrey Weinstein¹, Alejandro Mejia¹, Tiffany Anthony¹, Stephen Cheng¹. ¹The Liver Institute, Methodist Dallas Medical Center, Dallas, TX, USA; ²Interventional Radiology, Methodist Dallas Medical Center, Dallas, TX, USA

Background: Ablative therapies such as transarterial chemoembolization (TACE), Radiofrequency ablation (RFA) and recently Selective Internal Radiation Therapy (SIRT) are frequently used as bridging therapy in HCC patients awaiting LT. Our aim was to review the efficacy of these therapies using tumor necrosis on explant pathology.

Methods: This is a retrospective cohort study of 70 patients who underwent deceased donor liver transplantation (DDLT) at our center between May

2003 and December 2008 and with proven HCC in the explant. All the ablative therapies (TACE, RFA and SIRT) performed were reviewed. Explant pathology was reviewed to ascertain percentage of tumor necrosis- In case of TACE and RFA- only the targeted lesion was taken into account; in case of SIRT- average tumor necrosis was calculated.

Results: Demographics- 56/70 patients were male, 41 patients had HCV as the etiology of liver disease. 35 patients with HCC underwent 39 ablative therapies- 20 TACE procedures (majority with single agent doxorubicin), 9 RFAs and 10 SIRT procedures performed. Overall, 21/39 procedures (54%) achieved more than 75% necrosis of the treated tumor, and 26/35 procedures (74%) achieved more than 50% tumor necrosis. Comparing each ablative therapy, we found that TACE produced the highest amount of tumor necrosis- with an average of 67.5% necrosis per patient. RFA- 47.22% and SIRT- 40% average necrosis per patient respectively. 4 patients who underwent TACE, 1 who had SIRT and no patients who had RFA had 100% necrosis of the treated tumor on explant. The average tumor necrosis in the patients who received ablative therapy was 59%. The median time from ablation to transplant was as follows: TACE- 93 days; RFA- 35 days and SIRT- 59 days.

Discussion: The explant pathology serves as a gold standard for assessing tumor necrosis after ablative procedures. We found that overall 59% of treated tumor necrosis is produced by ablation of HCC- in our experience- TACE produced the highest necrosis even with the longest wait time to transplant and may be superior to RFA and radioembolization in this regard. The impact of tumor necrosis on recurrence of cancer and patient survival is yet to be studied.

Abstract# P-464

POST TRANSPLANT LYMPHOPROLIFERATIVE DISORDERS AFTER LIVER TRANSPLANTATION. Hugo J. R. Bonatti¹, Zina Meridan², Ehab A. Abdel-Gawad³, Amy Roman¹, Timothy M. Schmitt¹, Klaus Hagspiel³, Robert G. Sawyer¹, Kenneth L. Brayman¹, Helen P. Cathro², Costi D. Sifri⁴, Timothy L. Pruett¹. ¹Surgery, University of Virginia, Charlottesville, VA, USA; ²Pathology, University of Virginia, Charlottesville, VA, USA; ³Radiology, University of Virginia, Charlottesville, VA, USA; ⁴Infectious Diseases, University of Virginia, Charlottesville, VA, USA

Background: Post-transplant lymphoproliferative disorders (PTLD) are emerging complications in liver transplant (LT) recipients.

Patients and Methods: A retrospective chart review of all identified cases of PTLD in LTrecipients (n=794) between 1988 and 2008 from our institution was performed.

Results: A total of 16 cases of PTLD were diagnosed. One patient developed the disease abroad, was lost to follow up and excluded from the study. There were 11 men and 4 women with a median age of 52.1 (range 2.6-71.7) years at time of transplant including two children. Median time between LT and development of PTLD was 0.5 (range 0.3 to 4.32) years. Ten cases were of B cell origin; the most common type was diffuse large B-cell lymphoma, which was in the vast majority of cases EBV, and CD20 positive. In addition, there was one EBV associated enterocolitis presenting with excessive levels of alkaline phosphatase and in four cases – all diagnosed before 2000 - no adequate WHO classification was available. Sites of involvement of malignant PTLD were the liver allograft (n=6) including one pseudotumour, gastrointestinal tract (n=3), cervical lymph nodes (n=1), central nervous system (n=1), with three cases being disseminated (all involving the gastrointestinal tract) at time of diagnosis. One case was diagnosed post mortem. Therapy included reduction in the level of immunosuppression in all cases. For five patients - all diagnosed prior to 2000 - no detailed information could be obtained. Specific therapy included surgery (n=2), polychemotherapy (n=3), five were given antivirals and in all CD20 positive PTLDs, rituximab was applied. Of the 15 cases, 8 (54%) were diagnosed after 2002. Crude mortality was 30%. One patient who developed recurrent PTLD is HIV positive.

Conclusions: PTLD remains a serious complication in LT recipients. The introduction of more powerful immunosuppression seems to be associated with an increase in the incidence and prevalence of PTLD. Still no universal guidelines for the prevention, diagnosis and management of PTLD have been developed.

Abstract# P-465

ABO-(IN)COMPATIBLE CADAVERIC DONOR LIVER TRANSPLANTATION – DOES IT REALLY CHANGE THE OUTCOMES? Marcin Kotulski, Krzysztof Zieniewicz, Marek Krawczyk. *Department of General, Transplant and Liver Surgery, Medical University of Warsaw, Warsaw, Poland*

BACKGROUND: LTx using ABO-incompatible grafts is rarely performed because the reported outcome is significantly poorer than with compatible grafts. Adult ABO-incompatible LTx is associated with a high risk of graft failure due to antibody-mediated humoral rejection. Shortage of donors in cases of acute liver failure causes considerable risk of death may force to use this type of graft for LTx.

AIM: Objective was to assess the value and appropriateness of using ABO-(in)compatible cadaveric donor grafts for LTx to cure liver failure in emergency.

MATERIAL AND METHODS: 714 LTx was performed until 15.12.2008. Acute liver failure was indication in 193 cases. A retrospective study was carried out, including all cases of LTx with ABO-(in)compatible grafts from cadaveric donors performed in between 10.2001 and 11.2008. There were 5 men and 7 women in the mean age 35+/-13; all qualified with UNOS1 status in course of ALF. Indications were: Wilson's disease 3pts, Budd-Chiari syndrome 3pts, cryptogenic 3pts, fulminant HBV 1pts, ALD 1pts, postoperative liver insufficiency 1pts. In 6 cases FPSA albumin dialyses were performed before LTx. In 10 cases ABO-compatible (ABO-C) and in 2 cases ABO-incompatible (ABO-In) LTx were performed. In 6 LTx piggy-back technique was applied, in 6 classical technique with veno-venous bypass. All transplantees received standardised immunosuppressive treatment: basiliximab, FK-506, mycophenolate mofetil and steroids.

RESULTS: Early complications after LTx were as follows: acute renal failure treated with SLEDD dialysotherapy 3pts, postoperative bleeding 4pts (two of them were reoperated), primary non-function 1pts, neurological problems 4pts, biliary fistula 1pts, acute rejection treated with high doses of steroids 2pts (one of these recipients required reLTx which was performed in 13th day after first LTx). 6(50%) deaths was observed in early postoperative period (5x ABO-C and 1x ABO-In). 6 recipients survived (4x ABO-C, 1x ABO-In, 1x after reLTx). Actuarial survival rate after LTx was 50% at 1 year, median 13 months (range 1 to 20), 3 years after reLTx.

CONCLUSION: ABO-(in)compatible LTx is an acceptable option to cure liver failure in emergency. Intensive perioperative supervision and appropriate immunosuppressive treatment are essential to improve the effect of ABO-(in)compatible LTx. Outcomes of ABO-C and ABO-In LTx are similar but significantly poorer than ABO-Identical LTx.

Abstract# P-466

LIVER TRANSPLANTATION FOR BILIARY ATRESIA.

Hamdi Karakayali¹, Figen Ozcay², Sinasi Sevmis¹, Gokhan Moray¹, Nazli Yavuzer¹, Adnan Torgay³, Gulnaz Arslan³, Mehmet Haberal¹. *¹General Surgery and Transplantation, Baskent University, Faculty of Medicine, Ankara, Turkey; ²Pediatrics, Baskent University, Faculty of Medicine, Ankara, Turkey; ³Anesthesiology, Baskent University, Faculty of Medicine, Ankara, Turkey*

Biliary atresia is the most common indication for liver transplantation (LT) in the pediatric population. The aim of this study is to present our institutional experience with LT as a treatment for end-stage liver disease in children with biliary atresia. A retrospective review of transplant records was performed. Twenty-four biliary atresia recipients (11 males, 13 female; mean age, 10.3 ± 5.4 months; range, 6 to 26 months) underwent LT. Mean preoperative weight and height were 11.2 kg and 72.5 cm respectively. Nineteen recipients were younger than 1 year of age and 18 recipients weighed less than 10 kg at the time of transplantation. Seventeen recipients had a previous Kasai operation prior to transplant. Mean serum total bilirubin level was 18.3 ± 16 mg/dL (range; 5.5 to 59.8 mg/dL) before LT. Twenty-two left lateral segment grafts and 2 whole grafts were transplanted. The mean recipient operative time was 8.9 ± 1.8 hours (range; 6 to 10 hours). The mean recipient intraoperative blood loss was 1.5 units. Two hepatic arterial thromboses and 2 biliary leak occurred in the early postoperative period. Portal vein stenosis developed in 1 recipient 16 months after LT. Three recipients died during follow-up 17 ± 14.6 months (range, 1 to 45 months). The remaining 21 recipients (87.5%) are alive with a good graft functioning. In conclusion, our results confirm the effectiveness of LT for the treatment of children with biliary atresia and failed Kasai procedure. Living-related liver grafts represent an excellent organ supply for these patients.

Abstract# P-467

THE EFFECTS OF SMOKING ON LIVER TRANSPLANT MORBIDITY AND MORTALITY. Tacara N. Soones, Silvia Hafliger, Lorna M. Dove. *Center for Liver Disease and Transplantation, Columbia University Medical Center, New York, NY, USA*

Background: The incidence of tobacco use among orthotopic liver transplant (OLT) recipients exceeds that found in the general population. While smoking is associated with a significant increase in the risk of cancer and cardiovascular disease, little is known about its effects on transplant outcomes.

Aim: The aim of this study was to determine the impact of cigarette smoking on several post-transplant outcomes: cancer, cardiac disease, graft rejection, graft failure, and patient survival.

Methods: We conducted a retrospective analysis of adults who underwent their first OLT at our center from 1998-2005. Data sources included medical records and the UNOS database. Patients were included if they had complete information on all covariates and outcomes. Smoking history was considered positive if the patient smoked at least 1 pack-year prior to transplantation. A cardiac event occurred if a patient experienced an episode of angina, myocardial infarction, or underwent PCI. Graft rejection was defined as evidence of rejection on biopsy or an increase in LFTs AND a change in immunosuppression. Graft failure occurred if a patient developed symptoms of end-stage liver disease. Patient survival was defined as death or retransplantation, as this would otherwise result in death. Demographics were analyzed using two-sample t-tests and chi-squared tests. Outcomes were analyzed using Kaplan-Meier curves, log rank tests, and Cox proportional-hazards model when appropriate.

Results: 270 recipients (60% smokers) were included in the analysis of all outcomes except cardiac events, which included only 228 recipients (57% smokers) due to incomplete information. Groups did not differ in mean age (53.11 years), mean follow-up (40.27 months), or MELD at transplant (21.10). Smokers were more likely to be male (78% vs 50%; p<0.001), Caucasian (60% vs 38%; p<0.001), taking cyclosporine vs tacrolimus (45% vs 31%; p=0.017), and transplanted for HCV (59% vs 39%; p=0.001). In multivariate analysis, smokers were more likely to have a cardiac event (hazard ratio, 7.7; 95% CI: 3.2-18.8; p=0.022) and experience graft failure (hazard ratio, 3.1; 95% CI: 1.9- 5.17; p=0.026). The groups did not differ significantly in patient survival, cancer, or number of episodes of rejection.

Conclusions: Cigarette smoking significantly increases the risks of a graft failure and cardiac events after liver transplantation.

Abstract# P-468

QUALITY OF LIFE FOR LONG-TERM SURVIVORS OF LIVER TRANSPLANTATION: A SYSTEMATIC REVIEW.

Erin A. Walker^{1,2}, Adam Bartlett², Nigel Heaton², Christine Eiser¹.

¹Department of Psychology, University of Sheffield, Sheffield, United Kingdom; ²Institute of Liver Studies, King's College Hospital, London, United Kingdom

Liver transplantation (LT) has been an effective treatment for end-stage liver disease for over 25 years, with 10-year survival of approximately 59%. However, patients experience considerable anxiety and physical morbidity before during and after surgery, and influences Quality of Life (QOL). Little is known about QOL for patients in the long-term. This study aimed to review recent literature on QOL for patients at least 5 years post-LT.

Using Boolean operators and keywords, "liver transplant", "quality of life", "health related quality of life", "adjustment", "psychological", and "psychosocial" the following databases were searched: MEDLINE, CINAHL, PsycINFO, the Cochrane Collaboration, and Web of Science. Articles were included if they were: written in English; published between 1990 and December 2008; empirical studies of a defined sample (LT recipients with indication for LT as chronic liver disease, >16 years old, and cadaveric donation); and if they employed a validated measure of QOL. Reference lists from all relevant articles were searched for further titles.

This online search strategy produced 2073 hits, but only 12 papers met the above inclusion criteria. All 12 studies were cross-sectional, conducted largely in Europe (n = 8) and the USA (n = 4), with variability in QOL instrument used and length of follow-up. Results indicate patients report psychological QOL to be comparable with the general population, but overall and physical QOL is impaired. Physical activity and return to work within the first year post-LT positively affect QOL. Poorer QOL is associated with medical comorbidities. There is conflicting evidence as to whether patients experience cognitive dysfunction, and there remains a small subset of patients who function poorly post-LT with highly impaired QOL.

While there is a now ample literature on QOL for LT recipients, little research has followed patients for longer than 4 years. Variability in study design and research quality makes it difficult to generalise findings to all long-term survivors of LT. As the era of successful LT lengthens, more research evaluating the long-term effects of the treatment is needed, as well as the impact of LT on cognitive functioning, why some patients do not benefit, and why overall QOL remains impaired for long-term survivors of LT as compared to the general population.

Abstract# P-469

EMERGENCY LIVER TRANSPLANT OUTCOME IN ITALY. Carlo De Cillia¹, Sante Venettoni¹, Andrea Ricci¹, Dino A. Mattucci¹, Lucia Rizzato¹, Alessandro Nanni Costa¹. ¹*Italian National Transplant Centre, Istituto Superiore di Sanità, Roma, Italy; ²Special Thanks to All Italian Liver Transplant Centres, Italy, Italy*

Introduction

Whereas waiting lists for elective liver transplantation in Italy are regional and/or interregional, cases for emergency liver transplantation (ELT) are managed through a national uniform protocol.

Aim of the study

To examine the ELT Italian experience from the 1st of January 2007 to the 15th of December 2008.

Material and methods

We examined the number of patients listed for ELT in all Italian Transplant Centres between 2007 and 2008, timeliness of organ availability, graft and recipient survival.

Results

Between the 1st of January 2007 and the 15th of December 2008 149 patients were listed for ELT (Table 1).

Table 1

ELT causes	2007	2008*	Total
Acute Liver Failure	33	27	60
Primary Non Function	26	28	54
Trauma	1	1	2
Wilson's Disease	5	3	8
Other	13	12	25
Total	78	71	149

*Updated to the 15th of december

105 (70,47%) patients underwent surgery.

44 (29,53%) patients did not undergo surgery, 41% of these died.

As for organ availability, average waiting time was 2,2 days (range 0,1-22 days), compared to 1,81 years in elective transplantation.

Graft and recipient survival % at 1 year were 69,6 ± 9,5 and 71,8 ± 9,5 respectively in ELT, in comparison with graft and recipient survival % being 78,3 ± 2,1 and 82,4 ± 2,0 respectively in elective transplantation.

Conclusion

Survival rates in ELT are slightly worse than rates concerning patients undergoing elective transplantation. However, the implementation of a national uniform protocol for ELT has guaranteed liver availability at very short average waiting time (2,2 days), thus supporting the fair management of this procedure.

Abstract# P-470

THE LONG-TERM SURVIVAL OF LIVER TRANSPLANT RECIPIENTS FOR HEPATITIS B AND D CIRRHOSIS IS INCREASED WHEN HEPATOCELLULAR CANCER IS PRESENT. George Imvrios¹, Dionisios Vrochides¹, Vasilios Papanikolaou¹, Ioannis Fouzas¹, Nikolaos Antoniadis¹, Dimitrios Giakoustidis¹, Achilleas Ntinis¹, Dimitrios Kardasis¹, Evangelos Akriavidis², Themistoklis Vasiliadis², Ioannis Goulis², Eleni Katsika³, Georgios Moutsianos³, Kalliopi Patsiaoura⁴, Georgios Tsoulfas¹, Nikolaos Ouzounidis¹, Polina Agorastou², Dimitrios Takoudas¹. ¹*Organ Transplant Unit, Aristotle University, Thessaloniki, Greece; ²Department of Internal Medicine, Aristotle University, Thessaloniki, Greece; ³Department of Anesthesiology, Aristotle University, Thessaloniki, Greece; ⁴Department of Pathology, Aristotle University, Thessaloniki, Greece*

Introduction: In contrast to immunocompetent patients, individuals with multiple hepatitis virus infections have an improved outcome after liver transplantation. However, the effect of hepatocellular cancer (HCC) in patients transplanted for hepatitis B and D virus (HB/DV) cirrhosis is not well studied.

Purpose: To study the long-term survival outcomes of patients who underwent liver transplantation for HB/DV cirrhosis with and without HCC.

Methods: A total of 231 primary, adult, single-organ liver transplants were performed from 1990 to 2007. HB/DV was the cause of cirrhosis in 15.6% (n=36) of the patients. Nine patients died during the first three postoperative months from surgical complications. The rest 27 comprised the study group. Median follow-up was 1515 days.

Results: Study group mean patient survival was 3760 days (95% CI: 3013, 4507). Six patients (22.2%) were diagnosed with HCC in the liver explant. Mean patient survival was 3011 days (95% CI: 2344, 3679) and 4036 days (95% CI: 3002, 5070) for recipients without and with HCC respectively. The incidence of acute cellular rejection was 14.3% and 16.7% for HB/DV patients without and with HCC respectively (p=0.659). The incidence of microbial infections was 61.9% and 33.3% in patients without and with HCC respectively (p=0.219). HCC has not recurred in any of the six patients.

Conclusions: Mean long-term survival after liver transplantation for HB/DV and HCC surpasses 11 years. The superior survival of HCC patients is difficult to explain. The increased number (almost double) of microbial infections in the non-HCC population might be held accountable.

Abstract# P-471

A PROSPECTIVE COMPARATIVE STUDY OF CELSIOR AND UNIVERSITY OF WISCONSIN LIVER PRESERVATION SOLUTIONS. Eva M. Montalvá, Saulo Deusa, Rafael López-Andújar, Fernando San Juan, Angel Moya, Eugenia Pareja, Juan José Vila, Manuel De Juan, José MIR. *Department of Surgery. Hepatobiliary Surgery and Liver Transplantation Unit, La Fe University Hospital, Valencia, Spain*

Background. The University of Wisconsin solution (UWS) is the reference solution for abdominal organ preservation. The Celsior solution (CS) is an extracellular-type, low-potassium, low-viscosity solution.

Aim. We performed a randomized, prospective, single-center study to compare the two cold-storage solutions in liver transplantation.

Methods and patients. Liver function of the transplanted grafts was assessed by a comparative analysis of laboratory parameters. Primary nonfunction (PNF) and primary dysfunction (PDF), surgical, vascular, and biliary complications, and patient and graft survival were also assessed until 3 years after transplantation.

Results. 196 patients were included in the study (104 grafts preserved with UWS and 92 with CS). No significant differences were observed between the CS or UWS group in donor, recipient, or surgical variables. Perfusate volume was significantly lower in the UWS group (P=0.02). PNF in the CS and UWS groups were 2.2% and 1.9% (P=NS) respectively, and PDF rates were 15.2% and 15.5% (P=NS). The means and medians for laboratory tests showed no significant differences, except for ALT at month 3 post-transplantation which was lower in the CS group (P=0.01). There were no differences in complications according to preservation solution used. Actuarial survival during the first year was 83% in both groups. After 2 and 3 years, it was 80% and 76% respectively in the UWS group and 77% and 70% in the CS groups (P=NS). Significant differences in graft survival were also not observed.

Conclusions. CS was as effective as UWS in liver preservation and showed an immediate functionality similar to that of UWS. Significant differences were also not found in 3-year graft or patient survival or in the number of biliary and vascular complications.

Abstract# P-472

LIVER TRANSPLANTATION (LT) FOR PATIENTS WITH ALCOHOLIC CIRRHOSIS (AC) WITH PROVEN ALCOHOL CONSUMPTION ON THE DAY OF THE TRANSPLANT PROCEDURE: A CASE CONTROL STUDY. Romain Altwegg¹, C. Vanlemmens², P. H. Bernard³, S. Dharancy⁴, P. Wolf⁵, J. Dumortier⁶, S. Radenne⁷, O. Chazouilleres⁸, F. Navarro¹, GP Pageaux¹. ¹*CHU St-Eloi, Montpellier, France; ²CHU J. Minjoz, Besançon, France; ³CHU St André, Bordeaux, France; ⁴CHU C. Huriez, Lille, France; ⁵CHU Haute-Pierre, Strasbourg, France; ⁶CHU E Herriot, Lyon, France; ⁷CHU Croix Rousse, Lyon, France; ⁸CHU St-Antoine, Paris, France*

Aim : to study the follow-up of pts transplanted for AC with proven alcohol consumption on the day of transplant procedure.

Method : a questionnaire was sent to LT centers in order to determine those who look for alcohol consumption on the day of LT. We matched (1.2) these

pts with a contemporary control group, i.e pts transplanted for AC during the same trimester. The primary goal was to compare graft and pts survival and alcohol relapse post LT.

Results : there were 42 pts alcoholized on the day of LT and 84 pts in the control group. There was no difference concerning gender, CHILD-PUGH and MELD, median delay between inscription and LT, immunosuppression. Pts of alcohol group were younger ($p=0.02$), presented more frequently with a post-LT alcohol withdrawal syndrome ($p=0.001$), were more frequently transplanted for AC with superimposed HCV($p=0.004$), or HCC ($p=0.01$). There was more fatty native liver $>30\%$ in the alcohol group ($p=0.005$). Pts survival in alcohol group and control group were 92.9% and 90.4% at 1 year, 85.8% et 81.7% at 5 years respectively (NS). Graft survival in alcohol group and in control group were 92.9% et 85.6% at 1 year and 85.8% and 75.1% at 5 years respectively (NS). Alcohol relapse was more frequent in the alcohol group (52.5% vs 33.8%, $p=0.004$), but without any significant difference concerning excessive relapse. It was observed earlier in pts of alcohol group (11 vs 21.4 months, $p=0.03$). There were more rejection episode in excessive relaper pts compared to abstinent pts or occasional relapers (19.2vs5%, $p=0.03$). Histological analysis showed significantly more frequent fatty liver $>30\%$ at 1 year in pts of alcohol group ($p=0.03$), but this difference was not significant at 3 and 5 years.

Conclusion : this is the first case control study analysing the outcome of pts with proven alcohol consumption on the day of LT. There was no difference concerning graft and patient's survival and excessive relapse rate after LT. These results are in favour of a better assessment of alcohol consumption and abstinence before LT for CA.

