

Failure to rescue rate to better analyze surgical complications after 500 pediatric living donor liver transplantations.

Aniss Channaoui MD, Roberto Tambucci MD, Catherine de Magnée MD PhD, Raymond Reding MD PhD.

Pediatric Surgery and Transplant Unit, Abdominal Surgery and Transplantation Department, Cliniques universitaires Saint-Luc, Université catholique de Louvain, Brussels, Belgium.

In a monocentric series of 500 pediatric living donor liver transplantations :

- 1) Validation of “Failure to Rescue” as a tool for analyzing post-operative outcomes in terms of surgical complications.
- 2) This new conceptual tool is part of a logic of constant quality improvement in the management of post-operative complications.

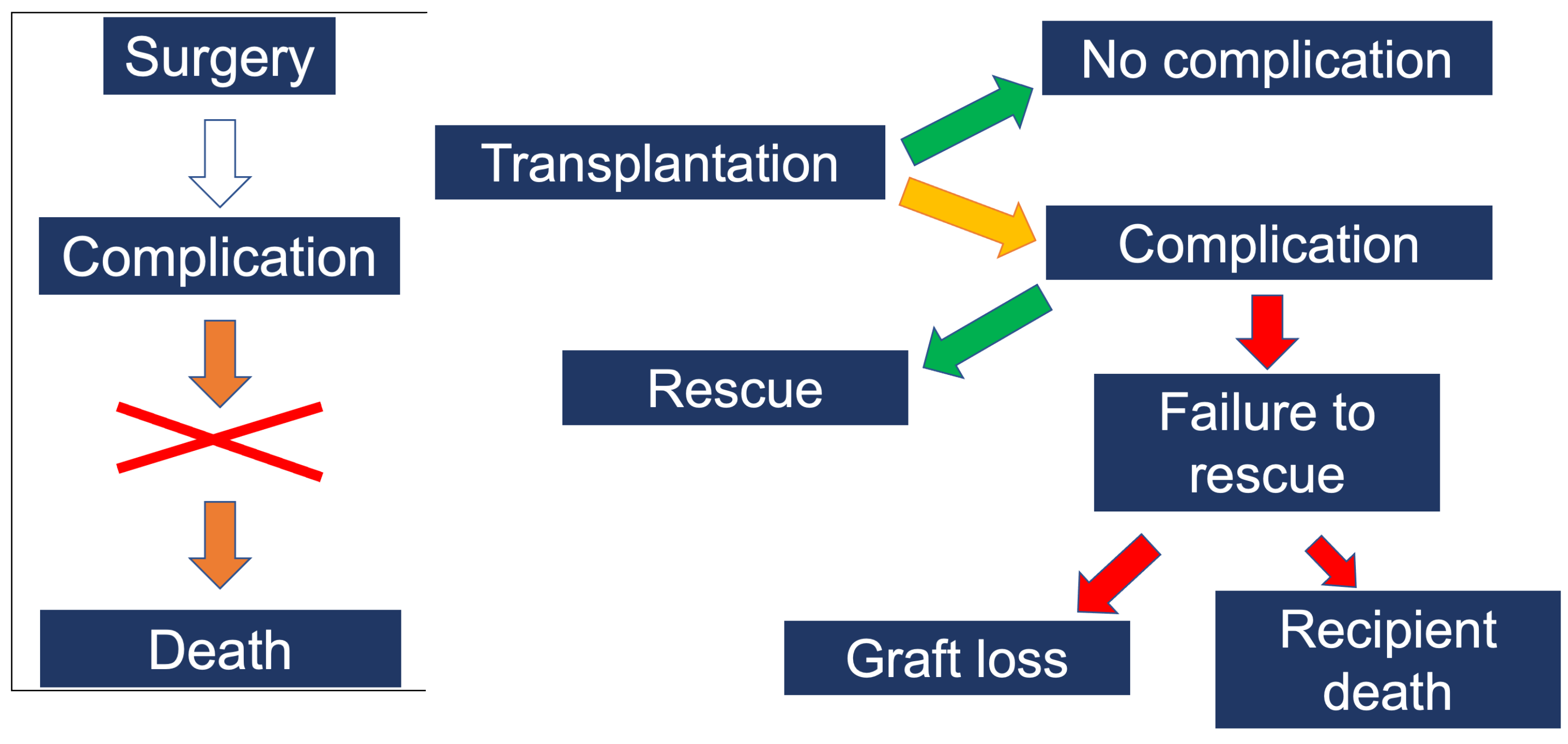
BACKGROUND

This work reviews our monocentric series of **pediatric living** donor (LD) liver transplantations (LT) and tries to evaluate the potential interest of the **failure to rescue** (FTR) concept for **surgical complications**.

Complication rate =
$$\frac{\text{Nb of patients with complication}}{\text{Total Nb of patients undergoing a particular surgery}}$$

