## P152 HYPOTHERMIC CONTINUOUS MACHINE PERFUSION IMPROVES METABOLIC PRESERVATION AND FUNCTIONNAL RECOVERY IN HEART GRAFTS

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**Background:** The number of heart transplants performed by year is declining since the 2000s because of organ shortage. Increasing the donor pool could be achieved by improving graft preservation. This would allow to prolong cold ischemic time or to use extended criteria donors. Hypothermic machine perfusion (MP) has been shown to better preserve kidney, liver or lung grafts. We investigated in a large animal model whether this would be the case in heart grafts.
**Methods:** Sixteen pig hearts were retrieved after cardioplegia and randomized to 4 h preservation on static cold storage (CS) or MP (Modified Lifeport©System, Organ Recovery Systems©, Itasca, IL). The preservation solution was KPS-1 in both groups. After preservation, the grafts were reperfused on a Langendorff during 60 min. Myocardial biopsies were performed at baseline, post-preservation and post-reperfusion to quantify oxidative metabolism by measuring lactate, nucleotides, phosphocreatine (Pcr) and creatine (Cr). Contractility index (CI) was assessed *in vivo* before cardioplegia with a Millar catheter and during reperfusion with an intraventricular balloon.
**Results:** Compared to MP, hearts preserved on CS showed significant higher lactate levels, higher AMP/ATP ratio and lower PCr/Cr ratio after preservation and during reperfusion (Figure 1). Coronay flow was similar in both groups during reperfusion (CS = 107 ± 9 vs. MP=125 ± 9 ml/min/100 g heart; p = ns). Compared to baseline, CI decreased by 25 ± 10% in the CS group while it remained stable in the MP group.
**Conclusion:** Compared to MP, hearts preserved on CS suffer more severe ischemia during preservation, as shown by a higher lactate and lower energy states. These differences remain after reperfusion despite equal coronary flow in both groups, probably due to oxidative defects in CS group. Functional recovery is better in the MP group.

## P153 CORONARY HEART DISEASE RISK ESTIMATION AND ITS IMPROVEMENT WITH A GENETIC RISK SCORE IN PATIENTS WITH KIDNEY DISEASE

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**Background:** The spectrum of kidney disease (KD) is broad ranging from mild chronic kidney disease to end-stage renal disease, which requires dialysis and kidney transplantation. Coronary heart disease (CHD) is prevalent in KD patients, and contributes substantially to the morbidity and mortality of these patients. However, the classical CHD risk equations have shown limited clinical utility in KD patients.
**Aims:** The aims were: a) to develop and assess the predictive capacity of a CHD risk function based on clinical variables; and b) to evaluate whether the inclusion of genetic variants improve CHD risk estimation.
**Methods:** Our cohort study included 632 KD patients with a median follow-up of 9.13 years. Mean age was 53.4 (±10.6) years and 32.4% of the patients were male. Seventy three coronary events (fatal- or non-fatal acute myocardial infarct or acute angina) were identified in the follow-up. The clinical CHD risk score included KD status, age, sex, HDL, diabetic condition, hypertension condition, dislypemic condition, hemoglobin A1c. In a second model, we also included a weigthed genetic risk score (GRS) [Cardio inCode Score] with variants previously identified to be associated with CHD and not related with classical cardiovascular risk factors (rs10455872, rs12526453, rs1333049, rs17465637, rs501120, rs6725887, rs9818870, rs9982601, rs10507391, rs17222842, and rs9315051).
**Results:** The discrimination of the CHD risk function improved with the GRS (c-statistic = 72.0 vs. 68, p-value = 0.015). The calibration assessed by the Howmer Lemeshow test was 9.6, p = 0088 (i.e., calibration was good with no statistical differences between the events predicted and the observed). The reclassification of the patients also improved with the GRS (Net reclassification improvement = 22.0; 95%CI: 5.5; 38.6).
**Conclusion:** The inclusion of a GRS improves risk prediction of CHD in patients with KD. Genetic screening could help to prevent CHD events in this group of patients.

## P154 STEROIDS WITHDRAWAL AND USE OF MYCOPHENOLATE ACID FOR MAINTENANCE IMMUNOSUPPRESSION IMPROVES SURVIVAL IN HEART TRANSPLANTATION: A SINGLE CENTER EXPERIENCE

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**Background:** Early severe rejection in heart transplantation has become unusual and drug-related morbidity accounts partially for the gradual attrition of the heart transplantat population. Therefore, maintenance immunosuppression (IS) is now being investigated as improvement in late outcomes is still being contemplated.
**Methods:** A retrospective transversal study of 348 primary heart transplantation patients operated on between 1985 and 2006. Of the 302 first-month survivors, complete pharmacologic and angiographic follow-up was available in 296 patients (98%). Induction IS was used in all instances (ATG Fresenius). Maintenance IS was based on triple-drug therapy. Since 1996, an attempt to systematically withdraw steroids before 12 months was initiated. Study primary endpoints were patient/graft survival, severe cellular rejection and coronary allograft vasculopathy (CAV).
**Results:** Cyclosporin A (CsA) and tacrolimus were given in 230 and 62 patients, respectively. The antiproliferative drug was azathioprine (AZA) in 127 patients and mycophenolate acid (MPA) in 115 patients, while 53 patients received neither. Weaning from steroids was accomplished in 143 patients (48.3%). Conditional to one-month survival, patients had a 5- and 10-year survival of 81% and 64%, respectively. In univariate analysis, the type of calcineurin (CNI) used had no influence on survival. Maintenance IS with AZA (HR 2.4 [95%CI: 1.5–4]) or with steroids (HR 3.0 [95%CI: 2–4.5]) were both significant risk factors for death/graft failure. Neither incidence of severe rejection nor incidence of CAV was influenced by the type of CNIs or by the antiproliferative agent administered. However, patient still on steroids were at greater risk for developing CAV (HR 1.65 [95%CI: 1.03–2.63]).
**Conclusion:** This study confirms the beneficial effect of mycophenolate acid as the antiproliferative agent of choice and also supports our current practice of earlu steroids weaning, without additional risk.