Abstract# P-473

130 LIVER TRANSPLANTATIONS FOR FULMINANT HEPATIC FAILURE – RESULTS OF A HIGH VOLUME CENTER. Panagiotis Fikatas, Frank Ulrich, Ji Eun Lee, Sascha Chopra, Andreas Pascher, Olaf Guckelberger, Gero Puhl, Ulf Neumann, Peter Neuhaus, Johann Pratschke. *General, Visceral and Transplantation Surgery, Charité-Campus Virchow, Universitätsmedizin Berlin, Berlin, Germany*

Purpose
Fulminant hepatic failure (FHF) is an uncommon and life-threatening clinical syndrom. Despite improvements in medical therapy, orthotopic liver transplantation (OLT) remains treatment of choice. Since now, only few investigations have been published in this field. Purpose of this analysis was to present the posttransplant outcomes in patients with of a high volume transplantation center.

Patients and Methods

This retrospective analysis included 135 patients with FHF who underwent OLT between 1988 and 2007. Etiology of FHF, patients demographic variables and laboratory values were analyzed and compared with posttransplant outcome. Postoperative liver specific values were collected.

Results

In the cohort of 135 transplanted patients, 44 (32.6%) were males and 91 (67.4%) females with a mean age 32 ± 17 years at time of transplantation. In most instances cause of FHF remained unclear (44%) followed by hepatitis B infection (22.2%) and drug-induced hepatic failure (13.3%). The mean waiting time for a suitable graft was 2 ± 2 days. Cold and warm ischemia time were 525 ± 174 min and 44 ± 13 min respectively. Nine graft showed initial non-function. The mean hospital-stay was 47 ± 32 days. The 1 year survival was 82%. Gender and etiology of FHF did not correlate with posttransplant outcome ($p=NS$). At the 14th POD the patients had following laboratory values: bilirubin 8.9 ± 9 IU/L, INR 1.16 ± 0.23 and ALT 92 ± 81 IU/L.

Conclusions

This analysis demonstrates that OLT due to FHF has a 1-year survival over 80% with excellent postoperative graft function. Because of this positive results, OLT represents the best therapeutic option for patients with irreversible FHF.

Abstract# P-474

PREVIOUS LIVER RESECTION HAS NO NEGATIVE IMPACT ON OUTCOME OF FUTURE LIVER TRANSPLANTATION: EVIDENCE FROM A MATCHED CASE-CONTROL STUDY. Henrik Petrowsky, Ronald C. Auvenshine, Christopher M. Jones, John P. Duffy, Johnny C. Hong, Ronald W. Busuttil. *Department of Surgery, David Geffen School of Medicine, The Dumont-UCLA Transplant Center, Ronald Reagan-UCLA Medical Center, Los Angeles, CA, USA*

Background: Data on whether a previous liver resection has a negative effect on a future orthotopic liver transplantation (OLT) are very limited. Therefore, the aim of the study was to investigate the impact of a previous liver resection on the peri- and postoperative outcome of OLT.

Methods: Patients who underwent OLT and previous open liver resection were identified from a prospective transplant database between 1993 and 2008. These patients were matched 1:1 with control patients who underwent OLT only according to recipient's age (± 10 years), gender (female, male), transplant period (1993-2000, 2001-2008), MELD score (± 3), and ESLD (yes, no).

Results: Twenty-six patients who underwent OLT and previous liver resection were identified (R/OLT group) and 12 of them (46%) had major liver resection ($\geq$ hemi-hepatectomy). The R/OLT ($n = 26$) and matched control (OLT) group ($n = 26$) were comparable in terms of recipient and donor age, gender, transplant period, MELD score, underlying liver disease, and cold ischemia time. Although the median operation time was significantly shorter for the OLT group (4.5 vs. 5.7 hours, $p=0.02$), the intraoperative blood transfusion requirement (7.5 vs. 8.0 units, $p=0.1$) and the degree of the postoperative liver injury (peak ALT 778 vs. 840 U/L, $p=0.9$) were similar for both groups. The median length of ICU (3.5 vs. 4 days, $p=0.6$) and hospital (14 vs. 14 days, $p=0.7$) stay as well as the overall morbidity (69 vs. 73%, $p=0.8$), in-hospital mortality (7.7 vs. 3.8%, $p=0.6$), and retransplantation (3.8 vs. 3.8%, $p=1$) rate were not significantly different between the OLT and R/OLT group. In both groups, 85% of patients ($n=22$) were alive after the first post-transplant year.

Conclusions: Although the median transplant operation time was approximately 1 hour longer for patients who underwent previous liver resection, this matched case-control study shows that previous liver resection has no negative impact on the peri- and postoperative outcome of future liver transplantation. Therefore, liver resection should not be denied or replaced by interventional ablation techniques in the light of potential future OLT if liver resection is safe, indicated, and the most effective treatment.

Abstract# P-475

FACTOR V LEIDEN MUTATION IS ASSOCIATED WITH HEPATIC ARTERY THROMBOSIS AFTER ORTHOTOPIC LIVER TRANSPLANTATION. Ilona T. A. Pereboom^{1,2}, Jelle Adelmeijer², Gerrit van der Steege³, Aad P. van den Berg⁴, Ton Lisman^{1,2}, Robert J. Porte¹. ¹Hepatobiliary Surgery and Liver Transplantation, University Medical Center Groningen, Groningen, Netherlands; ²Surgical Research Laboratory, University Medical Center Groningen, Groningen, Netherlands; ³Medical Biology, University Medical Center Groningen, Groningen, Netherlands; ⁴Gastroenterology and Hepatology, University Medical Center Groningen, Groningen, Netherlands

Background: Thrombotic complications of the hepatic vessels are an important cause of graft failure after orthotopic liver transplantation (OLT). Various gene polymorphisms have been associated with an increased risk of thrombo-embolic events in otherwise healthy individuals. The aim of this study is to assess the influence of seven different thrombophilic genetic factors on the risk of hepatic vessel thrombosis after OLT.

Methods: In a series of 421 transplant procedures genomic DNA was available for genotyping in 381 donors (91%) and 382 recipients (91%). G1691A Factor V Leiden, G20210A prothrombin, and V34L Factor XIII polymorphisms were identified in both donors and recipients; C677T methylenetetrahydrofolate reductase (MTHFR), C807T Glycoprotein Ia, C1565T Glycoprotein IIIa, and A387P Thrombospondin 4 polymorphisms were identified in recipients. Clinical data was obtained from a prospectively maintained database and medical records. All recipients underwent Doppler ultrasonography of the hepatic vessels postoperatively. In case of an abnormal or absent Doppler signal, catheter or CT angiography was performed to exclude or confirm thrombotic complications. **Results:** Factor V Leiden mutation in the donor was associated with an almost 5-fold increased risk of hepatic artery thrombosis (HAT) more than seven days after liver transplantation (HR 4.78, 95% CI

1.04-21.8; $p=0.04$). The overall contribution of Factor V Leiden mutation on the development of HAT, however, was low: of the fourteen patients who developed HAT more than seven days after OLT, two (17%) patients received a liver graft with a Factor V Leiden mutation. None of other thrombophilic gene mutations was associated with liver graft-related vascular thrombosis. Conclusion: Factor V Leiden mutation in the donor liver is associated with an almost 5-fold increased risk for the development of HAT after OLT. However, since the prevalence of factor V Leiden is low, the overall impact of this mutation on the incidence of HAT is marginal and does not justify routine screening for this mutation.

Abstract# P-476

THROMBOCYTOPENIA, SPLENOMEGALY AND PORTAL BLOOD FLOW IN LIVER TRANSPLANT PATIENTS.

Eyraud Daniel^{1,3}, Granger Benjamin², Fratéa Sylvia^{1,3}, Vaillant Jean Christophe³, Rousseau Géraldine³, Hannoun Laurent².

¹Anesthesiology, Pitié Salpêtrière Hospital-APHP, Paris, France, Metropolitan; ²Department of Clinical Research, Pitié Salpêtrière Hospital and Paris 6 University, Paris, France, Metropolitan;

³Liver Transplant Surgery, Pitié Salpêtrière Hospital-APHP, Paris, France, Metropolitan

Introduction. Platelet count (PC), size of spleen (SS) and portal blood flow (PBF) have been often independently studied in the perioperative period after a liver transplant (LT) but a combined description and analysis was poorly studied.

Methods. We analysed adult patient before LT and 1, 3, 6, 9, 12 months posttransplant with PC and Doppler sonographic measurement of SS and PBF.

Results. One hundred nineteen patients undergoing LT with portal hypertension were studied. Platelet count significantly increased from 100 ± 67 (10⁹/L) before LT to 162 ± 88 (10⁹/L) one month after LT and then remained stable until one year posttransplant. PBF significantly increased from 640 ± 308 (mL/min) before LT to 1372 ± 496 after LT and then remained stable during the first year. Spleen size slowly decreased after LT but the decrease became significant only at 9 months posttransplant (13.9 ± 4.21 cm vs 11.3 ± 3.6 , $p<0.05$). The etiology of cirrhosis did not influence the post-LT evolution of three parameters, especially, virus C (45 patients), with (35 patients) or without replication or Interferon treatment (34 patients) before LT did not influence posttransplant PC. Time evolution of three parameters was correlated 2 by 2, on the year after transplantation.

Conclusion. Platelet count and PBF increased rapidly after LT in contrast to spleen size which slowly decreased. Etiology of the cirrhosis did not influence PC count evolution. Thrombocytopenia and splenomegaly are two consequences of portal hypertension but the rapid normalization of PBF did not reverse neither completely nor rapidly these two phenomena.

Abstract# P-477

OUTCOMES OF PREGNANCY IN FEMALE LIVER TRANSPLANT RECIPIENTS.

Vasileios Kostaras, Adam Frank, Carlo B. Ramirez, Cataldo Doria, Lisa A. Coscia, Vincent T. Armenti. Surgery, Thomas Jefferson University, Philadelphia, PA, USA

The purpose of this study was to analyze pregnancy outcomes in liver transplant recipients reported to the National Transplantation Pregnancy Registry (NTPR). The data were collected via questionnaires, phone interviews and hospital records. There were 138 recipients with 241 pregnancies and 245 outcomes (includes twins). Of the 245 outcomes there were 180 (73.8%) livebirths, 47 (19.2%) spontaneous abortions, 11 (4.5%) therapeutic abortions, 5 (2.1%) stillbirths, and 1 (0.4%) ectopic pregnancy. The mean transplant to conception interval was 5.2 ± 4.4 yrs. with a range of -0.4 (5 recipients transplanted during pregnancy) - 19.9 yrs. Immunosuppression was calcineurin-inhibitor based during 234 of the pregnancies; no immunosuppression for 7 pregnancies. There were 11 recipients who reported a graft loss within 2 years of pregnancy; 4 died and 7 were retransplanted with adequate function. Comorbid conditions during pregnancy included hypertension 33.9%, infections 26.5%, preeclampsia 21.5%, rejection 8.4% and diabetes 6.7%. Mean gestational age of the liveborn was 36.5 ± 3.5 wks; 70 (39.6%) were premature (<37 wks). Mean birthweight was 2645 ± 777 g; 63 (35.4%) were low birthweight (<2500 g). The total number of newborn with birth defects was 8 of 180 children (incidence 4.4%). The birth defects included: pyloric stenosis (n=3), hypospadias (n=1), ventricular septal defect (n=1), kidney malformation (n=1), total anomalous pulmonary venous return (n=1) and one neonatal death

with multiple malformations (including cardiac and central nervous system defects). Long-term mean maternal follow-up was 7.5 ± 4.9 yrs; 107 (77.5%) recipients reported adequate graft function, 4 (2.9%) reported reduced/poor graft function, 18 (13%) had died and 9 (6.5%) were lost to follow-up.

CONCLUSIONS: Female liver transplant recipients are able to maintain pregnancy with the majority resulting in a livebirth. Long-term follow-up of mother and child remain goals of the registry. Centers are encouraged to report all pregnancy outcomes in liver transplant recipients to the NTPR.

Abstract# P-478

ONE HUNDRED AND FIFTY PEDIATRIC LIVER TRANSPLANTS AT RIYADH MILITARY HOSPITAL.

Iftikhar Khan, Abdul Aziz Al-Zahrani, Zahid Arain, Hammood Hebibi, Sami Wali, Atef Bassas. Prince Sultan Liver Transplant Unit, Riyadh Military Hospital, Riyadh, Saudi Arabia

Objective: To review the results of first one hundred and fifty pediatric liver transplants performed at Riyadh Military Hospital (RMH).

Methods: The study is carried out using retrospective analysis of the in- and out-patient case notes. Data was collected regarding age, sex, nationality, diagnosis, type of procedure, complications and survival of the grafts and the recipients.

Results: The first 150 living donor pediatric liver transplants were performed between 19 November 1998 and 29 November 2008. The age range was 4 months to 14 years. The weight range was 4kg to 30kg. Sixty-three children (42%) were less than one year of age. Eighty-eight recipients (58.6%) were male. One hundred and twenty-two children were Saudi. 149 grafts were procured from living donors. Left lateral segment was used as allograft in 147 cases. One child each received full left lobe and full right lobe. One full graft was procured from a deceased donor. Six auxiliary partial orthotopic liver transplants were done. Familial metabolic liver disorders made the largest group of children needing transplant. The most common indication was progressive familial intrahepatic cholestasis (49 cases). The number of major complications is: hepatic artery thrombosis 10; portal vein thrombosis 3; portal vein stenosis 3; hepatic vein stenosis 3 and biliary strictures 4. Eighteen patients have died. Two further allografts have been lost. Thus, the overall patient survival rate is 88% and graft survival rate is 86.6%.

Conclusion: Living donor liver transplantation is a viable option for children with end-stage liver disease. Metabolic liver disease is the most common indication in Saudi Arabia. The cadaveric donor supply is in shortage and living donation is a practical alternative. The incidence of complications and recipient and graft survival rates of the pediatric liver transplantation program at RMH are acceptable. This program has provided a valid therapeutic option for the children with end-stage liver disease in Saudi Arabia. In the future, efforts should be concentrated on expansion of the program by educating the society about organ donation after brain-death and close coordination with primary care physicians and pediatricians for appropriate and timely referral of children with liver disease.

Abstract# P-479

EARLY AND LATE MORTALITY IN PATIENTS WITH LIVER TRANSPLANTATION. A 15 YEAR EXPERIENCE IN A LIVER CENTER IN CHILE (1993-2008).

Rodrigo Zapata, Monserrat Rius, Edgar Sanhueza, Roberto Humeres, Horacio Rios, Hepp Juan. Liver Transplantation Unit, Clínica Alemana de Santiago, Santiago, Chile

Introduction: Orthotopic liver transplantation (OLT) has become the best therapeutic option for patients with end-stage liver disease (ESLD). Each year about 80 OLT's are performed in Chile. In this setting we are starting to see more commonly late-onset medical complications. **Aims:** To evaluate patient survival after OLT, and the main causes for death at different times after OLT. **Methods:** We evaluated all consecutive adult patients transplanted at Clínica Alemana since 1993. We divided the post-OLT period in : a) Early post-OLT (first 3 months after OLT); b) Intermediate (3 and 12 months); c) Late (more than 12 months). Actuarial patient survival rate was calculated by Kaplan Meier. **Results:** 137 cadaveric OLT have been performed in 124 adults. 86.3% of patients (n=108) have been transplanted due to ESLD, and 13.7% (n=16) due to fulminant hepatitis. Fifty percent were men, mean age 42.7 years old. The main causes of ESLD were autoimmune hepatitis, primary biliary cirrhosis and hepatitis C, and for fulminant hepatitis was cryptogenic and medication induced. The mean follow-up period after OLT has been 5.6 years (range: 3 months to 15 years). During these 15 years, 19 patients have died after OLT (19/124; 15.3%). In cirrhotics 14 out of 108 OLT patients died post-OLT (12.9%) and in fulminant hepatitis 5 out of 16

died (31.2%). In the early post-OLT period we had 10 deaths. The causes for early death were: sepsis (5 patients), primary non function (2), overt bleeding (1), SIRS (1), intracerebral bleeding (1). Three deaths occurred during the intermediate post-OLT period: recurrent hepatocarcinoma (2) and chronic rejection (1). Six deaths occurred in the late period: chronic rejection (2), pneumonia (1), PTLD (1), severe recurrent hepatitis C (1), sudden death (1). **Conclusions:** Our program has a cumulative actuarial survival rate of 90% at one year and 85% at 5 years after OLT, which is similar to survival rates of international centers. During the follow-up period after OLT, 15% of OLT patients have died after a mean follow-up of 5,6 years. The early mortality accounts for more than 50% of deaths seen in OLT patients (10/19 deaths), being sepsis and primary non function the main causes for death. In patients surviving more than one year, recurrent disease, PTLD and cardiovascular death account for those infrequent causes of death.

Abstract# P-480

PREVALENCE OF RISK FACTORS CONTRIBUTING TO RENAL DYSFUNCTION AND CARDIOVASCULAR MORBIDITY IN LIVER TRANSPLANT RECIPIENTS. Imran M. Patanwala, Mark Hudson. *Liver Transplant Unit, Freeman Road Hospital, Newcastle upon Tyne, United Kingdom*

Improvements in survival after liver transplantation over the last 3 decades are reflective of improved survival in the first year. The difference in longer term survival after this period is insignificant¹. Non hepatic causes account for more than half the deaths in those that survive for more than 3 yrs post transplantation².

Aims: To quantify the prevalence of renal failure, hypertension, hyperlipidaemia, diabetes and calculate the 10 yr cardiovascular mortality risk in liver transplant recipients.

Methods: Data was collected prospectively from 105 liver transplant recipients. Hypertension was defined as a systolic BP $\geq$ 140 or a diastolic BP $\geq$ 90. 10 yr cardiovascular risk in non diabetics was calculated using the Framingham Score³.

Results: Mean age was 53 $\pm$ 14 yrs; 50% were male and 25% smokers. Median time from transplant was 6 years. 53% were hypertensive and 43% of these were not on antihypertensives. 18% were diabetic at the time of review with a mean HBA1C of 6.5 $\pm$ 1.4. 12% had eGFR measuring less than 30 ml/min/1.73m² and these patients had a significantly higher systolic (p<0.01) and diastolic (p<0.05) blood pressure than those with normal renal functions. No significant difference in the prevalence of diabetes was noted in those with and without renal impairment. 86% of all recipients were on a calcineurin inhibitor. 58% had a BMI $\geq$ 25. Mean total and LDL cholesterol were 5.1 $\pm$ 1.4 and 2.8 $\pm$ 1.16 respectively. 55% had LDL cholesterol $\geq$ 2.6 and of these, 83% were not on any treatment for their hyperlipidaemia. The mean 10 yr cardiovascular risk in those without diabetes was 9.2%.

Conclusions: The long term care of liver transplant recipients remains suboptimal. National guidelines promoting proactive monitoring, prompt detection and early addressal of risk factors contributing to renal and cardiovascular morbidity may improve long term survival.

References:

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Abstract# P-481

INTENT-TO-TREAT SURVIVAL ANALYSIS OF CANDIDATES FOR LIVER TRANSPLANTATION IN A SINGLE CENTER IN ISRAEL. Eytan Mor¹, Danny Erez, Benjamin Medalion², Rachel Michowiz, Ziv Ben-Ari³. ¹Dep. of Transplantation, Rabin Medical Center, Beilinson Hospital, Petah-Tiqwa, Israel; ²Dep. of Cardio-Thoracic Surgery, Rabin Medical Center, Beilinson Hospital, Petah-Tiqwa, Israel; ³The Liver Institute, Rabin Medical Center, Beilinson Hospital, Petah-Tiqwa, Israel

Low donation rate in Israel (9 donors/10⁶ pop.) combined with increasing number of candidates for liver transplantation (LT) negatively affect chances for survival of these patients. In order to evaluate predictors of survival of candidates for liver transplantation, we have performed an intent-to-treat

survival analysis that included the waiting list mortality in combination with the post-transplant outcome in a cohort of patients with end-stage liver disease (ESLD) listed for liver transplantation in our center.

Patients and Methods: Data on adult patients (>18 yr) listed for liver transplantation (LT) between 2001-2005 was collected from our electronic database. A cohort of 197 patients was included in the intent-to-treat analysis with a mean follow-up of 43 months (re-transplants were excluded). Patients were classified as transplanted (Tx, n=123) or non-transplanted (non-Tx, n=74) and their clinical and laboratory parameters at listing were compared using t-test and Fisher's Exact test. Survival was calculated using Kaplan Meier method.

Results: One- and 5-yr actuarial survival for both groups was 67% and 54%, respectively. One- and 5-yr actuarial survival were 85% and 75%, respectively, in the Tx group vs. 40% and 19%, respectively, in the non-Tx group. Fifty seven patients (67%) died while awaiting LT. The mean waiting time for a transplant was 33.6 $\pm$ 22.5 months. The mean MELD score at transplant was 22.1 $\pm$ 8.5. Patients in the non-Tx group had a significantly higher MELD score at listing compared with the Tx group (19.65 $\pm$ 8.64, vs. 17.2 $\pm$ 5.35 p<0.02) and more serious complications rate as hepato-renal syndrome type 1 (20.3%, vs. 7.3%, p<0.02). In a subset analysis of survival in each group classified by MELD score at listing (10-15; 15-20; >20), all 3 subsets benefited from transplantation compared with the non-Tx group.

Conclusions: The low donation rate in Israel has a detrimental effect on outcome, with an estimated 67% chance of survival at 1-year following listing for LT. An intent-to-treat survival analysis that combines both organ donation and transplant outcomes is a useful tool to predict survival among candidates for liver transplantation.

Abstract# P-482

OUTCOMES OF LIVER TRANSPLANTATION IN COMBINED HEPATITIS C AND HEPATOCELLULAR CARCINOMA ARE NOT INFERIOR TO HEPATITIS C ALONE. Ali Raza¹, Gopal Ramaraju², Asif Shareef¹, Kunj Desai¹, Bart K. Holland³, Andrew N. dela Torre¹, Dorian Wilson¹, Adrian Fisher¹, Arun Samanta², Baburao Koneru¹. ¹*Surgery, UMDNJ, Newark, NJ, USA*; ²*Medicine, UMDNJ, Newark, NJ, USA*; ³*Preventive Medicine, UMDNJ, Newark, NJ, USA*

Aim: To determine if outcomes of orthotopic liver transplantation (OLT) in hepatitis C virus (HCV) recipients are further worsened by the presence of hepatocellular carcinoma (HCC/HCV).

Methods: Using matched cohort design, cases of HCC/HCV liver recipients, transplanted from 1990-2006, with 1-year minimum follow-up, were matched to HCV controls in 1:1.5 ratio based on age, gender, ethnicity and year of OLT. Graft and patient survival outcomes until 11/31/08 were based on Kaplan-Meier estimates. Effects of donor risk index (DRI), warm ischemic time (WIT), donor hospital stay (LOS), pre-operative calculated MELD score, CMV status, HCC recurrence, HCV recurrence, histological rejection, and re-transplantation (Retxp) were examined in Cox proportional hazard modeling. Significance was set at p <0.05.

Results: Sixty-four cases of HCC/HCV receiving 70 grafts were matched to 98 HCV controls receiving 106 grafts. Recipient age, gender, ethnicity, and year of OLT were comparable between groups. Median DRI (1.34 vs. 1.45), WIT, LOS, CMV, rate of histological HCV, and rejection were similar between groups. Median MELD was significantly lower in HCC/HCV group (15 vs 19, p<0.01). Most HCC/HCV patients received no post-OLT chemotherapy, and most with HCV recurrence received HCV therapy. Median follow up was 48 months in HCC/HCV and 58 months in HCV. Retxp rates were 9 vs 8%. Non-HCC and non-HCV factors accounted for the majority of deaths; 5 HCC/HCV developed tumor recurrence and subsequently died. Graft and patient survivals in HCC/HCV and HCV were comparable at 1, 3, and 5 yrs (graft= 83, 67, 65% vs 78, 70, 58%, p 0.4; patient= 88, 72, 70% vs 83, 73, 63%, p 0.3). Cox proportional hazard modeling showed DRI, LOS, post-OLT HCV therapy, and Re-tpx impacted patient survival while only DRI affected graft survival (p<0.05).