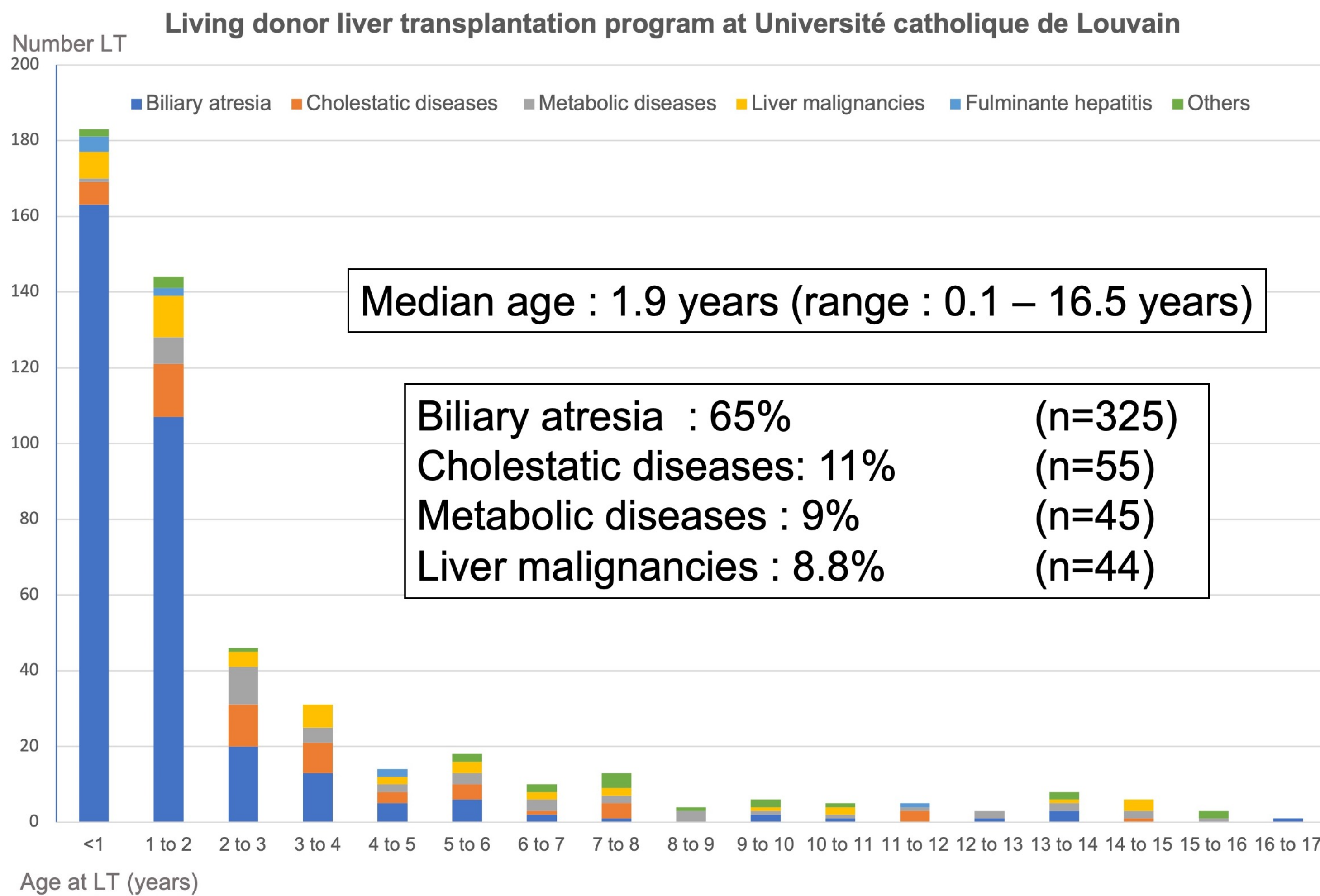
Failure to Rescue rate =
$$\frac{\text{Nb of patients with a complication and died in the hospital}}{\text{Total Nb of patients with a complication}}$$

Failure to Rescue, the **missing link**, in *organ transplantation* :



PATIENTS & METHODS

Between 1993 and 2022, a total of 792 primary pediatric LT were performed in our center, of which **500 LDLT**.



The repartition of left vs full-left liver graft was 98.5% (n=194) vs 1.5% (n=3) before 1-year old at LT, 96.8% (n=211) vs 3.2% (n=7) between 1- and 5-years old at LT, and 40% (n=34) vs 60% (n=51) after 5 years old at LT.

All medical records of LDLT were **retrospectively** reviewed. Minimal and median follow-up were 4 months and 7 years. The patient/graft survival, retransplantation rate and arterial/portal/biliary complications rates were analyzed **with special interest for FTR** (death after a complication). The 4-month FTR rates were calculated for *the most frequent complications*, for patients (**FTRp**) and grafts (**FTRg**), 4-month being the standard hospital stay for our foreign patients.

RESULTS & CONCLUSION

Overall 1- and 5-year **patient survival** were 94.5% and 92.1%, with a total of 40 deaths. In terms of **graft survival**, the 1- and 5-year rates were 92.7% and 89.8%, with 13 retransplantations. The 3- and 12-month retransplantation rates were 1% and 1.8%. Overall complication rates :

Arterial complications (n=18/500)

- Thrombosis (n=14) **3.6%**
- Kinking/Extrinsic compression (n=4)

Portal complications (n=56/500)

- Thrombosis (n=32) **11.2%**
- Stenosis (n=24)

Biliary complications (n=101/500)

- Anastomotic stricture (n=55)
- Intra-hepatic stricture +/- anastomotic (n=11)
- Biliary leakage (n=35) **20.2%**
 - Anastomotic (n=22)
 - Cutting section (n=6)
 - Roux-en-Y loop (n=7)

Overall 4-month FTRp and FTRg were 10.8% (n=8/74) and 8.1% (n=6/74). Four-month FTRp / FTRg were 21.4% (n=3/14) / 14.3% (n=2/14) for *hepatic artery thrombosis*, 15.4% (n=2/13) / 15.4% (n=2/13) for *portal vein thrombosis* and 0% (n=0/15) / 0% (n=0/15) for *anastomotic biliary stricture*.

Our data suggests that the FTR concept would offer **a tool for analyzing the missing link** between patient morbidity and mortality. We think that **the precise analysis of causes of FTR** would allow **quality improvement** of post operative care in the field of pediatric LDLT.