Summary: 1) MELD scores were lower in HCC/HCV patients undergoing OLT compared to HCV recipients. 2) Recurrent HCC was not a significant cause of mortality. 3) When matched for recipient demographics and when donor characteristics are similar, HCC/HCV and HCV recipients have similar patient and graft survival outcomes. 4) HCC/HCV recipients do not comprise a high-risk group in comparison to HCV without HCC.

Abstract# P-483

DO PRE-TRANSPLANT DISEASE SEVERITY SCORES PREDICT OUTCOME AFTER LIVING DONOR LIVER TRANSPLANTATION. Neeraj Saraf¹, Sanjiv Saigal¹, Vinay Kumaran², Ravi Mohanka², Naimish Mehta², Randhir Sud¹, Samiran Nundy², Arvinder Soin². ¹Department of Gastroenterology and Hepatology, Sir Ganga Ram Hospital, New Delhi, Delhi, India; ²Department of Liver Transplantation, Sir Ganga Ram Hospital, New Delhi, Delhi, India

Background : Model for end stage liver disease (MELD) score and Child Turcotte Pugh (CTP) scores are established prognostic models for cirrhotic patient with end stage liver disease. This study was conducted to assess the role of MELD and CTP scores in predicting outcome (short-term mortality) after LDLT. **Methods :** Retrospective data of 151 patient undergoing LDLT between Jan 2006 to July 2008 was analyzed. Patients in pediatric age group, and those with hepatocellular carcinoma and acute liver failure were excluded. The pre-transplant MELD and CTP scores were calculated according to clinical parameters and laboratory values prior to the transplant. The outcome was assessed as mortality at 90 days after transplantation. Statistical analysis was done using student's t test, and p value was calculated. **Results :** Total number of patients in the study was 151 of whom 123 patients were males and 28 were females. The age of the patients ranged from 20 to 67 years, with mean age of 46.9 years. The mean and median MELD scores were 20.1 and 21 respectively (range 8 to 39). The mean and median CTP scores were 10.4 and 10 respectively (range 8 to 14). 33 patients were in CTP class B and 118 patients were in CTP class C. There were no patients in CTP class A. Of the 151 patients, 13 patients died within 90 days of transplantation (8.6%). There was no statistically significant difference between mean MELD scores of living vs dead patients (20.04 vs 21.1, p=0.58), and median MELD scores of living and dead patients (20.5 vs 21). There was no statistically significant difference between mean CTP score of living vs dead patients (10.39 vs 10.55, p=0.79), and median CTP scores of living vs dead patients (10 vs 11). **Conclusion :** (1) Pre-transplant MELD score did not predict outcome after LDLT. (2) As majority of patients in this study had high pre-transplant CTP score, its value in predicting outcome post LDLT was also poor. (3) More experience with larger number of patient is needed to establish factors which would predict outcome after liver transplantation.

Abstract# P-484

EARLY CHANGES IN KIDNEY FUNCTION PREDICT LONG-TERM CHRONIC KIDNEY DISEASE AND MORTALITY IN PATIENTS FOLLOWING LIVER TRANSPLANTATION. M. Cantarovich, J. Tchervenkov, J. Barkun, M. Deschênes, P. Wong, P. Ghali, P. Chaudhury, M. Hassanian, G. Arena, M. Fernandez, S. Paraskevas, P. Metrakos. Liver Transplant Program, McGill University Health Center, Montréal, QC, Canada

Purpose: To determine risk factors of advanced chronic kidney disease after liver transplantation (LTx). **Methods:** We reviewed 445 pts (308 men, 137 women, 55±11 yr-old) with LTx between 6/1990 and 9/2007 who survived >1-mo. We evaluated sex, age, HCV, year of LTx, MELD score, diabetes (pre- and post-LTx), hypertension (pre- and post-LTx), ACE/ARB, CNI cumulative dose during the first 3-mo, GFR drop between pre-LTx and 1-, 3- and 12-mo, between 1- and 3-mo, between 1- and 12-mo and between 3- and 12-mo post-LTx. The data were recorded at baseline and at 1-mo, 3-mo, 1-, 3-, 5-, 7- and 10-yrs. Cox regression was done for time until estimated glomerular filtration rate (eGFR, MDRD 6 variables formula) ≤30 mL/min ≥1-yr, for time to chronic dialysis and for all-cause mortality >1-yr. **Results:** Table 1 depicts the multivariate analysis.

Table 1. Predictors of eGFR <30 mL/min, of chronic dialysis and of mortality, >1-yr post-LTx Odds Ratio (95% CI)

	eGFR ≤30 mL/min*	Chronic Dialysis†	All-Cause Mortality‡
Pre-LTx diabetes	2.6 (1.3-5.5) P=0.01	3.8 (1.1-13.0) P=0.03	P>0.10
Post-LTx diabetes	5.1 (1.6-15.8) P=0.005	P>0.10	P>0.10
Post-op dialysis	P>0.10	P>0.10	4.6 (2.8-7.5) P=0.01
eGFR at 3-mo.***	0.6 (0.5-0.7) P<0.0001	0.5 (0.3-0.8) P=0.01	P>0.10
eGFR DROP	12.1 (5.6-26.3) P<0.0001	14.2 (2.9-69.0) P=0.001	2.1 (1.3-3.5) P=0.004

*n=36/353, †n=11/354, ‡n=95/352 at >1-yr post-LTx, respectively; **peGFR at 3-mo.***eGFR at 3-mo.***eGFR at 3-mo.***er 100 units, ****per 10 mL/min

Conclusions: The post-operative need for dialysis is a strong predictor of mortality >1-yr post-LTx. In addition to traditional risk factors, a DROP in

the eGFR during the first yr post-LTx is a modifiable factor that may reduce the incidence of chronic kidney disease, chronic dialysis and mortality in LTx recipients.

Abstract# P-485

MELD SCORE LESS THAN 15 PREDICTS PROLONGED SURVIVAL AFTER TRANSJUGULAR INTRA-HEPATIC PORTO-SYSTEMIC SHUNTING (TIPS) PLACED TO TREAT ASCITES AND VARICEAL BLEEDING DUE TO SEVERE DISEASE RECURRENCE AFTER LIVER TRANSPLANTATION. Victor R. Araya, Eyob L. Feyssa, Kevin S. Grewal, Jorge A. Ortiz, Paul S. Brady, Radi F. Zaki, Ashraf H. Malek, Mumtaz A. Niazi. Center for Liver Disease and Transplantation, Albert Einstein Medical Center, Philadelphia, PA, USA

Background: Disease recurrence after liver transplant (LT) can lead to portal hypertension complications of ascites and variceal bleeding (VB). TIPS is frequently used as a bridge to LT but little data exists on its safety, efficacy and survival after LT. **AIM:** Establish efficacy, safety, and predictors of survival following TIPS placement after LT. **Methods:** Retrospective analysis of all our patients who underwent TIPS placement after LT for the management of ascites or variceal bleeding (VB). Efficacy was defined as improvement in survival post-TIPS, reduction of hepato-venous portal gradient (HVPG), and ascites/VB resolution. **Results:** We performed 582 LT from 1995 to 2008. 30 patients underwent 32 TIPS. Twenty-six were for ascites and 4 to treat VB. 21 were males. The median age at LT was 49. The reasons for LT were Hepatitis C (22/30), HCC (5/30), Auto-immune hepatitis (1/30), Alcohol cirrhosis (1/30) and Hepatitis B (1/30). Median time from LT to TIPS was 26 months (range 1-107) and the mean model for end-stage liver disease (MELD) score at the time of TIPS was 16 (range 7-33). 13 patients had TIPS revisions. Two patients had a second TIPS placed. One of these patient required re-transplantation (1/30) after TIPS thrombosis. 17/32 (53%) of the TIPS were considered successful. 1-year post-TIPS survival was 53.3%. The median post-TIPS patient survival was 6 months (1– 87). On multivariate analysis, age at LT and pre-TIPS MELD, were significant and independent predictors of patient survival. The 6-months mortality for patients with a MELD of 15 or greater was significantly higher than those with a MELD of 14 or less (P<0.01). Median survival for MELD less than 15 (N=12) was 41 months (1-87) (8.3% died within 1 month); and for MELD 15 or greater (N=18) was 4 months (1-64) (39% died within 1 month). **Conclusion:** Our data is the largest series reported on this topic and it suggests that TIPS post-LT can be clinically effective after LT in patients with ascites or VB due to disease recurrence. A MELD of less than 15 leads to a comparatively greater post-TIPS survival suggesting that TIPS could be used as a bridge for re-transplantation.

Abstract# P-486

COST AND CLINICAL OUTCOMES ASSOCIATED WITH THE USE OF PERI-OPERATIVE FACTOR VIIa IN LIVER TRANSPLANTATION (LTx). Jenna L. Scheffert¹, Dave J. Taber¹, Neha Patel¹, Nicole A. Weimert¹, Brianne L. Dunn¹, Angello Lin², John E. McGillicuddy², Michael G. Hughes², Charles F. Bratton², Prabhakar K. Baliga², Kenneth D. Chavin². ¹Department of Pharmacy, Medical University of South Carolina, Charleston, SC, USA; ²Division of Transplant Surgery, Medical University of South Carolina, Charleston, SC, USA

Purpose: The aim of this study was to determine the clinical and economic outcomes of factor VIIa use in perioperative liver transplantation compared to a matched control group.

Methods: This was a propensity score matching (PSM) analysis including all adult liver patients transplanted between 1/00 and 9/08. Patients who did not receive factor VIIa served as the control group. After preliminary analysis, it was determined that there were differences with baseline characteristics between groups; therefore, PSM analysis was conducted to compare two well matched groups.

Results: Between 1/00 and 9/08, 473 livers were transplanted, of which 63 (13%) received factor VIIa, and were approximately matched 1:2 using PSM analysis. Groups were matched for age at time of transplant, gender, race, extended-criteria donor (ECD), MELD score, and fulminant hepatic failure status. Table 1 displays blood product usage and economic outcomes. Table 2 displays clinical outcomes. Clinical outcomes, including hemorrhagic and thrombotic events and 30-day patient and graft survival, were similar between groups. Blood product usage, length of stay, and costs all favored the control group compared to the factor VIIa group.

Blood Product Usage and Economic Outcomes	Factor VII (n=63)	Control (n=120)	P-value
Median total blood product (range)	51 (0-207)	23 (0-510)	0.015
Total blood product cost (mean±SD)	\$17,919±\$16,539	\$11,973±\$13,279	0.010
Greater than 40 total blood products used	38 (60%)	50 (42%)	0.020
OR time in min (mean±SD)	40±41.20	40±54.20	0.95
Overall hospital stay cost (mean±SD)	\$164,996±\$117,106	\$104,198±\$67,148	<0.001

Clinical Outcomes	Factor VII (n=63)	Control (n=120)	P-value
Primary Graft Non-function	3 (5%)	4 (3%)	0.690
Hepatic Artery Thrombosis	5 (8%)	10 (8%)	1.00
Other thromboembolic events	2 (3%)	2 (2%)	0.610
Any post-op bleeding event	17 (27%)	23 (19%)	0.260
Severe post-op bleeding event	8 (13%)	8 (7%)	0.179
ICU length of stay in days (mean±SD)	6±6	4±5	0.018
Hospital length of stay in days (mean±SD)	22±26	13±16	0.004
30-day graft survival	58 (92%)	109 (91%)	1.00
30-day patient survival	56 (89%)	112 (93%)	0.400

Conclusions: These data suggest that factor VIIa use during perioperative liver transplantation may not reduce blood product consumption or costs or improve clinical outcomes.

Abstract# P-487

ALLOANTIBODIES DETECTED BY LUMINEX IgG-PRA AND THE OUTCOME OF LIVER ALLOTRANSPLANTS. Francisco Monteiro¹, Helcio Rodrigues¹, Jorge Kalil¹, Paulo Massarolo², Carlos Baia², Sergio Mies². ¹Laboratory of Transplantation Immunology, University of São Paulo, Medical School of São Paulo, São Paulo, SP, Brazil; ²Liver Unity, University of São Paulo, Medical School of São Paulo, São Paulo, SP, Brazil

The significance of circulating donor-specific antibodies in liver allograft transplant remains unclear. The objectives of this study were 1) to analyze liver recipients for the presence of alloantibodies using Luminex methodology, and 2) to determine if this sensitization poses a risk to the liver allograft. To do this, a retrospective analysis of 34 cadaveric liver graft transplants between January and December 1999 was undertaken. Only patients with at least 2 samples collected after the transplantation were selected (34 out of 66 liver transplantation). Patient sera were collected before and sequentially after the transplantation and tested for both % PRA and donor-specific IgG anti-HLA Class I and Class II antibodies using multiparameter, Luminex microsphere-based assays (Tepnel Lifecodes Corporations). There was not significant correlation between pretransplant Luminex-IgG PRA results and graft outcomes. However, analysis of posttransplant specimens by Luminex-IgG PRA demonstrated correlation of assay results with graft dysfunction, as follows: almost all patients (14/18 transplants, 78%) with a Luminex-IgG PRA of >10% experienced a cellular rejection or lost their grafts (P<0.005). Donor-specific HLA antibodies (DSA) developed in 16 out of 35 (47%) recipient grafts. From those, 10/16 (62.5%) were present in patients with graft dysfunction and 6/18 (37.5%) with good outcomes. The follow up of those patients with DSA, showed that in 8 out of 16 (50%) disappeared in six months posttransplantation (5/8 – 62.5%, 0/8 – 0.0% and 3/8 – 37.5%, patients with good outcome, graft loss and rejection patients, respectively – P<0.05). On the other hand, among the patients that presented DSA persistently after 6 months posttransplantation, one of them evaluated without graft dysfunction but with reduction of DSA title and the other two are in the rejection group where one underwent to chronic rejection and the other experienced multiple rejection episodes. Further follow-up is underway to extend and confirm these observations. We conclude that the presence of Luminex-detected IgG alloantibodies observed during the post transplant period of this study correlates with higher rates of graft rejection and graft dysfunction.

Abstract# P-488

DEGREE OF THROMBOCYTOPENIA AS AN INDICATOR OF SEVERITY OF LIVER DISEASE IN PATIENTS AWAITING AND FOLLOWING LIVER TRANSPLANTATION. R. S. Brown, Jr.¹, R. Odeh-Ramadan¹, N. H. Afdhal², M. P. Curry², R. Reddy³, F. Poordad⁴, T. D. Schiano⁵, M. R. Charlton⁶, S. B. Han⁷, D. Theodore⁸, K. Grotzinger⁸, J. Ishak⁹, K. Payne⁹, N. Lordan⁹. ¹Columbia U, NY, USA; ²Beth Israel Deaconess MC, Boston, USA; ³UPennsylvania, Philadelphia, USA; ⁴Cedars Sinai MC, LA, USA; ⁵Mt Sinai, NY, USA; ⁶Mayo Clinic, Rochester, USA; ⁷UCLA, LA, USA; ⁸GSK, RTP, USA; ⁹United BioSource, Nashua, NH, USA

Aim: To elucidate the relationship between platelet (PLT) counts, severity of liver disease & bleeding in CLD pts. **Methods:** A retrospective chart review

(6/1/04-5/31/06) of pts w/CLD, bridging fibrosis, & cirrhosis from 10 liver centers (7 US; 3 non-US) was conducted. 3 cohorts were identified: (1) pts w/liver transplant evaluation (LTE), (2) pts w/liver transplant (LT) waiting list & no transplant; (3) pts who had a LT. Demography, liver disease severity (MELD score), Charlson's comorbidity index (CCI), PLT counts & procedures performed were collected. Weighted average PLT count & MELD score were estimated based on duration of time w/PLT count or MELD score. 4 PLT count groups (<50K, 50-80K, >80-100K and >100K; K=1000/μL) and MELD groups (<10, 10-19, 20-30, >30) were formed. Severity of CLD, CCI, and bleeding were compared across PLT groups. **Results:** Interim results on 489 US pts are presented. 47% w/LTE, 38% were on LT waiting list, & 14% had a LT. Cirrhosis w/o mention of alcohol was the most common liver diagnosis (39%), chronic hepatitis C (34%), alcoholic cirrhosis (29%), & portal hypertension (17%). ~55% of pts had a weighted average PLT<80K, including 24%<50K. Among pts w/MELD≥10, 60% PLT<80K.

	Proportion (%) within PLT group		
	<50K	50-80K	>80-100K
MELD<10 (n=171)	25	28	13
MELD>10 (n=195)	24	36	15
Bleeding (n=26)	23	35	12
CCI	3.9	4.1	4.5

No trend was seen in the mean CCI score (greater score, more (severe) comorbidities) & PLT counts 72% of pts received GI procedures. Bleeding was observed in 5% (n=26) of pts, with 58% (n=15) of bleeding occurring in pts w/PLT<80K. 80% (n=21) of bleeding events were observed with MELD scores ≥10. **Conclusions:** In this study, pts w/low PLTs seemed to experience more bleeding events. There is a trend toward more severe liver disease in pts w/low PLTs, but a considerable proportion w/milder liver disease also had low PLTs & bleeding.

Abstract# P-489

CELSIOR PRESERVATION FLUID IN LIVER TRANSPLANTATION: ONE-YEAR FOLLOW UP OF A PROSPECTIVE, MULTICENTER, NON-RANDOMIZED STUDY. Stephane Grandadam, Philippe Compagnon, Ephrem Salame, Philippe Wolf, Christian Ducerf, Patrice Le Treut, Olivier Soubrane, Daniel Cherqui, Karim Boudjema, Eric Bellissant. Hôpital de Pontchaillou, Rennes, France; Hôpital de Pontchaillou, Rennes, France; Hôpital de la Côte de Nacre, Caen, France; Hôpital de la Haute Pierre, Strasbourg, France; Hôpital de la Croix Rousse, Lyon, France; Hôpital de la Conception, Marseille, France; Hôpital Cochin, Paris, France; Hôpital Henri Mondor, Créteil, France; Hôpital de Pontchaillou, Rennes, France; Hôpital de Pontchaillou, Rennes, France

Data comparing allograft outcomes following liver transplantation using Celsior or University of Wisconsin (UW) preservation fluids are limited. We conducted a prospective, nine-center, non-randomized study in 140 patients who received donor livers preserved with Celsior. The presence of a steatosis was clinically and/or microscopically assessed in 129 grafts. Moderate to severe steatosis was detected in 13 grafts (10.1%). Primary non-function occurred in two patients (1.4%). Ten patients (7.1%) underwent retransplantation and twenty patients (14.3%) died. The primary endpoint, graft loss at one year, occurred in 24 patients (17.1%), which was not significantly different from the pre-defined rate of 20.0% (95% confidence interval [CI] 10.9, 23.4; p=0.398). Predictive factors for graft loss on univariate analysis were moderate-to-severe steatosis on the donor graft (5/22 patients with graft loss versus 8/107 patients without graft loss, p=0.046) and duration of warm ischemia (1.4±1.1 hours in 22 patients with graft loss versus 0.9±0.5 hours in 108 patients without graft loss, p=0.034). Hepatic artery thrombosis and stenosis occurred in seven (5.0%) and six (4.3%) patients, respectively. Kaplan-Meier analysis of 7,152 matched controls from the European Liver Transplant Registry database who received total liver grafts preserved with UW solution showed one-year graft survival to be similar to Celsior (UW: 84.2%, 95% CI 83.3, 85.1; Celsior: 82.9%, 95% CI 75.8, 88.2; p=0.671). **In conclusion,** one-year allograft survival using unselected donor livers preserved with Celsior was similar to matched controls receiving grafts preserved with UW solution. No apparent increase in risk of surgical complications was observed with Celsior solution.

Abstract# P-490

SUCCESSFUL PREGNANCY IN A PATIENT WITH EPITHELIOID HEMANGIOENDOTHELIOMA – A CANDIDATE TO LIVER TRANSPLANTATION. Zoulikha Jabiry-Zieniewicz, Katarzyna Bobrowska, Barbara Suchonska, Iwona Szymusik, Oskar Kornasiewicz, Piotr Smoter, Krzysztof Zieniewicz. *I Dept. of Gynecology and Obstetrics, Medical University of Warsaw, Warsaw, Poland*

Introduction: Epithelioid hemangioendothelioma (HE) is a rare primary malignant tumor of the liver, most often reported in women of reproductive age. The prognosis is unpredictable, 5-year survival is 44 – 55%. We present a case of successful pregnancy in a patient waiting for liver transplantation (LTx) with HE.

Case report:

The asymptomatic nulliparous woman, aged 29, was diagnosed with abnormal masses in the liver during a routine US examination of the abdomen. Multifocal lesions, 52 x 24 mm to 5 x 4 mm, were localized in 3-7 segments and were best visualized in CEUS. Liver function tests were normal. Diagnostic laparoscopy revealed normal sized liver with numerous solid creamy tumors and final diagnosis of HE was established. The patient was qualified for LTx. 6 months later she got pregnant. Pregnancy with multifocal HE was considered extremely high risk and abortion for medical indication was suggested. The patient, however, will fully continued pregnancy. The early prognosis was poor. Significant progress of the disease and the need for idiopathic premature delivery at 30-32 weeks gestation were expected. Regular US imaging of the liver performed in 14, 24, 32 weeks did not indicate for any significant changes in the number and size of the observed lesions. Liver parameters, controlled monthly, during the whole course of pregnancy were normal. In 24 weeks gestation gestational diabetes was diagnosed and dietary treatment was established. In September 2008 in 37 weeks gestation premature rupture of the membranes occurred and due to obstetrical indications (breach presentation of the fetus in primigravida) cesarean section was performed. The neonate, male, weighted 2700 g, was delivered in good state with the Apgar score of 10. The postoperative period and the puerperium were uneventful. No serious neonatal complications were observed. Post-partum sonographic examination did not show any progress of the disease. Noteworthy, the patient has withdrawn her agreement for LTx and undergoes only regular sonographic examinations.

Conclusion: The presented case shows that the pregnancy with HE may be successful and may not accelerate neoplastic process. Nevertheless the postpartum observational period is too short to draw final conclusions and the long-term prognosis for the patient remains uncertain.

Abstract# P-491

ANALYSIS OF SURVIVAL AFTER PRIMARY LIVER TRANSPLANTATION – MULTIVARIATE ANALYSIS OF 155 CASES IN A SINGLE CENTER INSITUATION. Julio C. Wiederkehr, Mauro R. Igreja, Marcelo S. Nogueira, Nelson D. Souza, Barbara A. Wiederkehr, Vitor B. Nascimento. *Liver Transplantation, Hospital Santa Isabel, Blumenau, Santa Catarina, Brazil*

This study presents a prospective multivariate analysis of the outcome primary liver transplant adult recipients. From November 2006 through December 2008, 154 patients received first cadaveric liver transplant at Hospital Santa Isabel in Blumenau, Brazil. The data analyzed included: age of the recipient, gender of the recipient, ABO type, indication for the transplant, MELD score at the time of transplant, operative time, donor age, gender of the donor, cold ischemic time, and quantity of blood products required - red blood cells from the blood bank (PRBC), red blood cells recovered during the operation (cell saver), platelets and fresh frozen plasma. Recipient age ranged from 14 to 67, mean of 51.14±11.08, 49 were female and 105 male. MELD score at time of transplant ranged from 10 to 64, mean of 23.49±9.66. Most frequent indications for liver transplantation were cirrhosis due to HCV infection in 54, HCC in 30, alcoholic cirrhosis in 24, cirrhosis due to HBV infection in 12, and cryptogenic cirrhosis in 10 patients. After Cox regression multivariate analysis the increment of death risk for PRBC was 17.08%, and for MELD score was 3.83%.

Variable	B	SE	Wald	df	Sig.	Exp(B)
PRBC	.158	.045	12.175	1	.0004	1.1708
MELD score	.038	.019	3.978	1	.046	1.0383

The usage of PRBC and an increment of MELD scores at time of transplant had a negative impact on the outcome of cadaveric primary liver transplantation in adults.

Abstract# P-492

LIVER TRANSPLANTATION IN PERÚ: OUTCOMES IN A SINGLE CENTER. José C. Chaman, Pedro M. Padilla, Carlos F. Rondon, Eduardo G. Anchante, Felix A. Carrasco, Fernando M. Bobadilla. *Transplant Department, Guillermo Almenara National Hospital, ESSALUD, Lima, Peru*

Aim: To describe the outcome of Liver transplant patients in our center.

Methods: We reviewed the records of the 50 liver transplant patients (49 primary transplants, 1 retransplant), from 2000 to 2008 in 41 adult and 8 children. Donors and graft profile: 46 cadaveric and 4 living related donors: 45 whole liver, 1 reduced size liver and 4 LDLT. Results: Transplant type: 49 LT alone, 1 Combined Liver-kidney Transplant. Gender: 29 males, 21 females, Age: 14 months to 60 years. Child Pugh scores: 8-15 (mean:10), MELD scores: 15-40 (mean 20). Etiology: Adults: PBC 10 (25%), Alcohol: 8 (19%), NASH: 6 (14%), HCV: (12%), autoimmune hepatitis 5 (12%), HBV: 3 (7%), cryptogenic: 3 (7%), alpha 1 antitrypsin deficiency: 1 (2%). Children: Biliary atresia: 4 (44.4%), autoimmune hepatitis: 2 (22.2%), tyrosinemia: 1 (11.1%), cholesteryl ester storage disease cirrosis: 1 (11.1%), intrahepatic arterioportal fistulas 1 (11.1%). Surgical technique: convencional: 10, piggy back: 40. Complications: Primary Non function: 3 (6%), Bile leak: 3 patients, (6%), Hepatic artery Thrombosis: 3 (6%), severe neurotoxicity: 3 (6%), acute rejection: 8 (16%), CMV infection: 3 (6%), Varicela zoster: 2 (4%), candidemia: 5 (10%), disseminated cryptococcosis: 1 (2%), Parvovirus B 19 infection: 1 (2%), bronchiolitis obliterans organizing pneumonia (BOOP): 1 (2%), immunotolerance (free immunosupresion): 1 (2%). 30 days Mortality: 5 (10%), related to Primary Non Function : 3, myocardial infarction: 1, and disseminated cryptococcosis with CMV pneumonia. Retransplant: 1 (2%) for simultaneous hepatic artery and portal vein thrombosis.

Conclusion: In our country we can offer treatment in end stage liver disease in adults and children patients with similar results to other centers in the world.

Abstract# P-493

GYNECOLOGICAL AND OBSTETRICAL PROBLEMS IN PATIENTS AFTER LIVER TRANSPLANTATION – A CASE REPORT. Zoulikha Jabiry-Zieniewicz, Barbara Suchonska, Iwona Szymusik, Katarzyna Bobrowska. *I Dept. of Gynecology and Obstetrics, Medical University of Warsaw, Warsaw, Poland*

Introduction: Pregnancies in patients after liver transplantation are considered of high risk. Immunosuppressive treatment may help to sustain pregnancy, but on the other hand it can cause gynecological problems such as endometritis.

Case report: A case report of a 26-year old patient after liver transplantation due to hepatitis C is presented. Hepatitis C was diagnosed at the age of 18 and was followed by postinflammatory cirrhosis and liver transplantation 2 years later. After the procedure she had regular menstrual periods and conceived spontaneously at the age of 23. A monochorionic diamniotic pregnancy was diagnosed during ultrasound examination. During pregnancy she was treated with prednisone (7.5mg daily) and tacrolimus (2+2mg daily). The pregnancy was complicated first by anaemia, then by pregnancy induced hypertension at 22 weeks. Imminent preterm labor was diagnosed at 27 weeks of gestation (received tocolytics and steroids). Cholestasis gravidarum was additionally at 32 weeks of gestation. Premature rupture of membranes took place at 34 completed weeks of gestation and cesarean section was performed the following day. The liver function throughout pregnancy, puerperium and during a 5-year follow-up was normal. Despite uneventful postpartum period and normal hormone levels the patient experienced irregular uterine bleedings caused by endometrial polyp and endometritis diagnosed in histopathological examination. The latter could be a complication due to immunosuppressive treatment.

Conclusion: Patients after liver transplantation require special gynecological care because different problems can be encountered even if laboratory results are normal.

Abstract# P-494

LIVER TRANSPLANTATION IN PATIENTS WITH FAMILIAL AMYLOID (FAP): COMPARISON OF DIFFERENT TRANSTHYRETIN MUTATIONS. Ana-Paula Barreiros¹, Felix Post², Maria Hoppe-Lotichius³, Peter R. Galle¹, Gerd Otto³. ¹Johannes Gutenberg-University Mainz, I Department of Internal Medicine, Mainz, Germany; ²Johannes Gutenberg-University Mainz, II Department of Internal Medicine, Mainz, Germany; ³Johannes Gutenberg-University Mainz, Department of Transplant Surgery, Mainz, Germany

Introduction: Liver transplantation (LT) is the only curative option for patients with familial amyloid polyneuropathy (FAP). Depending on the underlying mutation, indication, treatment and outcome of patients may differ considerably.

Patients: 19 patients with FAP underwent LT between 05/1998 and 02/2007. Transthyretin mutations included Val30Met (7 patients) and 10 other mutations.

Symptoms: Almost all patients suffered from polyneuropathy. Cardiac symptoms differed considerably. Arrhythmia was present in all but one patient with Val30Met mutation. In 2 patients with Leu12Pro mutation severe seizures were the leading symptoms. 6/12 patients with non-Val30Met mutations suffered from considerable amyloid load of the heart leading to impaired pump function.

Treatment: In 6 of 7 patients with Val30Met mutation a cardiac pacemaker was implanted before LT. In 3 patients with non-Val30Met mutations combined heart-liver transplantation was deemed required due to impaired systolic function, in one patient due to severe arrhythmia during attempted LT. In the first patient this approach was performed simultaneously, in the 3 following patients several weeks after cardiac transplantation with a clinical course being less complicated.

Outcome: 7 patients died after LT corresponding to a 5-year survival of 57 %. 2 patients with Val30Met mutation being older than 60 years of age died about 1 year after LT even they had no or only mild impairment of cardiac function. Two patients with Leu12Pro died with complications of grand mal seizures, and both patients with Gly47Glu died of cardiac arrest even though respective symptoms were totally absent before LT.

Conclusions: In younger patients with Val30Met mutation LT is the treatment of choice. According to our results and to the literature, LT should be performed as early as symptoms of polyneuropathy are recognised. The indication for implanting a pacemaker is questionable and obviously a defibrillator has to be preferred if required. In particular in patients with non-Val30Met mutations the indication of combined heart-liver transplantation depends on amyloid load of the heart and impaired systolic function.

Abstract# P-495

TUBERCULOSIS AFTER LIVER TRANSPLANTATION: A SINGLE CENTER EXPERIENCE. Shih-Ming Kuo¹, Teng-Wei Chen², Chung-Bao Hsieh². ¹Pediatric Surgery, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan; ²General Surgery, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan

Aim: *Mycobacterium tuberculosis* (TB) infection is a serious opportunistic infection in liver transplant recipients. We report our experience of incidence, clinical presentation, management, complications and outcome of TB infection after orthotopic liver transplantation (OLT) and living donor liver transplantation (LDLT).

Patients and Methods: The medical records of patients with TB infection after liver transplantation were analyzed retrospectively with the period from August 2001 to January 2009.

Results: A total of 98 liver transplantations were performed in our medical center from August 2001 to January 2009. Three patients (3.1%) developed TB infection after transplantation (LDLT: 2/54, 3.7%; OLT: 1/44, 2.3%). At the same period, a total of 102 patients undergoing OLT in an offshore hospital were followed up in our center and 2 patients (offshore OLT: 2/102, 1.96%) developed TB infection. The mean time of developing TB infection after liver transplantation was 21.9 months (range, 7.7 to 37.2 months). In these 5 patients, 4 were pulmonary TB infection with cough and fever as initial presenting symptoms and 1 was TB epididymitis presenting as recurrent pyuria and scrotal pain. TB polymerase chain reaction and the sputum culture were positive in all patients with pulmonary TB infection whereas patient with TB epididymitis had the positive urine culture. Anti-TB drug-related side effects occurred in 3 patients (hepatitis in 1; skin rash in 2) but all resolved after adjusting dosage or changing regimen. With a mean

follow-up of 18.5 months (range, 6.4 to 51.3 months), all patients survived till now. **Conclusions:** Since TB infection after liver transplantation may cause a significant morbidity and mortality, early diagnosis and treatment are important in these patients. Besides, close monitoring of liver function and blood level of immunosuppressant are obligatory after the use of anti-TB medications.

Abstract# P-496

POSTOPERATIVE LIVER TRANSPLANT FUNCTION SCORE CAN PREDICT SHORT AND LONG-TERM SURGICAL OUTCOMES. Mazen Hassanain, Jean Tchervenkov, Prosanto Chaudhury, Jeffery Barkun, Steven Paraskevas, Marcelo Cantarovich, Peter Metrakos. *Surgery, McGill University Health Center, Montreal, QC, Canada; Medicine, McGill University Health Center, Montreal, QC*

Introduction:

Donor Risk Index (DRI) predicts graft-survival after orthotopic liver transplantation (OLTx) but fails to consider recipient characteristics and perioperative events. We studied the Schindl scoring system, to predict outcomes after OLTx. This score has been validated after liver resection to predict mortality and morbidity.

Method:

After excluding multi-organ transplants, re-do transplants, organ failure secondary to vascular thrombosis, and acute fulminant liver failure, 451 patients transplanted between 1996-2007 at McGill University Health Centre were analyzed.

A modified Schindl, post-transplant liver function score (PTLF) was used to classify patients to normal (score <4) or as having liver dysfunction (score ≥4). Calculations were based on the highest two results in the first 7-days post-OLTx.

Point system for liver function score calculations

Total bilirubin	<20	20-60	>60
INR	<1.8	1.8-2.3	>2.3
serum lactate	<1.5	1.5-3.5	>3.5
GIVEN POINT	0	1	2

30-day post-OLTx complications were graded by the Clavien system, grade 1, 2 were classified as minor, and ≥3 were classified as major. Graft loss was defined as the need for re-transplant or patient death.

Results:

Using PTLF score, 42% of patients were "normal" and 58% were "dysfunction". Major post-OLTx complication occurred in 33% of patients.

In univariate analysis, DRI, recipient age, sex, MELD, HCV cirrhosis, hepatocellular carcinoma, operative blood loss, intra-operative transfusion, and cold ischemia time did not predict post-OLTx complications. Post-OLTx blood transfusion and PTLF ≥4 were associated with higher post-OLT complications (75% vs. 45% p=0.004, 80% vs. 37% p=0.011 respectively). In multivariate analysis, only PTLF ≥4 remained significant (p=0.016).

Graft survival analysis for all previous variables revealed DRI, and PTLF ≥4 to be significant determinants of 5-yr graft survival (p=0.004, and 0.001 respectively). On survival modeling with both co-variables, only PTLF ≥4 remained significant (p=0.018).

Conclusion:

The PTLF scoring system is an easy and clinically practical tool to help predict postoperative complications and long-term graft survival based on early postoperative events.

Abstract# P-497

GRANULOMATOUS INFECTIONS IN LIVING DONOR LIVER TRANSPLANT CANDIDATES. Allan Concejero, Chao-Long Chen, Hung-I Lu, Hock-Liew Eng, Jien-Wei Liu, Chin-Hsiang Yang, Chih-Chi Wang, Shih-Ho Wang, Yueh-Wei Liu, Chee-Chien Yong. *Liver Transplant Program, Chang Gung Memorial-Hospital Kaohsiung Medical Center, Kaohsiung, Taiwan*

Objective: Granulomatous infections carry significant morbidity after transplant due to its potential lethal disseminated form of disease brought by immunosuppression and drug toxicity used in treatment. Our aim is to review our approach in the management of liver transplant candidates with granulomatous infections.

Methods: Sixteen of 249 adult primary living donor liver transplant (16.6%) patients were diagnosed with granulomatous infections. Records were reviewed.

Results: All patients were males. Mean age was 52 years. Five were diagnosed with pulmonary cryptococcosis, 4 with pulmonary tuberculosis, 1 with gastrointestinal miliary tuberculosis, and 6 with granulomatous pulmonary nodule of undetermined etiology. All were asymptomatic as to organ involvement. Pulmonary nodules were the most frequent radiological abnormality. Three cryptococcosis patients presented with solitary pulmonary nodules and were resected, 1 presented with both pulmonary nodule and pleural effusion where the nodule was resected, and 1 presented with pleural effusion. Of the 4 pulmonary nodule patients, 1 nodule was resected and the rest were treated medically. The gastrointestinal miliary tuberculosis patient did not show any abnormality both on chest x-ray and CT scan. On laparotomy, at transplant, the bowels were noted to be studded with miliary-like nodules and histologic confirmation of these nodules showed tuberculosis. The transplant operation in this patient was aborted. Of the 6 granulomatous nodules classified as undetermined etiology, 3 were calcified granulomas and 3 were small (<0.5 cm) to be considered significant. All cryptococcosis patients received fluconazole for 2 weeks before transplant and continued for at least 2 years posttransplant. All pulmonary tuberculosis patients received a modified anti-tuberculous regimen consisting of moxifloxacin, pyrazinamide, isoniazid, and ethambutol for 6 months to 1 year. All 6 patients with granulomatous nodules of undetermined etiology did not receive any other treatment. There was no mortality among transplanted patients. Recurrent infection was not seen in any patient after a minimum of 90 days follow-up posttransplant. **Conclusion:** Adequate antibiotic treatment of active granulomatous infections before and after liver transplant results to effective control of the disease and avoids fatal dissemination.

Abstract# P-498

A LIVING DONOR LIVER TRANSPLANTATION FOR UNCORRECTABLE INTRA- AND EXTRAHEPATIC BILOMA AFTER TRANSCATHETER ARTERIAL CHEMOEMBOLIZATION. Youn Jin Kim¹, Seong-Hwan Chang^{1,2}, Ik Jin Yun^{1,2}, Hae Won Lee^{1,2}. ¹Organ Transplant Center, Konkuk University Hospital, Seoul, Republic of Korea; ²Department of Surgery, Konkuk University School of Medicine, Seoul, Republic of Korea

We experienced a living liver transplantation of an unusual indication of uncorrectable intra- and extrahepatic biloma after transcatheter arterial chemoembolization (TACE) which could be a relative contraindication so that we are reporting it. A 45 year old patient was a carrier of HBsAg for more than 25 years. He was diagnosed to be hepatocellular carcinoma (HCC) in 2004. He then underwent TACE 6 times and had a complication of biliary stricture in Nov. 2007. At that time the problem was solved with an interventional procedure. In Apr. 2008, he underwent another TACE for HCC, and after that a long segment of biliary stricture was developed. With recurrent cholangitis, there developed two huge biloma, one in the liver and one outside the liver. Percutaneous transhepatic biliary drainage for the intrahepatic biloma and percutaneous drainage for the extrahepatic biloma with long standing antibiotics administration were done, but with all effort there was no improvement. The Child-Turcotte-Pugh score was 6 and *Klebsiella pneumoniae* was detected in culture for the drain discharge. The CT shows two large biloma; one in the liver and one outside the liver. There was massive adhesion due to recurrent infection and inflammation in the abdominal cavity. Small amount of pus was inevitably spilled into the abdominal cavity. The extrahepatic biloma was found to be abdominal wall abscess which was covered with thick peritoneum. The total recipient operative time was 12 hours and 25 minutes and required transfusion was 8 units of packed RBC and 4 units of FFP. The biopsy showed HCC of 3.0 x 1.5 x 1.2 cm in the caudate lobe. Hepatolithiasis with chronic and active cholangitis and multiple abscess formation was also seen. He is now visiting the outpatient clinic without a problem. Although usually active and uncontrolled infection outside of the hepatobiliary system is thought to be an absolute contraindication to liver transplantation and chronic and refractory infection is thought to be a relative contraindication. In the present case, however, the localized, controlled infection and biloma did not cause the posttransplant septic complications. Therefore, a liver transplantation could be considered for uncorrectable, infected biloma if other treatment modalities failed.

Abstract# P-499

SEVEN SCORE SYSTEMS TO EVALUATE CANDIDATES TO ORTHOTOPIC LIVER TRANSPLANTATION: WHICH IS THE WINNER? Stefano Gitto¹, Maurizio Biselli¹, Annagiulia Gramenzi¹, Giovanni Vitale¹, Stefania Lorenzini¹, Roberto Di Donato¹, Lucia Brodosi¹, Maria Cristina Morelli², Gian Luca Grazi², Antonio Daniele Pinna², Mauro Bernardi¹, Pietro Andreone¹, Bologna Liver Transplantation Group (BLTG). ¹Department of Clinical Medicine, University of Bologna, Bologna, Italy;

²Department of General Surgery and Organ Transplantation, University of Bologna, Bologna, Italy

Background/Aims: The Model of End-Stage Liver Disease (MELD) is widely used to prioritize cirrhotic patients awaiting LT, but potential limitations of this score have been reported. In the last years, many other prognostic systems have been proposed to predict the outcome of cirrhotic patients. In this study, we investigated the performance of MELD and other six score systems in a cohort of cirrhotic patients listed for LT. **Methods:** We retrospectively analyzed data of 452 consecutive patients, listed according to their MELD score at Bologna Transplant Center, between 2003 and 2008. The following scores were calculated with the original formula at the time of listing: MELD, modified Child-Turcotte-Pugh (mCTP), MELD to serum sodium ratio (MESO), MELD and serum sodium (MELD-Na), United Kingdom MELD (UKELD), change in MELD score over time (Δ MELD) and integrated MELD (iMELD). The area under the receiver operating characteristic curve (ROC) was calculated at 6-, 12- and 24-month to evaluate the performance of the different scores as mortality predictors. The Kaplan-Meier survival curves were performed using the cut-offs identified by means of 12-month ROC. **Results:** At 6-, 12- and 24-month the iMELD showed the highest area under the ROC (0.792, 0.752, 0.708; respectively) followed by MELD-Na (0.762, 0.727, 0.682), mCTP (0.760, 0.713, 0.673), UKELD (0.744, 0.700, 0.665), MESO (0.723, 0.696, 0.656), MELD (0.717, 0.692, 0.651); Δ MELD showed a not significant area under the ROC. The identified cutoffs were for iMELD 39 points, MELD-Na 17, mCTP 10, UKELD 59, MESO 1.4 and MELD 18. Survival curves at the three time points showed that all proposed scores clearly discriminated patients with higher mortality risk ($p < 0.001$). **Conclusions:** Among new analyzed models, five (iMELD, MELD-Na, mCTP, UKELD, MESO) seem to be better mortality predictors in comparison to traditional MELD. The iMELD is the most reliable prognostic predictor at 6-, 12- and 24-month. Further studies are needed to confirm these data and, in particular, to identify a new consolidated organ allocation tool.

Abstract# P-500

THE ROLE OF POST-REPERFUSION BIOPSY IN THE ERA OF EXTENDED CRITERIA DONOR. M. Raoufi¹, C. Ma¹, A. Ormsby¹, H. Vakili², K. Brown³, M. A. Huang³, D. Monka³, M. Abouljoud⁴. ¹Pathology, ³Division of Gastroenterology, ⁴Transplant Institute, Henry Ford Hospital, Detroit, MI, USA;

²Pathology, Wayne State University, Detroit, MI, USA

Background: Organ shortage drives transplant surgeons to consider organs with extended criteria for transplant. A post-reperfusion biopsy (PRB) at the time of transplant would serve the purpose of detecting existing pathology as well as obtaining baseline morphology for comparison with follow-up biopsies (FUBs). In this prospective study, we evaluate how and to what extent morphological changes in PRBs correlate with histologic findings in FUBs and clinical outcomes.

Design: Between January-July 2007, total of 50 liver transplants were performed in our center. Histologic sections of PRBs and FUBs (including H & E, trichrome and iron stains) were examined on a routine basis. All patients were followed till September 2008 and relevant clinical and laboratory data were recorded.

Result: Mean follow-up time was 518.4 days (range: 431-608). Mean time between PRB and FUBs was 94.9 days (SD $\pm$ 120.62) for the first FUB (40 cases), 111.2 days (SD $\pm$ 21.67) for the second FUB (16 cases), and 235 days (SD $\pm$ 123.85) for the third FUB (8 cases). Major histologic findings in PRBs included: preservation injury (21 cases), macrovesicular steatosis (16 cases), portal triad chronic inflammation and fibrosis (15 cases), and pericellular fibrosis (3 cases). Major histologic findings in FUBs included: acute cellular rejection (6 definite and 4 indeterminate cases), recurrent hepatitis C (6 cases), centrilobular necrosis (4 cases), and cholestasis (5 cases). After comparing pathological findings in PRBs and FUBs and correlating the findings with clinical and lab data, the following observations were made: 1) None of the major pathologic findings in PRBs persisted in FUBs, regardless of cause of end stage liver disease; 2) In patients with and without any type of pathology

in PRBs, no significant differences were found in liver function tests, length of hospital stay, and survival rates.

Conclusion: Our experience indicates: 1) Transplanting organs with pre-existing pathologic changes does not adversely affect the outcomes, and 2) PRBs can reliably serve as a baseline measure of existing pathology in donor organs. Given the low morbidity of such biopsies and continued expansion of donor criteria, having PRB is appropriate to better understand the long-term impact of baseline pathologic findings.

Abstract# P-501

LIVER ALLOCATION IN EUROPE: THE 2007-2008 ITALY-SLOVAKIA "TWINNING PROJECT" UNDER MELD-ALLOCATION'S PERSPECTIVE. Augusto Lauro, Ludovít Laca, Luboslav Bena, Antonio Pinna, Jan Koller, Daniel Kuba, Lorenza Ridolfi, Paola di Ciccio, Alessandro Nanni Costa. *Liver and Multiorgan Transplant Unit, S. Orsola-Malpighi Faculty Hospital, Bologna, Italy*

BACKGROUND: Twinning project was developed over '07-'08 between Italy (IT) and Slovakia (SK) on transplant under European (EU) approval: aim was to improve SK transplant network (organ, tissue, cell), fostering EU directives on transplant (by creation of Quality Management Guide), updating existing software for transplant and increasing organ donation in SK. **METHODS:** Project was developed over '07 by initial audits and site visits of IT transplant experts in SK centres (coordinated by local IT "resident twinning advisor"), in collaboration with SK experts, followed by development of national SK Quality Management Guide and updated Software (in 2008) for SK centres. Moreover, an agreement (under EU Transplant Network rules) was established regarding use in IT of SK marginal liver donors, not used for SK cirrhotic recipients. **RESULTS:** In 2006 deceased organ donor annual rate in SK was 12.1 p.m.p. (64 deceased donors), with 31.2% liver donation rate (20 liver donors); 15 livers were transplanted in Czech Republic, where - up to 2006 - SK cirrhotic patients were listed. Over 2007 (first twinning project year), it increased to 19.8 p.m.p. (107 deceased donors), with 41.1% liver donation rate (44 liver donors); 15 marginal liver donors were offered to IT (through IT organization IT Gate to Europe), harvested in Martin (13) and Kosice-SK (2); 13 of them successfully transplanted on IT cirrhotic recipients in IT transplant centres. **MELD RESULTS:** Due to IT regulation, 9 of SK marginal livers were transplanted in Bologna and Modena Centres (Emilia-Romagna Region-IT), strictly following MELD allocation rules: all of them were successfully transplanted and survived first year of transplant. Distance between centres (750 Km) were covered by flights obtaining reasonable ischemia time. **CONCLUSIONS:** International collaboration in EU on liver allocation is actively working and can be improved by twinings between countries: MELD allocation doesn't reduce success rate of transplant using marginal donors, even between different countries with longer distances. **On behalf of:** Italian Twinning Group: Mr Giordano, Ms Agger, Mr Piccolo, Ms Fehily, Mr Migliaccio, Mr Di Bartolomeo, Mr Fassati, Ms Porta, Ms Bariani, Mr Ghirardini, Ms Peritore, Ms Scaglia, Ms Minutoli, Mr Valeri, Mr Introna, Mr Bregeon (EU), Mr Zanello, Mr Pettinao, Mr Poniatowski (EU), Ms Gentile, Ms Lombardini, Ms Pianigiani, Mr Michelangeli.

Abstract# P-502

PRESUMED CONSENT LAWS ARE ASSOCIATED WITH HIGHER DONATION RATES AROUND THE WORLD.

Barbara Kern, Jason Rhee, Richard B. Freeman. *Transplantation Surgery, Tufts Medical Center, Boston, MA, USA*

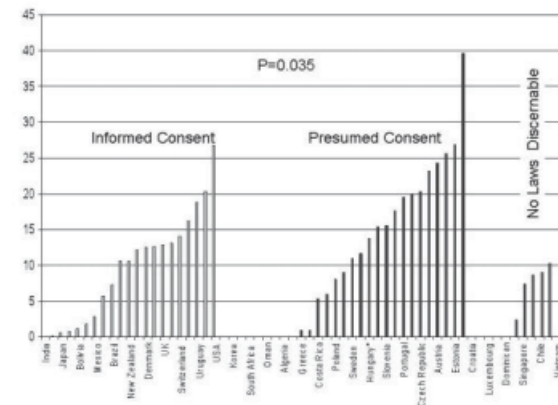
Background: Transplantation continues to expand around the world but donor shortages limit the effectiveness of this life saving therapy. Countries have used differing legislative approaches to address the organ shortage. Presumed consent has been advocated as one legislative maneuver to increase organ donation however the effectiveness of this approach has not been formally tested.

Aim: The purpose of this study was to compare organ rates among countries with presumed consent dictates organ donation with countries where donor informed consent is required before donation.

Methods: We searched the internet and PubMed for all relevant documents indicating organ donation rates and the presence of legislation regarding organ donation. Donation rates were recorded in donor per million population (DMP) with the most recent statistics available used for comparisons. We also assessed to presence of donation after cardiac death (DCD) programs for its relationship to (DMP).

Results: We were able to obtain data for 64 countries in which some documentation of organ donation legislation was available. This represents

the largest survey in the literature to date. Of these, 64 had DMP data reported within the last 5 years and 58 had information regarding presumed versus informed consent. We found a statistically significant relationship between the presence of presumed consent legislation and DPM.



Abstract# P-504

LIVER TRANSPLANTATION FOR BILIARY ATRESIA IN ADULTS: SHOULD THE PATTERN OF ORGAN PROCUREMENT DICTATE THE THERAPEUTIC STRATEGY IN PATIENTS WITH BILIARY ATRESIA?

Mircea Chirica, Melanie Thouvenin, Olivier Scatton, Rim Cherif, Denis Bernard, Yvon Calmus, Pierre Philippe Massault, Olivier Soubrane. *Liver Surgery and Liver Transplantation, Cochin Hospital, Paris, France*

Recent results of living donor liver transplantation in BA adult patients put in question the validity of the actual management strategy (initial Kasai procedure, followed by salvage LT) of BA patients and re-opened the debate regarding the optimal timing of LT. We report the outcome of salvage LT after Kasai failure in BA adult patients in the setting of cadaveric liver donation and discuss the influence of the pattern of organ procurement on the therapeutic strategy for BA.

Patients and methods: Between 1989 and 2008, 15 adult BA patients with Kasai failure underwent deceased donor LT. There were 9 males and the median age at the time of LT was 19 years (range 15-37 years). The median age at the time of the portoenterostomy was 56 days (range 35-252 days). Patients had undergone a median of 2 (range 1-6) sessions of abdominal surgery prior to referral for LT. All patients had decompensated biliary cirrhosis at the time of LT. Twelve recipients (80%) received a whole liver graft and 3 patients (20%) received a split graft.

Results: Mortality was nil and operative morbidity was 73%. Postoperative intestinal perforation (IP) was recorded in 4 patients (27%) and it was favoured by intraoperative bowel injury at the time of LT. Hepatic artery thrombosis (HAT) occurred in 4 patients at a median of 20 days (range 7-22 days) after LT. This unusual rate was significantly higher than the overall 7% HAT rate after LT in our experience. HAT occurred in the setting of postoperative peritonitis due to IP in 3 of these 4 patients. Retransplantation was finally required in 6 patients (40%): HAT (n=4), late chronic rejection (n=1) and combined late arterial and portal vein thrombosis (n=1). The median follow-up was 5.7 years (range 6 months-17 years). Patient's overall survival at 1-, 5- and 10 years was 100%, 93% and 80%, respectively. Graft survival at 1, 5 and 10 years was 73%, 60% and 51%, respectively.

Conclusion: Survival following deceased donor LT for BA in adults justifies the current therapeutic strategy of salvage LT after Kasai failure. Available retransplantation seems nevertheless mandatory to validate this approach, and therefore the pattern of organ procurement should be considered for strategy planning in BA patients.

Abstract# P-505

SUCCESSFUL LIVER TRANSPLANTATION IN A PATIENT WITH EPIDERMOLYSIS BULLOSA ACQUISITA.

Lucia Migliorese, Giovanni Vennarecci, Ubaldo Visco Comandini, Roberto Santoro, Giuseppe M. Ettorre. *General Surgery and Liver Transplantation, Polo Ospedaliero Interaziendale Trapianti (POIT), Rome, Italy*

A 54 years old woman was referred to our Liver Transplantation Centre in 2005 with a decompensated HBV-HDV cirrhosis. She was HBsAg-positive, HBeAg-positive, with a fluctuating HBV-DNA and with HDV-RNA positivity. Since 1994 she had a diagnosis of Epidermolysis bullosa acquisita (EBA) presenting with large vesicles and skin erosions sometimes requiring treatment with oral steroids. The patient presented in the last 2 years multiple episodes of decompensation of the liver disease; Child Pugh Score was B9 with a MELD of 17 (TB=3.9; INR=1.4). She had ascites controlled with furosemide and enormous spleen at CT scan. A skin biopsy was made by dermatologists and showed at direct immunofluorescence linear IgG deposition at basement membrane zone. EBA is a sub-epidermal bullous disease whose pathogenesis is autoantibodies mediated. Collagen type VII, the major component of the anchoring fibrils, is the target antigen recognised by autoantibodies (IgG) in patients with EBA. Due to this alteration the epidermal layer lean to detach to derma and vesicles and bullae are formed. The involvement of gastrointestinal and respiratory mucosa is especially frightening because oesophageal membranes or ulcers can appear. We decided to enrol her for the waiting list for liver transplantation and she was transplanted with a cadaveric whole liver. During the transplantation procedure all cannula devices were fixed with stitches to the skin avoiding the use of plaster that could damage the skin surface. The patient had no complication at the operating theatre nor in ICU. She was detached from automatic respirator 6 hours after surgery and healed perfectly the operation wound. During hospitalization she developed some skin lesions but she had no

infective complications with a proper wound care. At 6 month after OLT the patient is well with a good liver function on an immunosuppressive regimen of tacrolimus and mycophenolate. She developed dysphagia and some difficulties in taking her medications; an upper endoscopy was performed and showed linear ulcers of the distal oesophagus that required massive treatment with protease pump inhibitors. This case shows that liver transplantation is a feasible procedure in patients affected by EBA. A special care has to be put in every procedure that can traumatize the skin or mucosal epithelium.

Abstract# P-506

PEDIATRIC LIVER TRANSPLANTATION IN AN ADULT LIVER TRANSPLANT PROGRAM: IS IT RELEVANT?

Thomas Gelas, Christine Rivet, Gabriella Pittau, Catherine Boucaud, Yves Bouffard, Pierre Sagnard, Etienne Javouhey, Alain Lachaux, Olivier Boillot. *Liver Transplant Unit, Edouard Herriot Hospital, Lyon, France*

There is controversy whether or not pediatric liver transplantation (LT) should be restricted to a high volume pediatric LT program, or performed in a mixed adult and pediatric program. The aim of this study was to review the results of pediatric LT in an originally adult LT center.

Patients and methods. Between January 1991 and February 2008, a total of 928 liver transplantations were performed at our institution; 129 (13.9%) of whom were done in 124 pediatric patients including 63 males and 66 females with a mean age and a mean body weight of 29 months (range: 68 days – 16 years) and 11kg (range:5-55) respectively. Types of grafts were 42 whole cadaveric livers, 74 left lateral sections, 8 left lobes, 4 right lobes and 1 monosegment (segment 2). Regarding partial livers, 44 were split liver grafts, 35 were living donor grafts and 8 reduced-size grafts. Combined multiorgan transplantations were done with kidney in 9 cases and with heart and lungs in 1 case. Arterial anastomoses were done in a direct end-to-end fashion using interrupted 8/0 prolene sutures using 4.5x loupe-magnification. Biliary anastomoses were bilio-enteric in 94 cases and duct-to-duct in 32 cases. All pediatric liver transplant procedures were performed by the same surgeon (OB).

Results. One, 5, 10 and 15 year patient and graft survival was 87%, 85%, 85% and 85% and 83.5%, 81.1%, 81.1% and 77.2% respectively. During the last 5 years (50 LT), patient and graft overall survival was 96%. Overall graft survival was significantly better for whole (88%) and living donor grafts (88.5%) compared to split (72.7%) and reduced-size (50%) grafts. Surgical complications included 1 graft primary nonfunction, 18 (14%) abdominal bleeding, 2 hepatic artery thrombosis (1.5%) with successful surgical revascularization in one, 15 (11.6%) portal vein thrombosis, 45 (34.8%) biliary complications. In total, 70 (54.2%) patients needed surgical revision. Five (3.8%) children underwent retransplantation for portal vein thrombosis (n=2), chronic rejection (n=2) and biliary complication (n=1). None of the patients who had a living donor graft had retransplantation.

Conclusions. Outcome of pediatric recipients in our series favourably compares with results of the literature emphasizing the relevancy of performing pediatric LT in an adult large volume center.

Abstract# P-507

INCIDENCE OF INFECTIOUS COMPLICATIONS AND THEIR EFFECT ON OUTCOME IN CHILDREN WITH AND WITHOUT LIVER TRANSPLANTATION FOR ACUTE LIVER FAILURE.

Gauri Godbole¹, Anil Dhawan², Naresh Shanmugam², Mohamed Rela³, Nigel Heaton³, Anita Verma¹.

¹Clinical Microbiology, Kings College Hospital NHS Foundation Trust, London, United Kingdom; ²Paediatric Hepatology, Kings College Hospital NHS Foundation Trust, London, United Kingdom;

³Transplant Surgery, Kings College Hospital NHS Foundation Trust, London, United Kingdom

Acute liver failure (ALF) is rare in children but carries high mortality. Infectious complications (IC) in adults are considered to be an important cause of mortality, however there is lack of data in paediatric population.

Aim: To determine the incidence of IC and their effect on outcome in children with ALF and in children who received liver transplantation (LT).

Methods: Retrospective review of the case records of children presenting with ALF. All patients had surveillance of cultures every week or more often if clinically indicated. All received antibiotic & antifungal prophylaxis and high dose acyclovir in neonates. Biochemical parameters, duration of hospital stay and patient outcome were compared between patients with IC and non-infectious groups; overall and in children with LT.

Results: 145 children (69 male), median (range) age of 4.22 (1 day-16 yrs) years were studied. 47/145 patients had proven IC (32%). 18 episodes of bacteraemia in 13 patients were observed, *Enterococci spp* being commonest. LRTI was seen in 12 patients, *Pseudomonas spp* predominated. UTI was also seen in 12; mainly *Candida albicans*. IC occurred in patients after a median (range) duration of 14 days (0-54 days) of admission. 8 (5%) had IC at admission. Median (range) duration of hospital stay in patients with IC 35(4-201) days was significantly higher than those without IC 11(1-14) days, $p < 0.0001$. The duration of ventilation was also significantly higher in the group with IC (10 days) as compared to non-infectious group (5 days); $p < 0.01$. Overall mortality was 16% (23), with no difference between IC & culture negative groups. 45% (21) in IC group had LT compared with only 26% (26) in non infectious group ($p < 0.03$). Patients with IC and underwent LT had a longer hospital stay median 8 days ($p < 0.03$) and ventilation 5 days ($p < 0.03$) as compared to those transplanted without IC, 4 days. The mortality of 2 transplanted groups was not different. **Conclusions:** Culture proven sepsis was not associated with increased mortality in children who did or did not receive liver transplantation, however this group had prolonged duration of ventilation and hospital stay.

Abstract# P-508

LONG TERM GRAFT FUNCTION AFTER PEDIATRIC LIVING DONOR LIVER TRANSPLANTATION – IMPACT ON GRAFT FIBROSIS. Ken Hoshino, Masaharu Mori, Yuki Yamamoto, Yohei Yamada, Naoki Shimojima, Masahiro Shinoda, Hideaki Obara, Shigeyuki Kawachi, Yasushi Fuchimoto, Minoru Tanabe, Yuko Kitagawa, Yasuhide Morikawa. *Surgery, KEIO University School of Medicine, Tokyo, Japan*

Background:

Living donor liver transplantation has become established for treating children with end-stage liver disease. However, in some cases, long-term survivors have fallen into graft dysfunction. This suggests that liver transplant recipients and their families face the challenge of maintaining graft function while minimizing long-term immune and nonimmune complications related to immunosuppressive medications.

Method:

We reviewed our pediatric patients who received living donor liver transplantation from the point of graft dysfunction more than 1 year after the operation, together with the results of protocol biopsy.

Results:

Forty-five patients survived more than 1 year after transplantation. We lost only one out of those patients. However, late graft dysfunction has been found in 8 patients which was not able to be predicted in advance. Bile duct stricture was found in 3 cases, resulting from torsion of the anastomotic part with growth development. Serum liver enzymes were elevated in 5 cases without serious clinical problems in the regular outpatient clinic. Hepatitis with minor fibrotic changes was present histologically. All 5 patients received steroid therapy and inflammation disappeared histologically. However, there was no improvement in hepatic fibrosis.

Furthermore, in postoperative protocol biopsies, we found pericellular fibrosis in 27 cases, and it is thought that some immunological insult is involved.

Conclusions:

The reason for progressive graft fibrosis is still unknown. Therefore, patient management based on permanent and careful immunosuppressive therapy is necessary to keep the graft in good condition throughout the patient's life.

Abstract# P-509

LIVER TRANSPLANTATION FOR MITOCHONDRIAL CYTOPATHIES IN CHILDREN: A SINGLE CENTRE EXPERIENCE. Roshni Vara¹, Julian Raiman², Bernard Portman¹, Giorgia Mieli-Vergani¹, Nigel Heaton¹, Nedim Hadzic¹. ¹Paediatric Liver Centre, King's College Hospital, School of Medicine, King's College London, London, United Kingdom; ²Paediatric Metabolic Unit, Evelina Children's Hospital, St Thomas' Hospital, London, United Kingdom

Aim: To review the outcome of liver transplantation (LT) in children with mitochondrial cytopathy (MC).

Methods: A retrospective study of the outcome of all patients diagnosed with MC and received LT between 1987 and 2008. **Results:** Overall 29 children with a diagnosis of MC established on tissue or mutational analysis were identified. Two were not listed due to pre-existing neurological involvement, both died. One was listed with normal muscle biopsy, a diagnosis of mitochondrial depletion syndrome on the liver tissue post-mortem was made,

she died awaiting LT. Seven patients (24%, 6 male) were transplanted, median age at presentation 1.81 years (0.24-2.24). Three patients, all presenting with ALF, died less than 2 years post-LT secondary to neurological deterioration. Two had normal CNS imaging before surgery, in all cases diagnosis was retrospective. In patient 7, emergency living related LT was performed before CNS imaging was possible, he died 6 weeks later. In patient 3, CNS imaging could not be obtained before emergency LT, MC was diagnosed on the explanted liver. In patient 4, complex IV deficiency was detected only in liver tissue, muscle enzymology and CNS imaging were normal. Patient 1 had known complex IV deficiency, decompensation of chronic liver disease warranted LT, after thorough neurological assessments were normal. Patient 2 had LT due to progressive liver disease, complex I/IV deficiency was made retrospectively after presentation with seizures.

Case	Gender	Age at Presentation (years)	Presentation	Time to LT (years)	MC diagnosis (Muscle/Liver)	Outcome
1	M	2.24	Hepatomegaly	3.98	IV (M)	Alive
2	F	1.19	Liver dysfunction	2.63	I/IV (M)	Alive
3	M	2.17	ALF	0.01	II/III (L)	Alive
4	M	1.94	ALF	0.18	IV (L)	Alive
5	M	0.26	ALF	1.05	II/III/IV (M)	Died
6	M	1.68	ALF	0.04	I/IV (M/L)	Died
7	M	0.33	ALF	0.01	IV (M)	Died

Table 1

Conclusion: MCs with liver involvement in children are rare and heterogeneous. LT is often required as a life saving treatment, but diagnosis is frequently only made retrospectively. Children with ALF due to MC have a poor prognosis, while those with a chronic presentation in the absence of neurological involvement should be assessed on an individual basis.

Abstract# P-510

LIVER TRANSPLANTATION IN HEPATOCELLULAR CARCINOMA IN CHILDREN WITH UNDERLYING CHRONIC LIVER DISEASE. Marianne Samyn¹, Alberto Quaglia¹, Dylan Lewis², Pauline Kane², Giorgia Mieli-Vergani¹, Nigel Heaton¹, Mohamed Rela¹. ¹Institute of Liver Studies, King's College Hospital, London, United Kingdom; ²Department of Radiology, King's College Hospital, London, United Kingdom

Background: Hepatocellular carcinoma (HCC) is the 2nd most common primary malignant liver tumour in childhood and often found in the context of an underlying chronic liver disease (CLD). Complete resection of the tumour offers the only chance of survival since the response to chemotherapy is poor. Liver transplantation (LT) has been reported as a therapeutic option, however numbers are small.

Aim: To report our experience at Kings College Hospital with LT in HCC in children with underlying CLD.

Patient and methods: Review of clinical records, histopathology and radiology of children with CLD and HCC, who underwent LT.

Results: 19 with CLD were diagnosed with HCC between 1991-2008. 5 had metastatic disease and 1 unresectable disease and were treated with chemotherapy/immunotherapy and died at a median time of 0.2 yrs after diagnosis. One underwent chemotherapy, -embolisation followed by an extended hepatectomy and is alive 1.7 yrs after surgery. LT was carried out in 12 children (7 male) between 1997-2008, at a median age of 2.2 yrs (range 1.2-17.8). Underlying liver disease was biliary atresia (5), PFIC (4) and autoimmune liver disease, alpha-1-antitrypsin deficiency and PN related liver disease in 1 each. In 3 HCC was an incidental finding on histology of the explanted liver. Median alpha-fetoprotein (AFP) was 191 KU/L. Tumour size on radiology varied between 0.5-9 cm with portal vein thrombus in 1 and lymphadenopathy in 2. 3 children received a whole graft and 1 LT was living-related in a child with no suspicion of HCC prior to LT. Histology on the explant showed vascular invasion in 6 (macroscopic (1) microscopic (5)). No chemotherapy prior to LT was given and 1 child with macroscopic vascular invasion received 1 course post LT. All children are alive without recurrence at a median time of 3.3 yrs (0.5-11.1) with no graft loss. Two children were outside Milan criteria, 2 outside UCSF criteria and all were within Hangzhou criteria.

Conclusion: In contrast to previous reports we show that LT without adjuvant chemotherapy is successful in paediatric HCC in CLD. Six monthly screening for HCC in children with CLD using ultrasound scan and AFP is advisable for early recognition and to avoid progression to extrahepatic disease, which remains a contraindication for LT.

Abstract# P-511

HYPERREDUCED LEFT LATERAL SEGMENT GRAFT FOR LIVING DONOR LIVER TRANSPLANTATION WITH SMALL RECIPIENT. Takuya Kimura, Mureo Kasahara, Akinari Fukuda, Takanobu Shigeta, Kazunari Sasaki. *Transplant Surgery, National Center for Child Health and Development, Setagaya, Tokyo, Japan*

Background: Discrepancy of the small recipient and liver graft make liver transplantation difficult because of the size mismatch, particularly in living donor liver transplantation (LDLT). Recent advance of surgical technique led liver transplantation introduced into small recipient using reduced left lateral segment. We report our surgical technique of hyperreduced left lateral segment using as a liver graft for the cases with small recipient having difficulty with size match.

Methods: In the past 3 years, we performed 77 cases of LDLT for pediatric cases. Among them, 8 cases used hyperreduced left lateral segment as a liver graft (HRLLS group), and 43 cases used standard left lateral segment (LLS group). We compared donor and recipient surgical outcome, and recipient outcome included complications and mortality between the 2 groups.

Results: Surgical time for donor was significantly longer in HRLLS group compared with LLS group ($p=0.0021$); however, blood loss and postoperative hospitalization did not show any difference between the 2 groups. Recipient body weight was significantly lower in HRLLS group compared with LLS group ($p<0.001$); however, graft recipient body weight ratio did not show difference between the 2 groups. Warm ischemic time is significantly longer in HRLLS group compared with LLS group ($p=0.01$); however, total surgical time and blood loss (L/kg) did not show difference between the 2 groups. Biliary complications developed 1 case in HRLLS group, and 2 cases in LLS group. Vascular complication was observed in 2 cases with LLS group. Recipient survival in HRLLS and LLS groups is 100% and 98%, respectively.

Conclusions: Hyperreduced left lateral segment liver graft could be an effective alternative in cases with having difficulty with size match, particularly in small recipients. However, further studies are required to establish as a standard technique for reduced left lateral segment graft.

Abstract# P-512

LIVING DONOR LIVER TRANSPLANTATION FOR BILIARY ATRESIA: A SINGLE CENTER EXPERIENCE.

D. Y. Kim, K. M. Kim, YJ Lee, S. G. Lee. *Surgery, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea*

We reviewed our 13-year experience using living donor as the definite therapeutic modality for end-stage liver disease in children with congenital biliary atresia (BA). From December 1994 to December 2007, 76 patients with BA underwent living donor liver transplantation (LDLT) at Asan Medical Center. The records of these patients were retrospectively analyzed. The mean follow-up period was 82.8 months (range, 0.4-168.8). The mean age on LDLT was 1.9 years. There were 47 girls and 29 boys. Thirty three patients were below 1 year (47.4%), and forty-eight patients (63.2%) were below 10kg at the time of LDLT. Fifty one patients had previous Kasai operation prior to transplant. The left lateral segment was the most common type of graft used. The mean recipient operative time was 570 minutes. Hepatic artery obstruction was in one patient. Portal vein stenosis or thrombus was found 4 patients (5.3%), but 9 portal vein stents were inserted during transplantation because of native portal vein stenosis or narrowing. Hepatic vein stenosis was in 6 patients. Biliary stenosis was diagnosed in 3 patients. Donor complication was in 2 patients (small bowel intussusception and bile leakage). There were two hospital mortalities and two retransplantations. 8 patients (10.5%) died. Hospital mortality was in two (2.6%), their causes were graft failure by vascular complication. The causes of other delayed death were chronic rejection (3), PTLTD (2), and severe acute rejection (1). The 1, 3, and 5 year actuarial patient survival were 96.1%, 93.2%, and 91.4% respectively, whereas graft survival rates were 93.4%, 90.5%, and 88.7%, respectively.

Abstract# P-513

BILIARY ATRESIA-POLYSPLENIA SYNDROME: CLINICAL SPECTRUM AND SURGICAL IMPLICATIONS IN LIVER TRANSPLANTATION. Ifthikhar Khan, Mohammad Al-Shaqrani, Zahid Arain, Ahmed Elgohary, Hammood Hebhi, Sami Wali, Atef Bassas. *Prince Sultan Liver Transplant Unit, Riyadh Military Hospital, Riyadh, Saudi Arabia*

Biliary atresia is the most common indication for pediatric liver transplantation worldwide. Biliary atresia is known to be associated with polysplenia syndrome in about 10% cases. The polysplenia syndrome anomalies may increase operative difficulty during liver transplantation. We present our experience of liver transplantation in three children with this anomaly. All patients had biliary atresia, polysplenia, interrupted inferior vena cava, midgut malrotation and anomalous hepatic artery arising directly from aorta. One patient also had hypoplastic portal vein, solitary kidney and left sided liver. All patients underwent living donor left lateral segment liver transplantation. Surgical technique was modified according to complex anatomical anomalies. On follow-up, the patients are doing well with satisfactory allograft function. Biliary atresia-polysplenia syndrome is a spectrum of anomalies. Patients with biliary atresia should be evaluated systematically pre- and peroperatively for these anomalies. Liver transplantation can be done in these children successfully with modifications in the standard surgical technique.

Abstract# P-514

USE OF AORTIC ALLOGRAFTS FOR THE RECONSTRUCTION OF THE INFERIOR VENA CAVA.

Kourosh Saeb-Parsy, Asif Jah, Neville V. Jamieson, Raaj K. Praseedom. *Department of Surgery, NIHR Cambridge Biomedical Research Centre, Cambridge, United Kingdom*

Reconstruction or replacement of the inferior vena cava (IVC) may be necessary to treat obstruction of the IVC after liver transplantation, or to enable excision of tumours invading the IVC. Here we describe the successful use of aortic allografts to replace or reconstruct the retrohepatic IVC in four patients.

Two patients, aged 43 and 39 years, were diagnosed with early stenosis of the suprahepatic IVC causing outflow obstruction following liver transplantation. Both transplants had been performed using side-to-side cavocavostomy between donor and recipient IVC (with both ends of donor IVC closed). The patients underwent relaparotomy and sternotomy with a view to restoring the hepatic outflow. In both cases an ascending aortic allograft was anastomosed as a conduit between the re-opened blind end of the suprahepatic donor IVC and the right atrium, bypassing the recipient IVC stenosis. A third 62-year-old patient was diagnosed with a leiomyosarcoma arising from the retrohepatic IVC. At laparotomy, a segment of the IVC between the hepatic veins and the renal veins was resected and replaced with an aortic allograft. A fourth 67-year-old patient was diagnosed with a central cholangiocellular carcinoma of the liver, invading the anterior wall of IVC. This patient underwent an extended right hemi-hepatectomy with *en bloc* excision of the anterior wall of the retrohepatic IVC. The defect in the anterior wall of the IVC was reconstructed using an aortic allograft patch.

Blood group-compatible fresh (one patient) or cryopreserved (three patients) aortic allografts were used in all patients. Extracorporeal veno-venous bypass was used to facilitate surgical reconstruction and maintain venous return to the heart. The reconstruction of the IVC was successful in all four patients; one patient developed a pericardial effusion (drained successfully) and one patient died six weeks post-operatively from an unrelated cause.

Aortic allografts are well suited for the replacement or reconstruction of the IVC. They allow a good size-match, are less prone to infection and thrombosis than synthetic grafts and are less likely to lead to stenosis or aneurysm formation compared to vein grafts. For IVC obstruction after liver transplantation with side-to-side cavocavostomy, the use of an aortic allograft as caval substitute may be an alternative to re-transplantation.

Abstract# P-515

DRAIN BILIRUBIN AS AN INDICATOR OF BILIARY COMPLICATIONS AFTER LIVING DONOR LIVER TRANSPLANTATION. D. Sood, V. Kumaran, R. Mohanka, N. Mehta, N. Saraf, S. Saigal, S. Nundy, A. Soin. *Department of Surgical Gastroenterology & Liver Transplantation, Sir Ganga Ram Hospital, New Delhi, India*

AIM: To study significance of drain bilirubin and drain to serum bilirubin ratio (DSBR) in biliary complications after living donor liver transplantation.

METHODS: Patients were divided into three groups: Group A: Bile leak, Group B: Bile stricture Group C: Control. Drain and serum bilirubin on postoperative day (POD) 1 to POD 5 were analysed and drain to serum bilirubin ratio (DSBR) was calculated.

RESULTS: 325 patients underwent LDLT in last 7 years, 102 recipients [84 males: 18 females, mean age: 45±13 years, left lobe (n=5), right lobe (n=92), extended right lobe (n=4), left lateral segment (n=1)], July 2007 to May 2008 were analysed. Surgical technique used for biliary reconstruction was choledochocholedochostomy (n=87), roux limb (n=9) or both (n=6). Of these 102 recipients, 10 (9.80%) had biliary complications (group A, n=5 and group B, n=5). All three groups were statistically comparable with respect to age ($p = 0.494$), cause of liver disease ($p=0.067$), graft type ($p = 0.977$), number of ducts ($p = 0.475$), ductoplasty ($p=0.373$), stent ($p=0.224$), surgical technique ($p=0.452$). Patient survival was 92.15 % (n=94) at mean follow-up of 12.1 ± 4 months. There was no graft loss secondary to biliary complication. DSBR was significantly higher on POD 1 & 2 and drain bilirubin on days 4 & 5 in Group A compared with the rest (table 1).

CONCLUSION: Early postoperative drain bilirubin and drain serum bilirubin ratio is significantly higher in patients who develop bile leak after LDLT. Hence drain removal should be based on serial monitoring of drain bilirubin.

Table 1: Differences in drain bilirubin and drain serum bilirubin ratio (DSBR)

Drain Bilirubin	POD1	POD2	POD3	POD4	POD5
Group A	9.8 ± 9.16	10 ± 13.4	7.5 ± 8.67	10.4 ± 9.94	9.4 ± 8.96
Group B	4.4 ± 1.57	4.6 ± 1.89	3.9 ± 2.11	2.7 ± 0.90	2.8 ± 1.33
Group C	5.5 ± 3.81	6.0 ± 5.02	4.9 ± 4.37	4.5 ± 4.11	4.2 ± 3.78
p value	0.073	0.254	0.419	0.012	0.018
DSBR	POD 1	POD 2	POD 3	POD 4	POD 5
Group A	2.3 ± 2.90	3.0 ± 5.30	2.3 ± 3.47	2.2 ± 2.37	2.0 ± 1.94
Group B	0.6 ± 0.04	1.0 ± 0.32	1.1 ± 0.55	0.9 ± 0.44	1.1 ± 0.39
Group C	0.7 ± 0.45	1.0 ± 0.63	1.1 ± 0.94	1.1 ± 1.09	1.0 ± 0.73
p value	.000	.003	.084	.082	.021

Abstract# P-516

LIVER TRANSPLANTATION FOR HEREDITARY HEMORRHAGIC TELANGIECTASIA. CASE REPORT.

Juan Francisco Guerra¹, Luis Manríquez², Rosa María Pérez², Iván Godoy³, Mario Concha⁴, Verónica Mertz⁴, Nicolás Jarufe¹, Marco Arrese², Cristian Muñoz², Alejandro Soza², Pilar Domínguez², Jorge Martínez¹. ¹Digestive Surgery, Pontificia Universidad Católica de Chile, Santiago, Chile; ²Gastroenterology, Pontificia Universidad Católica de Chile, Santiago, Chile; ³Cardiology, Pontificia Universidad Católica de Chile, Santiago, Chile; ⁴Anesthesiology, Pontificia Universidad Católica de Chile, Santiago, Chile

Introduction: Hereditary Hemorrhagic Telangiectasia (HHT), also known as Osler-Weber-Rendu Disease is an autosomal dominant disease characterized by multiple mucocutaneous telangiectasis and arteriovenous malformations. Liver compromise can lead to severe impairment of quality of life mainly due to congestive heart failure. Choices of treatment includes interventional radiologic procedures, liver transplantation (LT) and recently, bevacizumab. We present a case who underwent LT for HHT

Case Report: We present a 51 year-old male with HHT manifested by nasal, hepatic arteriovenous malformations and congestive heart failure (grade 3 functional capacity). Five attempts of hepatic artery embolization were done with poor results. His liver function was normal and there was no evidence of portal hypertension. An orthotopic LT with resection and ligation of all arteriovenous malformations of the hepatic pedicle was performed under close monitoring of his cardiac function by continuous intra-operative endoscopic echocardiography. Patient had an uneventful post-operative period, been discharged on day eleventh. At one year-follow up, his cardiovascular condition has improved markedly and his graft function is optimal

Comments: Liver transplantation is a valid choice of treatment in patients with liver involvement and subsequent cardiac failures due to HHT.

Abstract# P-517

RIGHT SIDED DIAPHRAGMATIC HERNIA RESULTING IN BOWEL OBSTRUCTION AFTER IDIOPATHIC ASCITIS FOLLOWING PEDIATRIC LIVE DONOR LIVER TRANSPLANTATION. Pedro A. Rivas-Vetencourt¹, Zaira Ron¹, Ruben Castillo¹, Elena Pestana¹, Laura Naranjo¹, Hermogenes Malave¹, Carlos Baliachi¹, Miguel Bazalo¹, Franco Bisignano¹, Tomoaki Kato². ¹Policlinica Metropolitana, Programa Metropolitano de Trasplante de Higado, Caracas, Miranda, Venezuela; ²New York Presbyterian Transplant Institute, Columbia Presbyterian College of Physicians and Surgeons, New York, NY, USA

A 7-yr-old boy with end-stage liver cirrhosis due to alpha 1 antitrypsine deficiency received a left lateral live donor liver transplantation (LDLT) from his father at our institution. The liver transplantation procedure was uneventful, during postoperative course the patient developed idiopathic ascitis with outputs that ranged around 3 to 4 liters daily. The patient underwent vascular outflow evaluation with Doppler ultrasound, CT vascular reconstruction and transjugular cavography as well as liver biopsy, concluding that it was a post liver transplant idiopathic ascitis. Treatment of this condition included intravenous fluid support and programmed daily ascitis drainage throughout the JP drains. Two months after the procedure, the ascitis has decreased to less than 50 cc a day, and during a routine clinic evaluation he developed an episode of abdominal pain that was concluded to be related to a clogged JP drain that was left in place in his right abdomen in relation to his ascitis, a laparoscopic removal of the drain was performed with no complication using a Hasson technique. During his immediate postoperative course he developed respiratory distress. Plain chest X-ray and a CT scan revealed the presence of small intestine loops in the right thoracic cavity and bowel obstruction due to diaphragmatic hernia with enterothorax was diagnosed. He was placed under ventilatory support and repair of the diaphragmatic hernia was performed through a thoracotomy with the finding of an anterior defect in the diaphragm and partially obstructed small bowel within the thorax. The patient did well after the surgery, his thoracotomy drainage was removed on day 2 with normal chest X-ray and was discharged with a fully functional graft. Diaphragmatic hernia after LDLT is rare complication but should be recognized early when a left lobe or a left lateral segment graft is used. We speculate that increased abdominal pressure due to a persistent idiopathic ascitis and a laparoscopic procedure in the setting of diaphragm thinness related to low weight and malnutrition contribute to this rare complication.

Abstract# P-518

EARLY CONVERSION FROM CALCINEURIN INHIBITOR TO SIROLIMUS IN LIVER TRANSPLANT RECIPIENTS WITH IMPAIRED RENAL FUNCTION: A SYSTEMIC AND SPLANCHNIC HEMODYNAMIC STUDY. Sara B. Chao¹, Daniel Alvarez², Maria M. Anders¹, Federico Cicora¹, Quiñonez Emilio¹, Fernando Gruz¹, Lucas Mc Cormack¹, Ricardo Mastai¹. ¹Unidad de Trasplante, Hospital Aleman, Buenos Aires, Argentina; ²Diagnóstico por Imágenes - Ecografía, Fundación Favaloro, Buenos Aires, Argentina

Calcineurin inhibitors (CI) are widely used as standard therapy of allograft rejection in liver transplant recipients. However, their use has been associated with chronic renal dysfunction in a significant proportion of patients. This common complication is initially manifested as a reversible damage caused by renal vasoconstriction with the consequent alteration in renal blood flow. This injury progresses to irreversible chronic renal failure. Therefore, it is important to evaluate new immunosuppressive regimens without deleterious effects on renal function. It has been demonstrated that sirolimus, a potent immunosuppressant agent, allowing a reduction of nephrotoxic effects of CI. In this study, we have evaluated whether conversion from a CI to sirolimus reduces nephrotoxicity in liver transplant recipients. We have also investigated whether this effect is accompanied to hemodynamic changes. Six patients with a suboptimal renal function, defined as an estimated glomerular filtration rate (GFR) (modification of diet in renal disease study formula) of less than 50 ml/min were included. Hemodynamic parameters were measured by doppler technique. Both measurements were performed in basal conditions (pre conversion to sirolimus) and 30 and 90 days after sirolimus. The target range for whole blood sirolimus concentration was between 5 and 12 mg/ml. The results are given in the table (mean ± SD):

	Pre conversion to sirolimus	30 days	90 days
Mean arterial pressure(mmHg)	106±6	99±7	94±3*
GFR (ml/min)	39±9	57±20*	58±21*
PI ¹	0.8±0.1	0.7±0.1	0.8±0.1
Portal blood flow(ml/min)	1443±448	1591±468	1773±771

*p< 0.05 vs CI. ¹ Renal arterial resistance index. Non significant changes were observed in heart rate and hepatic arterial resistance index

Sirolimus administration was associated with a significantly increase of GFR. There was no correlation between GFR and renal arterial resistance index. So, we should not rely on doppler results to evaluate GFR changes in liver transplantation.

Abstract# P-519

COMPARISON OF MORBIDITY FOLLOWING LIVER TRANSPLANTATION IN PATIENTS WITH AND WITHOUT PORTAL VEIN THROMBOSIS – A SINGLE CENTER EXPERIENCE. Rajeev Sharma¹, Randeep Kashyap¹, Ashok Jain², Saman Safadjou¹, Mark Orloff¹. ¹Dept. of Surgery, University of Rochester Medical Center, Rochester, NY, USA; ²Dept of Surgery, Temple University Hospital, Philadelphia, PA, USA

Introduction: Portal vein thrombosis was once considered a contraindication for liver transplantation because of technical difficulties. Though no longer a contraindication, it still remains a high risk.

Aim: To evaluate the postoperative morbidity following liver transplantation (LT) in patients with and without portal vein thrombosis (PVT).

Patients and methods: A retrospective review of 1171 consecutive patients who underwent LT between June 1995 and June 2007 was done and 78 recipients with PVT (study group) were compared with a stratified random sample of 78 contemporaneous recipients without PVT (control group) for postoperative complications. Both groups were comparable with respect to age, sex, race, indication for LT and other confounding variables.

Results: The rate of primary non-function (PNF) in the study and control groups was 9.0% and 1.3% (p=0.029), while that of retransplant was 17.9% and 7.7% (p=0.055), respectively. The mean donor risk index (DRI) among the patients with and without PNF in the study group was 2.58±0.44 and 2.08±0.42, respectively (p=0.014). A significantly higher (mean) number of packed red blood cells (p=0.016) and fresh frozen plasma (p=0.010) were transfused in the study group compared to controls. A higher incidence of fungal infections, was observed in the study group (n=3, 3.8%) compared to controls (n=0, p=0.090). In the study group, a higher rate of portal vein (PV) rethrombosis was observed in patients who underwent a thrombectomy alone (n= 4 out of 58, 6.9%) compared to those who had a PV interposition graft (n= 0 out of 5).

Conclusion: A significantly higher rate of PNF was related to (1) complexity of the surgical procedure as suggested by the use of a greater number of blood products, and (2) the use of donor livers with a high DRI. Higher rates of PNF eventually led to a higher rate of retransplant. A strategy of offering donor livers with low DRI might be helpful in decreasing the rate of PNF in patients with PVT undergoing LT. Further, doing a PV interposition graft in difficult cases instead of thrombectomy alone could help achieve a lower rethrombosis rate and finally, administration of prophylactic antifungals in patients with PVT might help reduce the incidence of fungal infection in these patients.

Abstract# P-520

PORTAL VEIN CLAMPING TIME, BACTERIAL TRANSLOCATION AND MELD SCORE IN LIVER TRANSPLANTATION: A PROSPECTIVE STUDY. Maxime Audet¹, Tullio Piardi¹, Fabrizio Panaro¹, Luca Arru¹, GianFranco Calandra², Santiago Pautasso¹, Nazario Portolani², Philippe Wolf¹. ¹Dept. of Surgery, Multivisceral Transplant Centre, University of Strasbourg France, Strasbourg, France; ²Department of Medical and Surgical Sciences, Surgical Clinic, Brescia, Italy

Introduction: The cirrhosis and the portal hypertension are associated with a high incidence of bacterial translocation (BT). BT could cause severe episodes of sepsis especially in patients underwent to LT. A prolonged portal clamping during LT may increase the BT. We report our study comparing the portal vein clamping duration with the BT rate.

Material and Methods: In 48 consecutive patients, we performed a portal vein blood culture at the end of the vascular clamping. No temporary shunts were performed. The results of the blood cultures were compared with the results of the blood cultures performed routinely during the post-operative

period in case of fever. We correlated also the incidence of BT with the MELD score.

Results: 37 male and 11 female underwent to 51 LT and portal vein blood culture at the end of the portal clamping. The mean clamping time was 122.8 min (range: 60-250 min). 13 patients had portal blood culture positivity, of these 4 had blood culture positive also in the post-operative period. We isolated only gram + bacteria. There were no correlation between the clamping time and the blood culture positivity. In this series we reported 9 complications, 5 of these complicated patients had portal vein culture positivity. In 3 patients were demonstrated the same bacteria isolated from the portal culture. The patients with portal blood culture positivity had a mean MELD-score 18.2 (range 8-40). The patients with a negative portal vein blood culture had a mean MELD-score 19.6 (range 9-37).

Discussion: We not found any correlation between the duration of the portal clamping time and the blood culture positivity. In only 3 patients we isolated postoperatively the same bacteria found from the portal blood culture. We not reported correlation between the portal vein blood culture positivity and the MELD-score. In conclusion, the portal hemoculture positivity may be considered a predictive factor of post-operative complications.

Abstract# P-521

INCIDENCE AND CLINICAL RELEVANCE OF THE BACTERIAL CONTAMINATION OF THE PRESERVATION SOLUTION IN LIVER TRANSPLANTATION. Patricia Ruiz¹, Mikel Gastaca¹, Jose Ramon Fernandez², Javier Gonzalez¹, Alberto Ventoso¹, Milagros Testillanos², Javier Bustamante², Maria Jesus Suarez², Miguel Montejo³, Andres Valdivieso¹, Jorge Ortiz de Urbina¹. ¹Hepato-Biliary Surgery and Liver Transplantation Unit., Hospital Universitario de Cruces, Barakaldo, Spain; ²Hepatology Unit, Hospital Universitario de Cruces, Barakaldo, Spain; ³Infection Diseases Unit., Hospital Universitario de Cruces, Barakaldo, Spain

Background: Postoperative infection is considered one of the most important causes of morbidity and mortality after liver transplantation. We prospectively studied the incidence and clinical significance of the infection of the preservation solution in liver transplantation. **Material and methods:** From March 2007 to March 2008 we cultured the preservation solution in 60 consecutive liver transplantations. The University of Wisconsin solution was always used. Fluids samples were taken for aerobic and anaerobic microbiological analysis, at the beginning and at the end of the back table procedure. All patients were treated with prophylactic ampicillin and cefotaxime during the first 2 days posttransplantation. **Results:** The average time of the back table procedure was 58 minutes (34-115). Cultures were positive on 59 patients (98.4%). Seventy-five percent of the isolations were superficial saprophytic flora (SSF) (Staphylococcus coagulase negative, streptococcus viridans and corynebacterium), nevertheless on 15 (25%) high virulence pathogens were isolated (Staphylococcus Aureus, Klebsiella, Escherichia coli, enterobacter and Pseudomonas aeruginosa). There were neither anaerobic, nor fungal isolations. Sixteen patients (36%) for the group with negative cultures or with low virulence pathogens (SSF), developed postoperative fever. Twelve of them had negative posttransplant cultures, while 4 patients had positive cultures with different micro-organism from those isolated from the preservation solution. Five patients (30%) with high virulence pathogen on the preservation solution developed posttransplant fever, although no pathogen was isolated. **Conclusions:** 98% of patients had positive cultures of the preservation fluids although most of them (75%) were superficial saprophytic flora. Micro-organism isolated from posttransplant cultures did not match the ones obtained from the preservation solution. Our results did not suggest routine culturing of the preservation solution provided an adequate posttransplant antibiotic prophylactic is used.

Abstract# P-522

LIVER TRANSPLANT FOR WILSON'S DISEASE. Sinasi Sevmis¹, Hamdi Karakayali¹, Gokhan Moray¹, Nurten Savas², Figen Ozcay², Ugur Yilmaz², Adnan Torgay³, Gulnaz Arslan³, Mehmet Haberal¹. ¹General Surgery and Transplantation, Baskent University, Faculty of Medicine, Ankara, Turkey; ²Gastroenterology, Baskent University, Faculty of Medicine, Ankara, Turkey; ³Anesthesiology, Baskent University, Faculty of Medicine, Ankara, Turkey

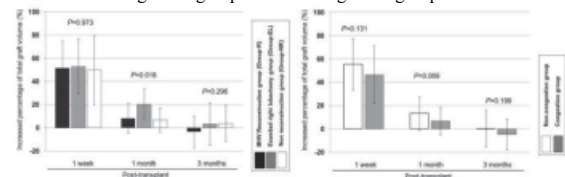
Wilson's disease is an inherited disorder of copper metabolism characterized by reduced biliary copper excretion, which results in copper accumulation in the tissues with liver injury and failure. Liver transplant (LT) can be lifesaving

for patients with Wilson's disease who present with fulminant liver failure and for patients' unresponsive to medical therapy. The aim of this study is to review our experience with LT for patients with Wilson's disease. Between September 2001 and January 2008, 28 LTs were performed at our center in 27 patients with Wilson's disease. Our Wilson's disease series comprised 7 female and 20 male patients (mean age, 15.6 ± 9.9 years; range, 5-51 years). Six patients were transplanted owing to coexistent fulminant hepatic failure. Twenty patients presented with chronic advanced liver disease with (n = 10) or without (n = 10) associated neurologic manifestations. We performed full-size, deceased-donor in 3 LTs and living-related donor in the remaining 25 LTs. Eight patients had a family history of Wilson's disease. We detected a Kayser-Fleischer ring in 21 patients. All patients had a low serum ceruloplasmin level (mean, 27.8 mg/dL) and a high urinary copper excretion level (mean, $4119 \mu\text{g/d}$) before LT. Following successful LT, there was a significant reduction in urinary copper excretion (median, $37.1 \mu\text{g/d}$) in all patients. Mean follow-up was 25.7 ± 19.8 months (range, 2-69 months). Retransplant was required in 1 patient 12 days after the first LT owing to primary graft nonfunction. Five of the 27 patients died within 4 months of the surgery. The remaining 21 survivors (81.5%) have remained well, with normal liver function and no disease recurrence. In conclusion, LT is a curative procedure for Wilson's disease in patients presenting with fulminant hepatic failure and others with end-stage hepatic insufficiency. After LT, the serum ceruloplasmin level increases to the normal range, urinary copper excretion decreases, and neurologic manifestations improve.

Abstract# P-523

DOES VENOUS RECONSTRUCTION OF THE ANTERIOR SECTOR AFFECT ON GRAFT REGENERATION IN LIVING DONOR RIGHT LOBE LIVER TRANSPLANTATION? Dong Jin Joo, Myoung Soo Kim, Soo Jin Kim, Gi Hong Choi, Man Ki Ju, Jin Sub Choi, Soon Il Kim. *Department of Surgery and The Research Institute for Transplantation, Yonsei University College of Medicine, Seoul, Republic of Korea*

Background: To prevent congestion of the liver graft and to meet the metabolic demand of the recipient, middle hepatic vein (MHV) reconstruction can be used in living donor liver transplantation (LDLT). The purpose of this study is to assess the correlation between MHV reconstruction and graft regeneration and to compare volume regeneration with congestion in each segment. **Patients and Methods:** From September, 2005 to April, 2008, there were 67 cases of adult LDLT and 63 cases were enrolled in this study. Among the 63 adult LDLT with the right lobe, MHV reconstruction was performed in 47 cases (group R; 74.6%) and extended donor right lobectomy in 13 cases (group EL; 20.6%). No MHV reconstruction was done in 3 cases (group NR; 4.8%). **Results:** GRWR of each group in order was $1.29 \pm 0.28\%$, $1.06 \pm 0.13\%$, and $1.57 \pm 0.62\%$ respectively. In group R, V5 in 18 cases (28.6%), V8 in 1 case (1.6%) and both in 28 cases (44.4%) were reconstructed. The calculated liver volume significantly correlated with the actual graft weight measured in the operating room ($r=0.786$, $P<0.0001$). Anterior sector congestions were detected in 22 cases (46.8%) of group R, 2 cases (15.4%) of group EL and 2 cases (66.7%) of group NR respectively. The most graft volume was restored within 1 week after transplantation. There were no significant differences of the graft volume growth rate between each group at post-transplant. Also, there was no significant difference in graft regeneration rate between congestion group and non-congestion group.



Clinical parameters measured with AST, ALT and total bilirubin did not show statistical differences in each group. **Conclusion:** We suggest that some mechanism such as collateralization may exist in graft regeneration especially in the congested graft. We concluded that MHV reconstruction may not be mandatory for graft regeneration when the GRWR is large enough.

Abstract# P-524

EFFICIENT TISSUE INCORPORATION OF COMPOSITE MESHES USED FOR INCISIONAL HERNIA REPAIR AFTER LIVER TRANSPLANTATION. Frederik Berrevoet¹, Bert Van den Bossche¹, Isabelle Colle², Hans Van Vlierberghe², Koen Reyntjens³, Roberto Troisi¹, Xavier Rogiers¹, Bernard de Hemptinne¹. ¹General and Hepatobiliary Surgery and Liver Transplantation, University Hospital Medical School Ghent, Ghent, Belgium; ²Gastroenterology, University Hospital Medical School Ghent, Ghent, Belgium; ³Anesthesiology, University Hospital Medical School Ghent, Ghent, Belgium

Background: Patients after orthotopic liver transplantation (OLT) have a 5% to 17% risk of developing incisional hernia. Surgeons intend to avoid extensive dissection repairing these defects using a sublay technique, while using intraperitoneal onlay repair (IPOM) with composite meshes, tissue ingrowth of the mesh material seems to be warranted in these immunosuppressed patients. We prospectively analysed the incidence and management of incisional hernia after liver transplantation in our centre.

Patients and methods: From January 2000 till July 2008 52 patients were operated for incisional hernia repair after 434 OLT. Depending on the location and the size of the hernia a retromuscular sublay repair using large pore polypropylene mesh or IPOM using a composite mesh was performed. All patients were treated using abdominal drains for 2 days on the mesh and for several more days for the subcutaneous drains depending on the drainage volume. Patients were evaluated for risk factors, including the type of incision, the need for relaparotomies and wound infections. Data about operation time, seroma, haematoma, mesh infection and recurrence were noted.

Results: The central part of the incision was by far the most frequent location of the hernia with a mean diameter of 8cm. Although in all cases a retromuscular sublay repair was the initial goal for repair, only 17.3% of patients could be treated using this 'gold standard' repair. Forty-three patients (82.7%) were treated with IPOM using composite mesh. Despite drainage, significantly more seromas were observed after IPOM, all but two treated conservatively. No patients were reoperated for haematoma, while 2 patients developed a superficial wound infection. Operation time was shorter in the IPOM group while after a mean follow-up of 28 months only one recurrence, after IPOM, was observed after 32 months, treated expectantly.

Conclusion: Although retromuscular sublay repair remains the gold standard in incisional hernia repair, intra-abdominal composite mesh repair can be used with low morbidity and low recurrence rate after liver transplantation.

Abstract# P-525

LEFT LIVER LOBE TRANSPLANTATION IN ADULT RECIPIENTS FROM SPLIT LIVERS AND LIVING DONORS. Olivier Boillot, Gabriella Pittau, Thomas Gelas, Jérôme Dumortier, Yves Bouffard, Catherine Boucaud, Charles Ber, Pierre Sagnard. *Liver Transplant Unit, Edouard Herriot Hospital, Lyon, France*

The use of left livers for transplantation in adult recipients remains controversial and challenging. We present a single center experience of left lobe transplantation over a 12 year period.

Patients and methods. From march 1996 to november 2008, 27 adult patients, 13 males and 14 females with a mean age of 49 years (range :18-67), a mean body weight of 59 kg (range : 40-84) received a left lobe transplant from 17 split livers and 10 living donors. Mean Graft-to-Recipient-Ratio (GRWR) and mean MELD score were 0.88% (range :0.57%-1.28%) and 18 (range : 6-32) respectively. Main indications for liver transplantation (LT) were alcoholic (n=10) and viral-related (n=6) cirrhosis ; 4 patients did not have cirrhosis and 3 had late retransplantation. In 12 patients, a venous splanchnic decompression (2 porta-caval shunts and 10 meso-caval shunts with portomesenteric disconnection) was performed at the end of the transplantant procedure in order to decrease portal pressure to the graft.

Results. After a mean follow-up period of 43 months, 18 (66.6%) out of the 27 patients are alive ; 3 patients had early retransplantation for technical complication, small-for-size syndrome and venous portal steal syndrome. Six deaths (22.2%) occurred in the peri-operative period from graft ischemia due to excessive portal decompression in the 2 patients with porto-caval shunt, sepsis after re-LT in 2 cases, small-for-size syndrome in 1 case and cardiac failure in 1 case. In univariate analysis, risk factors for early patient death were GRWR below 0.8% and portal décompression. When no portal decompression was performed, all 15 recipients survived without need for retransplantation.

Conclusions. When appropriate graft/recipient matching is performed, excellent outcome can be expected in adult patients following left liver lobe transplantation. Portal decompression should be used in very selected cases.

Abstract# P-526

SUCCESSFUL SURGICAL AND ENDOSCOPIC MANAGEMENT OF NON-ANASTOMOTIC BILIARY STRICTURES AFTER LIVER TRANSPLANTATION – CASE REPORT. Dennis Eurich¹, Daniel Seehofer¹, Winfried Veltzke-Schlieker², Ruth Neuhaus¹, Ulf P. Neumann¹, Peter Neuhaus¹. ¹Department of General, Visceral and Transplantation Surgery, Charité Campus Virchow, Augustenburger Platz 1, Berlin, Germany; ²Department of Internal Medicine, Division of Hepatology, Gastroenterology, Endocrinology and Metabolism, Charité Campus Virchow, Augustenburger Platz 1, Berlin, Germany

Background: One of the most relevant complications after liver transplantation are biliary complications, which occur in 10-26% of all full size orthotopic liver transplantations (OLTs). In the presence of a macroscopically undisturbed perfusion they are described as ischemic type biliary lesions (ITBL) and occur in about 15% of all OLTs. Untreated they lead to cholestasis, severe graft dysfunction, septic complications, secondary cirrhosis and even death. To date they are usually treated by endoscopic or percutaneous placement of stents and balloon dilatation. A significant amount of patients with non-anastomotic strictures require a liver retransplantation.

Case report: A 64 year old patient suffering from HCV induced liver cirrhosis underwent liver transplantation at our hospital. Two months after transplantation due to abdominal discomfort, elevated alkaline phosphatase (AP) and gamma-glutamyl-transferase (g-GT), the patient underwent an endoscopic retrograde cholangiography (ERC). Multiple strictures of the bile duct were observed and treated by balloon dilatation. The endoscopic and percutaneous treatment continued until a significant amelioration of the pathological finding in the right liver lobe was achieved. Unfortunately biliary strictures remained in the left liver lobe being resistant to the previous method of treatment. We thus decided to perform a left hemihepatectomy. The postoperative course was unremarkable.

Result: The treatment of our patient consisted of over 25 endoscopic and percutaneous interventions and a left hemihepatectomy. The patient was followed up for two years, during which he had no further complaints being in good health.

Conclusion: Up to 50% of the patients with non-anastomotic strictures require a retransplantation of the liver or die because of septic complications or deterioration of graft function. We demonstrated an example of a successful management of one of the most severe late biliary complications after liver transplantation -ITBL - avoiding a retransplantation of the organ by endoscopic, percutaneous and surgical intervention. Thus a graft resection seems to be possible.

Abstract# P-527

HEPATIC ARTERY THROMBOSIS IN 153 CONSECUTIVE LIVER TRANSPLANT RECIPIENTS PERFORMED IN YEAR 2008: A NEW SURGICAL TECHNIQUE. Vedat Kirimlioglu¹, Sezai Yilmaz¹, Vedat Nisanoglu², Cengiz Ara¹, Cemalettin Aydin¹, Dincer Ozgor¹, Hale Kirimlioglu³. ¹General Surgery, Inonu University Medical School, Malatya, Turkey; ²Cardiovascular Surgery, Inonu University Medical School, Malatya, Turkey; ³Pathology, Inonu University Medical School, Malatya, Turkey

One hundred and fifty-three liver TX are performed in year 2008 in our Medical Centre of which 128 LDLT (111 right 17 left), 25 deceased donors were used. Twenty-two of the deceased donors were used as whole grafts. The others were 1 split and one domino grafts. Five patients suffered from hepatic artery thrombosis (HAT). In 2 of the patients operative microscope (OM) was used in which the hepatic artery diameter was found to be less than 1 mm. In rest of the 5 patients, the hepatic artery anastomosis was completed with surgical telescope with magnification of 4.5, by a technique mostly used by coronary artery by-pass surgery, the so called parachute technique. After diagnosis of HAT 2 to 4 days post operatively a reoperation with revascularization of the hepatic artery was undertaken. Unfortunately 2 of them performed with a parachute technique survived and the other 3 succumbed. Interrupted 9-0 prolene are used during the OM procedure with

posterior row reinforcement and 7/0 or 8/0 prolene sutures are used during the vascular anastomosis. When it is taken in consideration that, 83.6% of all liver TX performed in one year is LDLT a 3.2 % HAT rate is quite acceptable.

Abstract# P-528

COMBINED HEART AND LIVER TRANSPLANTATION: A SINGLE CENTER EXPERIENCE. Matteo Cescon, Matteo Zanello, Gian Luca Grazi, Matteo Ravaioli, Giorgio Ercolani, Massimo Del Gaudio, Alessandro Cucchetti, Gaetano Vetrone, Alessandro Dazzi, Francesco Tuci, Chiara Zanfi, Paolo Di Gioia, Antonio D. Pinna. *Department of Surgery and Transplantation, University of Bologna, Bologna, Italy*

Aim: A single-center experience of combined heart-liver transplant (CHLT) was retrospectively evaluated.

Methods: from March 1999 to November 2008, 8 cases of CHLTs and 1 of heart-liver-kidney transplantation were performed at our Institution. The indications for combined transplantation were familial amyloidotic polyneuropathy secondary to NMet30 variation (FAP group) in 8 patients, and HCV cirrhosis associated with dilative cardiomyopathy in 1 patient. There were 8 men and 1 woman, with a median age of 46 years (range: 22-60). In the FAP group, preoperative nutritional status was evaluated with weight loss (WL) and modified body mass index (mBMI). Two patients had WL >10 Kg and 6 patients had WL <5 Kg. All patients had mBMI >60. Polyneuropathy was assessed with modified polyneuropathy disability score (PND): 1 patient had score III, 3 patients had score II and 4 patients had score I.

Induction therapy with Thymoglobulins was used in 4 patients (44%). Immunosuppression was based on cyclosporine-azathioprine-steroids in 3 cases, cyclosporine-micophenolate-steroids in 3 cases, cyclosporine-steroids in 2 cases and tacrolimus-steroids in 1 case.

Results: the median cold ischemia time was 155 min. (range: 111-180) for the heart and 511 min. (range: 410-610) for the liver. In 5 cases, the amyloidotic liver was used to perform a domino transplant procedure. The only case of heart and liver moderate acute rejection was successfully managed with pulse doses of steroids. There were two postoperative deaths, caused by acute myocardial infarction on postoperative day 60, and by gastrointestinal bleeding on postoperative day 556. Both patients had WL >10 Kg and severe multi-organ involvement (PND II and III, respectively) preoperatively. One- and 5-year patient and graft survival rates were 88% and 76%, respectively.

Conclusion: Middle-term outcomes of CHLT for patients with FAP are largely acceptable and comparable to those of single-organ transplants. Patients with severe malnutrition and advanced neuropathy should be considered at high risk for this procedure.

Abstract# P-529

LIVER RETRANSPLANTATION IN HIGH MELD RECIPIENTS. Andre I. David, Paula V. Zurstrassen, Sergio P. Meira, Marcelo B. Resende, Márcio D. Almeida, Bianca Della Guardia, Rogério A. Carballo, Ben-Hur Ferraz-Neto. *Transplant Unit, Hospital Israelita Albert Einstein, São Paulo, SP, Brazil*

Background

Liver retransplantation has had increasing results through the time. MELD score is the criteria to select patients to receive a liver transplant in Brazil, usually high risk recipients with a MELD score equal or greater than 29 receive a transplant. Studies are necessary to analyze liver retransplantation in situations as hepatic artery thrombosis and primary non-function.

Casuistic and Methods

Prospective study with data collected from medical digital records, with 21 liver retransplantation, among 217 livers transplants performed from May 2005 to December 2008 at Hospital Israelita Albert Einstein. Were analyzed grafts and recipients characteristics and survival curves.

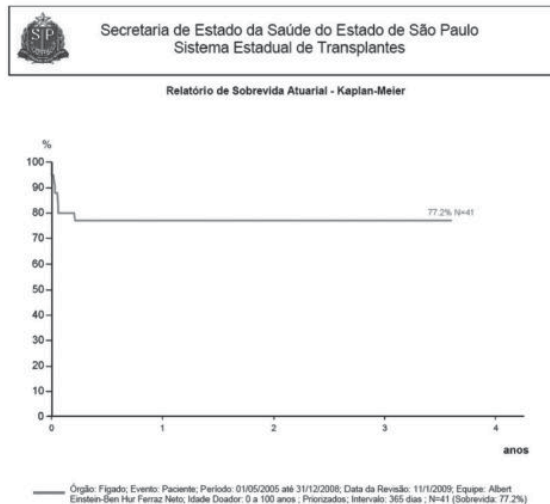
Results

For the first transplant, median cold ischemia time was 468 against the 366 minutes for the second transplant. Recipients characteristics: 48% (n=10) were male, median age was 44 years, median BMI: 24.8. Diagnosis of first liver transplant: 33.3% hepatitis C, 28.6% acute hepatic failure, 9.5% a Laennec's cirrhosis, 9.5% cryptogenic cirrhosis, 4.8% an auto-immune liver disease, 4.8% hepatitis B, 4.8% familial paramiloidosis and 4.8% others causes. Diagnosis of second liver transplant: 42.9% had hepatic artery thrombosis, 33.3% had Primary Non-Function and 23.8% others causes.

Median MELD score was 29 (range = 13-84) for the first liver transplant and was 39 (range = 7-48) for the second liver transplant. For the first

transplant, pre-operative median creatinine and INR were 0.9mg/dl (range 0.4-1.5) and 1.7 (range 1-5.3) respectively. For the second transplant, pre-operative median creatinine and INR were 1.2mg/dl and 2.0 respectively, statistical trends to worse renal and hematological dysfunctions for the retransplantation period.

Median days for the first transplant were 6 days and length of hospital stay was 29 days. Mortality rate during the first three months was 33.3% and 38% during one year course.



Conclusion

Liver retransplantation is an option to treat graft irreversible non-function or arterial graft complications, even in high MELD recipients.

Abstract# P-530

ROUTINE MICROSURGICAL BILIARY RECONSTRUCTION DECREASES EARLY ANASTOMOTIC COMPLICATIONS IN LIVING DONOR LIVER TRANSPLANTATION. Chao-Long Chen, Allan M. Concejro, Tsan-Shiun Lin, Yuan-Cheng Chiang, Chih-Chi Wang, Shih-Ho Wang, Yueh-Wei Liu, Chin-Hsiang Yang, Chee-Chien Yong. *Liver Transplant Program, Chang Gung Memorial Hospital-Kaohsiung Medical Center, Kaohsiung, Taiwan*

Objective: To describe our experience with routine biliary reconstruction using microsurgical technique in living donor liver transplantation.

Patients and methods: 88 grafts were primarily transplanted in 85 patients (3 dual grafts). All biliary reconstructions were done under microscope by a single microsurgeon. Except for biliary atresia and Alagille syndrome, duct-to-duct reconstruction was performed. Stents were not used. A biliary complication was defined as a perioperative complication as either a bile leak or stricture occurring within 90 days of surgery and early biliary complication as complication occurring within 12 months of transplant. Bile leakage was defined as presence of bile material in the closed-suction drain that persisted beyond 3 days after transplant or presence of biloma within the area of anastomosis. Anastomotic biliary stricture was defined as narrowing of the extrahepatic bile duct to >50% of the initial duct caliber or intrahepatic biliary dilatation >3 mm in the presence of a notable extrahepatic biliary narrowing at the area of anastomosis. A stricture is diagnosed based on MRI, percutaneous transhepatic biliary imaging, or endoscopic retrograde cholangiography. The outcomes using microsurgical technique (MB) were compared with a cohort using the last 86 grafts in 85 patients (1 dual graft) done by conventional method (CB). The identification of complications included only up to the 12th month follow-up of each recipient in both groups.

Results: The average graft duct sizes were 2.8 mm for MB and 3.4 mm for CB. There was no relationship between complications and number of duct openings. Most complications occurred during the first 15 cases in MB which was considered as the learning curve phase. The complication rate in the first 15 cases was 46.7%, 20.0% in the next 15 cases, and 5.4% in the last 55 cases. Excluding the learning curve phase, the overall complication rate over time in MB (8.9%) was significantly lower than CB (21.9%). Conventional biliary reconstruction increased the risk of biliary complications by 2.5 times (Relative Risk: 2.5; Attributable Risk: 128; cf. Odds Ratio: 2.9).

Conclusion: The routine use of microsurgical biliary reconstruction is a technical innovation that may lead to decreased early anastomotic complications.

Abstract# P-531

PORTAL VEIN RECANALIZATION AFTER PEDIATRIC TRANSPLANTATION. Joao Seda-Neto, Francisco Carnevale, Eduardo Carone, Airtom Moreira, Charles Zurstrassen, Vincenzo Pugliese, Andre Godoy, Gilda Porta, Irene Miura, Vera Baggio, Renata Pugliese, Eduardo Fonseca, Paulo Chapchap. *Hepatology and Liver Transplantation, Sirio-Libanes Hospital/A.C. Camargo Hospital, Sao Paulo, SP, Brazil*

Background: Portal vein thrombosis is an important complication after pediatric liver transplantation and occurs at anytime following the operation. Early post-operatively, it can lead to graft dysfunction, especially in patients receiving large grafts (GRWR>4%). Later, patients can develop thrombocytopenia, ascites, splenomegaly, upper GI bleeding, and other clinical manifestations. **Aim:** To describe a combined technique to reestablish portal flow in cases of portal vein thrombosis/stenosis after the transplant.

Methods: 1% (4 patients) of 367 children submitted to liver transplantation from Jun/1991 to Dec/2008 underwent portal vein recanalization through a combined approach, (transhepatic + laparotomy). All patients had biliary atresia with a median body weight of 6.9kg (range 5.3-10.4Kg) at the time of transplantation. They developed portal vein thrombosis (n=3) and stenosis (n=1). The laparotomy was used to give the intervention radiology team a tributary of the superior mesenteric vein in order to guide the portal vein dilatation and stenting. All patients received a left lateral segment (3 LDLT, 1 SPLIT), with a median GRWR=3.3% (range 2.5-6%). These patients presented with ascites, splenomegaly, thrombocytopenia, and GI bleeding 1.3 to 40 months after the transplant. At the time of the procedure, these patients median age and body weight were 28 months (range 8-43 mo) and 13.2Kg (range 5.5-20.9Kg), respectively. **Results:** Three patients underwent a successful balloon dilatation and stenting with the combined technique. One patient had an extensive thrombosis of the portomesenteric venous system and the guidewire could not be advanced to the emergence of the portal vein. All other patients had the portal flow reestablished as observed with serial Doppler ultrasound studies. They received oral anticoagulation for three consecutive months after the procedure and the clinical symptoms subsided. **Conclusion:** The combined technique to reestablish the portal flow in cases of portal vein thrombosis/stenosis is effective and safe. Continuous follow-up is needed to access the long-term consequences of the procedure.

Abstract# P-532

CAVOPORTAL HEMITRANSPOSITION WITH PORTOSYSTEMIC SHUNT FOR RECONSTRUCTION OF PORTAL FLOW AND ADEQUATE PORTAL DECOMPRESSION IN EXTENDED PORTAL THROMBOSIS. Keizo Dono¹, Shigeru Marubashi², Shogo Kobayashi², Yutaka Takeda², Hiroaki Nagano², Koji Umeshita², Yuichiro Doki², Masaki Mori². ¹*Surgery, Toyonaka Municipal Hospital, Toyonaka City, Osaka, Japan;* ²*Surgery, Graduate School of Medicine, Osaka University, Suita, Osaka, Japan*

To achieve sufficient portal flow is an important key for successful liver transplantation. Cavoportal hemitransposition (CPHT) method introduced by Startzl and Tzakis is an one of the alternative methods in patients with extended portal thrombosis. With this method host portal vein is ligated and graft portal vein is anastomosed to IVC. Hypertension in host portal system may cause posttransplant ascites, variceal bleeding and hypersplenism. In this paper, we reported a method for adequate control of portal pressure in CPHT.

A 58 year old male patient with end stage liver disease was admitted for liver transplantation. An extended portal thrombosis (distal SMV to intrahepatic portal vein) was detected by CAT scan. CPHT was performed because adequate splenorenal shunt was not seen. The graft portal vein was anastomosed to IVC with side to end fashion and proximal IVC was ligated. After reperfusion of graft portal vein, portal pressure in host portal system was increased to about 50 mmHg. We decided to add portosystemic shunt by anastomosis host portal vein to IVC. After shunting the portal pressure was decreased to 24 mmHg. The patient experienced transient renal failure after transplantation, but he is alive and well 6 month after liver transplantation. **Conclusion:** CPHT with portosystemic shunt could be a valid surgical technique in patients with extended portal thrombosis.

Abstract# P-533

GRAFT HEMODYNAMIC AND VOLUME DETERMINE GRAFT PREDOMINATION IN ADULT LIVING DONOR LIVER TRANSPLANTATION USING DUAL GRAFT.

Chee-Chien Yong, Chao-Long Chen, Allan M. Concejero, Chih-Chi Wang, Shih-Ho Wang, Yueh-Wei Liu, Chin-Hsiang Yang. *Liver Transplant Program, Chang Gung Memorial Hospital-Kaohsiung Medical Center, Kaohsiung, Taiwan*

Objective:Our aim is to present our experience in LDLT using dual graft.

Methods:The records of 5 dual graft transplants were reviewed.

Results:The recipient diagnoses and required graft liver volumes, and donor required remnant volumes and volumetry were shown in Table 1. Two received 1 right and 1 left lobe grafts, and 3 received 2 left lobe grafts. The first recipient underwent re-laparotomy for postoperative bleeding. The second recipient underwent re-laparotomy for bile leak. All recipients were surviving. The mean follow-up period was 37.2 months. LDLT 116 and 341 developed left-side graft atrophy 18 and 7 months posttransplant, respectively. LDLT 262 and 283 developed right-side graft atrophy at 6 months posttransplant. LDLT 220 has not experienced graft atrophy to latest date. The liver function remains satisfactory in all recipients. The factors that may have influenced graft regeneration included portal flow and initial graft volume, and partial outflow obstruction due to anatomical considerations as the graft enlarges.

Table 1. Recipient diagnoses and required 50% of standard liver volumes, and donor required remnant volumes, volumetry, and actual graft used

LDLT No./Diagnosis	50% of SLV Donor Requirement	Donor Relation	Donor Ht.(cm)/Wt.(kg)/BSA	Donor Rt./Lt. Liver CT Volumetry	Donor SLV/35% of SLV Required Remnant	Actual Graft Wt./Graft Side Used
116/HBV	561	Daughter/Daughter	159-49.5-1.5/ 159-44.9-1.4	528-320/511-303	1049.5-367.3/ 995.6-348.5	512-Right/ 252-Left
220/ALD	791	Wife/Sister	150-40.5-1.3/ 165-67.0-1.8	639-304/868-562 (15% Fatty)	921.3-322.5/ 1239.9-434.0	495-Right/ 366-Left
262/HBV	667	Son/Daughter	175-78.6-1.9/ 157-51.9-1.5	880-368/678-414	1382.8-484.0/ 1064-372.7	427-Left/ 314-Left
283/HCV	698	Daughter/Son	153-47.3-1.4/ 174-78.3-1.9	581-336/824-322	1006.6-352.3/ 1379.8-482.9	306-Left/ 245-Left
341/ALD	625	Son/Son	174-89.1-2.1/ 167-77.7-1.9	868-317 (15% Fatty)/851-429 (10% Fatty)	1482.6-518.9/ 1358.1-407.4	279-Left/ 410-Left

Ht.=height; Wt.=Weight; Rt.=Right; Lt.=Left; HBV=Hepatitis B virus; HCV=Hepatitis C virus; ALD=Alcoholic liver disease

Conclusion:Dual graft transplantation provides sufficient volume in the recipient. Early portal flow velocity patterns and graft volumes may predict long-term outcome of the grafts.

Abstract# P-534

ONLAY POLYPROPYLENE MESH: A GOOD TECHNIQUE FOR INCISIONAL HERNIAS AFTER LIVER TRANSPLANTATION.

Fernando Duek, Javier Lendoire, Gabriel Raffin, Luis Gil, Carlos Quarin, Pablo Barros Schelotto, Veronica Garay, Oscar Imventarza. *Trasplante y Cirugia Hepatica, Hospital Dr. Cosme Argerich, Buenos Aires, Argentina*

Background: The utilization of the polypropylene mesh is the election of choice for patients with incisional hernias (IH). Large abdominal incisions are required for liver transplantation. The midline plus the bilateral subcostal incisions is one of the most extensive in abdominal surgery.

Methods: Patients and methods: 361 orthotopic liver transplantation were performed at the Hospital Argerich from July 1995 to January 2009. 250 were alive after the sixth post month. 18 (7.2%) patients developed IH. 15 (6%) were treated with a polypropylene mesh (onlay technique). Variables analyzed: patient characteristics (age, gender, type of immunosuppression, etiology, hospital stay) and surgical characteristics (type of IH, antibiotic prophylaxis, postoperative complications, and follow up). In the transplant procedure a right transverse supra-umbilical incision plus midline extension up to the xiphoid was performed in every single transplant. The midline incision was closed in one layer with a running suture N° 1 absorbable polydioxanone and in two layers for the transverse extension. The mesh was implanted with the onlay technique sutured with non absorbable material. The skin was closed with staplers, which were removed after the third post week.

Results: Mean age was 45 with 10 males. 8 patients were HCV, 4 PBC, 2 FAP (familial amyloidotic polyneuropathy) and one patient was a FHF. Immunosuppression regimen consisted in cyclosporine and steroids in 9 and tacrolimus and MMF in 6. The mean hospital stay was 5 days. There was no mortality.

Localization of the IH: The herniation was total in 2 patients (13.3%); partial at the confluence of the incision 3 (20%) and in 5 patients (25%) on the right laparotomy. Surgical complications: Only 3 patients developed mild

complications of the surgical procedure. 2 seromas on the subcutaneous tissue and only one with hyperthermia (Clavien-Dindo 1). No recurrence was detected.

Conclusions: Transverse abdominal incision is the best approach for liver transplantation. The onlay technique with polypropylene mesh for IH repair seems to be safe and effective for these patients.

Abstract# P-535

STANDARD ADULT LIVER TRANSPLANTATION TECHNIQUE: SALT SURVEY.

Alexis Laurent, Daniel Cherqui. *HPB and Liver Transplantation, Henri Mondor Hospital, Creteil, France*

In recent years, very few papers addressed the technique of standard orthotopic liver transplantation (OLT) in adults. Although surgical technique has reached a high level of safety and reproducibility, OLT remains a major technical challenge requiring highly trained surgeons. Several techniques are currently available and it occurred to us that it would be interesting to conduct worldwide survey.

The questionnaire was sent to 200 centers and was completed on line through a specific server. Questions concerned surgical techniques only and did not include any questions about results.

67 centers replied from France (14), Italy (10), Spain (9), USA (8), Germany (6), Netherland (4), UK (3) and, Austria, Belgium, Chile, Israel, Poland, Portugal, South Africa, Sweden, Switzerland, and Turkey. These centers perform a median of 50 OLT per year (8-240) for a total median cases of 705 (43-4800). In addition to regular OLT, 83%, 73% and 25% of these centers perform split transplants, living donor adult transplants and non heart beating transplants, respectively. These centers include a median of 4 primary surgeons performing OLT (2-8) and use a median of 2 assistants (fellow, resident...) during surgery (1-4). Median maximal donor age accepted, graft steatosis accepted and cold ischemia accepted were 80 years (55-96), 50% (15-90) and 12 h (6-24), respectively.

75% use a bilateral incision while 25% use a unilateral J-shaped incision. Preservation of the IVC is used routinely in 57%, selectively 38% and never in 5% of the centers. Temporary portacaval shunt is used in 16% of the centers. 85% of the teams who preserve the IVC and 42% of those who resect the IVC never use venous bypass. 21% of the teams always use venous bypass. Venous reconstruction after preservation of the IVC use the common orifice of the three hepatic veins in 49%, the joined left and middle HV in 7% and a side to side cava-caval anastomosis in 44%. The order of reperfusion is IVC and portal vein before arterial anastomosis in 92% of cases while a few others reperfuse the artery and portal vein simultaneously or the artery before the portal vein. Duct to duct anastomosis without a T-tube is used by 75% of the teams while 25% use a T-tube.

This is the first survey of this type. It provides a snapshot of the standard adult liver transplant technique worldwide. Preservation of the IVC is the most frequent technique, used routinely by 57% of the teams and selectively by 38%.

Abstract# P-536

TOWARDS ZERO BILE LEAKS IN LIVING RELATED LIVER TRANSPLANTATION.

Vivek Vij, Shridhar V. Sasturkar, Ajitabh Shrivastav, Puneet Dargan, Neerav Goyal, Manav Wadhavan, Subash Gupta. *Surgical Gastroenterology & Liver Transplant, Indraprastha Apollo Hospital, New Delhi, India*

Background: Biliary complications remain the most common cause of postoperative morbidity among the living related liver transplant recipients.

The incidence varies from 4.2 to 40% and most of them are anastomotic in origin. Growing experience in small calibre duct anastomosis in LRLT has led to a decrease in the incidence of bile leaks. We hereby present a single center experience of technical refinements in biliary reconstruction that have resulted in reduction of biliary anastomotic leaks.

Methods: 130 patients (118 adults and 12 pediatric) underwent LRLT from September 2006 till December 2008. We divided these patients into three sequential groups with 40 in each group A and B and the last 50 in-group C.

Bile leak was defined as presence of frank bile in the drain or biliary collection on imaging requiring either drainage or surgery. Anastomotic bile leak was confirmed with either ERCP or HIDA scan.

Technical refinements employed include: 1) Oblique division of donor duct leading to pouting of the duct. 2) Preservation of hilar plate around the donor duct. 3) Keeping the length of the recipient bile ducts till at least second order biliary ducts. 4) Temporary placement of stent for suturing of anterior layer after completion of posterior layer. 5) Saline testing through

the recipient cystic duct and 6) Selective use of cystic duct stump for double duct-to-duct anastomosis.

Results: Overall incidence of the bile leak was 12.30% (16/130). Bile leak decreased from 22.5% (9/40) cases in-group A (initial 40 cases) to 12.5% (5/40) in-group B (next 40 cases) to 4% (2/50) in next 50 cases. All 12 pediatric patients underwent hepaticojunostomy. Eight out of 118 adults had hepaticojunostomy and rest 110 had duct-to-duct anastomosis. In the hepaticojunostomy group in adults, five were in-group A, three in-group B and one in-group C respectively. Two out of sixteen patients with bile leak were of pediatric age group. Both were in the early series (group A). Two out of sixteen patients died due to septic complications related to bile leak, both were adults, and in-group A. Median hospital stay for patients with bile leak & without bile leak was 36 & 21 days respectively.

Conclusion: With refined surgical techniques & growing experience the biliary anastomotic leak is significantly reduced.

Abstract# P-537

SPLIT LIVER TRANSPLANTATION. Eviatar Nesher, Eddie Island, J. Moon, Seigo Nishida, Andreas Tzakis. *Department of Transplantation, Miami University, Miami, USA*

75,000 Americans develop organ failure each year. 15% of the patients on the waiting list for transplantation die while waiting. Split liver transplantation is an efficient tool that can increase the number of liver graft available for transplantation. In this article we will report our experience in split liver transplantation.

Patient and method:

From September 1996 till July 2008 56 patients underwent split liver transplantation in our center. (30 adults and 22 children).

13 of the children got segments 2,3 and 9 segment 2,3,4.

14 adult received segments 4,5,6,7,8 and 12 patients received segments 5,6,7,8.

4 pairs of split liver were divided between adults only.

The diagnosis of patients who underwent liver transplantation were:

Biliary atresia, primary biliary cirrhosis, hepatoblastoma, urea cycle defects.

Average adult patient age was 53.86 years , and 3.08 years for pediatric patient.

Blood group of 68% of the pediatric patients were O and 32% from other groups.

57% of adults were from blood group O, 38 % A and 5% B.

Results:

After median follows up of 2277 days.

The average survival was 1874.5 days for adults and pediatric patients.

Grafts survival was 1308.3 and 1400.7 for adults and pediatric respectively.

Two pediatric patients died from sepsis (after 39 and 67 days after the transplantation), one from cerebral edema (after 8 days), one from chronic rejection(after 1665 days), two from PTLN (after 2342 and 1454 days) total 6 pediatric patients.

Four adult patients died from sepsis(after 32,58,71 and 91 after transplantation), one from cerebral edema(after 37 days), one from intra cranial bleeding(after 11 days), one disrupted hepatic artery (after 14 days), one rejection (after 430 days), one cardio respiratory arrest(after 861 days) one gas gangrene of the liver (after 26 days). (Total 10 patients).

Re- transplantation in 6 patients (4 adults and 2 pediatric) due to Primary non function graft, 2 patients (one adult and one pediatric patient) due to Portal vein thrombosis, two patients due to Hepatic artery thrombosis (one adult and one pediatric) one pediatric patient due to pseudoaneurism of the hepatic artery and two patients because chronic rejection (one adult and one pediatric patient).

Conclusion:

The use of split liver for adults and pediatric enables the expansion of the cadaveric donor pool, and can significantly reduce the pediatric waiting list mortality, with acceptable complications and mortality percentage.

Abstract# P-538

EVALUATION AND MONITORING OF INITIAL GRAFT FUNCTION AFTER LIVER TRANSPLANTATION: IMMEDIATE DIAGNOSIS OF PRIMARY NONFUNCTION BY THE LiMAX TEST. Martin Stockmann, Johan F. Lock, Eugen Schwabauer, Johann Pratschke, Peter Neuhaus. *Department of General, Visceral, and Transplantation Surgery, University Hospital Charité, Berlin, Germany*

Background:

Initial graft function is a crucial parameter for the patients' prognosis after liver transplantation (LTX). No reliable test procedure for prognosing primary nonfunction has been available in the early postoperative period. Recent diagnostic procedures took at least 3 days to become definite for graft dysfunction.

Methods:

In a prospective clinical trial 99 patients were studied assessing the LiMax test on its sensitivity and prognostic power after LTX. The LiMax test, a novel 13C-methacetin breath test was performed at 6 hours, day 1, 3, and 5. Results were compared to biochemical parameters and the established indocyanine green test. ROC analysis was performed to create cut-off values for stratification.

Results:

3/99 patients developed PNF and were retransplanted. LiMax revealed an area under ROC curve of 0.96 with a cut-off value of 60 µg/kg/h for prognosing PNF; resulting in a sensitivity of 1.0 already 6 hours after reperfusion. Aspartat-aminotransferase was identified as the best biochemical parameter for PNF prediction and was applied as the comparator. The correct and false classification of LiMax and AST were compared in a contingency table. A significantly better accuracy for the LiMax test compared to AST was shown at 6h (p<0.001) and at first POD (p=0.031).

Conclusion:

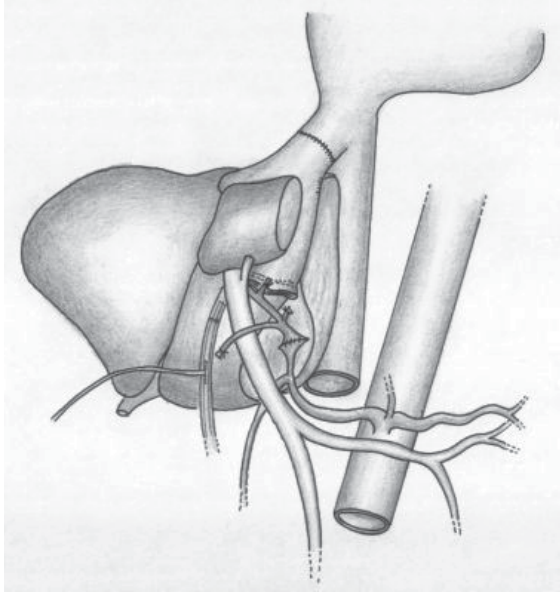
Evaluation of graft function is feasible earlier and with higher prognostic power by valid dynamic testing. The LiMax test revealed a superior diagnostic performance, compared to all current methods. After exclusion of vascular complications, reliable evaluation is available not later than 6h after LTX. This enables effective patient selection for re-LTX and could also prevent premature re-LTX.

Abstract# P-539

SUCCESSFUL ADULT LT WITH A ROTATED LEFT LIVER LOBE FROM AN "IN SITU" SPLITTING PROCEDURE.

Lucia Migliorese, Giovanni Vennarecci, Ubaldo Visco Comandini, Roberto Santoro, Giuseppe M. Ettorre. *General Surgery and Transplantation Unit, Polo Ospedaliero Interaziendale Trapianti (POIT), Rome, Italy*

The "in situ" split liver is an accepted procedure to improve graft pool in the present scenario of organs shortage. With this technique we obtain a true left (S I-IV) and a true right (S V-VIII) emi-liver graft. The European Liver Transplant Registry data reports 584 left livers splits from 1989 to 2005 and only 28 in 2005. Moreover experience with transplantation of left lobe graft from deceased donors in Europe is poor with a 1 year graft survival of 47%. We describe a modification of the left lobe implantation, the graft deriving from an "in situ" splitting procedure. We placed the graft heterotopically in the right upper quadrant fossa after a 180° rotation because it was too large to be placed in the epigastric region. The graft, procured from a brain-dead 26-year-old male, was harvested with the middle, left hepatic vein and retrohepatic cava. Portal and biliary anastomosis were termino-terminal and the arterial patch was implanted on the right hepatic artery.



The graft (687 grams) was transplanted in a 50-year-old woman (62 kg) with hepatitis C virus cirrhosis and HCC. The graft-to-recipient body-weight ratio was 1.1%. After the intervention we observed an adequate liver function (pick of ALT=446 at day 1) and the patient stayed in the intensive care unit for 5 days. In the postoperative course the patient bleed from oesophageal varices and required endoscopic sclerotherapy. Discharge was 30 days from intervention with normal hepatic function test results. To our knowledge, this procedure was previously performed only in a left lateral segment or for a left lobe split in the setting of living donor, never for a left lobe split derived from cadaveric donor. This case shows that the volume of the right upper quadrant fossa is large enough for a rotated left liver to be placed without any evidence of compression or kinking of vascular anastomosis resulting in a good postoperative graft function. It remains to be shown if and to what extent this LL split graft placement technique will improve the Split-Liver Transplant Programs.

Abstract# P-540

ACUTE CHOLESTASIS: AN CONFUSING FACTOR INFLUENCING INDOCYANINE GREEN (ICG) TEST RESULTS IN A POSTOPERATIVE LIVER FUNCTION DETERMINATION, A PILOT STUDY. Maciej Malinowski, Johan F. Lock, Daniel Seehofer, Eugen Schwabauer, Peter Neuhaus, Martin Stockmann. *Department of General, Visceral, and Transplantation Surgery, Charité, Campus Virchow, Berlin, Germany*

Introduction

ICG-test is being used to assess the liver function since more than 50 years. Liver blood flow, ICG dose and hyperbilirubinemia are known factors influencing the test results. Patients with cholestasis have reduced ICG disappearance rate (ICG-PDR). In this study we investigate if acute biliary obstruction without considerable hepatocyte damage can lead to false impaired ICG-test results.

Methods

Clinical observation: Two liver donors and one patient which underwent liver resection suffering from postoperative acute cholestasis were measured using the ICG-test before and after ERCP. Standard laboratory parameters were measured at the same time points.

Experimental part: ICG retention at 15 min (R15) and ICG-PDR were determined using pulse dye densitometry in a rat model. Rats were either sham operated, or underwent a bile duct ligation (BDL). ICG test was performed before, 30, and 60 min after operation. Standard liver damage serum parameters (ALT, bilirubin), as well as liver histology (H-E) were compared between the groups.

Results

Clinical observation: ICG Retention at 15 min (R15) and ICG-PDR significantly improved after ERCP intervention while liver synthesis serum parameters did not.

Experimental part: No difference in the histological staining and only slight increase of ALT and bilirubin was noticed between the groups. R15 was significantly increased and ICG-PDR reduced in the BDL rats ($p < 0.005$).

Conclusions

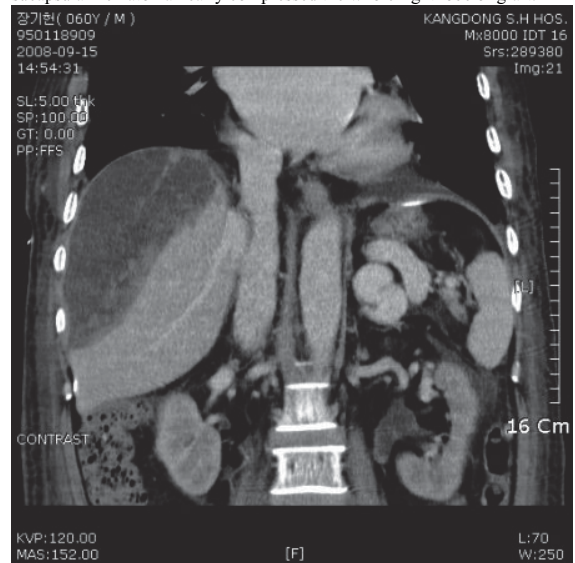
False negative liver function values can be provided by ICG test when acute cholestasis after liver transplantation or resection occurs. In the rat model acute cholestasis impairs liver function measured by ICG test as well. Acute cholestasis seems to influence ICG test independently and before a secondary hepatocyte damage occurs. This could be of major relevance in the postoperative phase after liver transplantation and has to be investigated in future studies.

Abstract# P-541

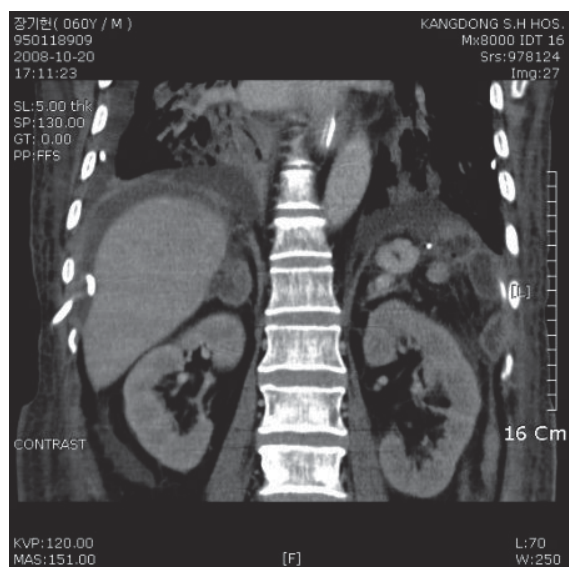
NON-SURGICAL TREATMENT OF LARGE SUBCAPSULAR HEMATOMA OF LIVER GRAFT AFTER DECEASED DONOR LIVER TRANSPLANTATION: CASE REPORT. Do Jin Kim¹, Joo Seop Kim¹, In Gyu Kim¹, Han Jun Kim¹, Jae Pil Jung¹, Seong Eun Chon¹, Samuel Lee¹, Kyu Jong Yoon¹, Jong Soek Lee¹, Suk Ja Hyun².

¹Surgery, Hallym University College of Medicine, Seoul, Korea; ²Transplantation Center, Kang-dong Sacred Heart Hospital, Seoul, Korea

Subcapsular hematoma of the graft is uncommon but serious complication of liver transplantation. It may develop spontaneously or following parenchymal injuries or percutaneous transhepatic invasive procedures. This report describes a case of graft subcapsular hematoma due to intraoperative parenchymal injury. A 60-year-old male patient underwent deceased donor liver transplantation for acute-on-chronic liver failure due to alcoholic liver cirrhosis. During operation, we found small laceration on the dome of graft but were not concerned about it. A large subcapsular hematoma was discovered by routine Doppler sonogram examination on the 5th post-transplantation day. Concurrent computerized tomogram (CT) findings revealed that large subcapsular hematoma nearly compressed the whole right lobe of graft.



And the same time, aspartate aminotransferase (AST)/alanine aminotransferase (ALT) levels gradually started to increase from 57/45 to 112/122 IU/L for several days. This increase was speculated to have been caused by the expanding effect of subcapsular hematoma. Percutaneous decompression was performed by inserting pig-tail catheter drainage (PCD) on the 10th post-transplantation day. Thereafter, the recipient's liver function began to improve. The large subcapsular hematoma nearly disappeared after 1 month.



This experience suggests that the large subcapsular hematoma can be treated nonsurgically in selected case.

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