

# Indicators of Liver graft outcome during Normothermic Regional Perfusion for Donation after Cardiac Death

Steinberg I.<sup>1</sup>, Mina A.<sup>2</sup>, De Cesaris E.<sup>2</sup>, Bisciaio A.<sup>1</sup>, Collino F.<sup>1,2</sup>, Brazzi L.<sup>1,2</sup>, Zanierato M.<sup>2</sup>.

<sup>1</sup>University of Turin

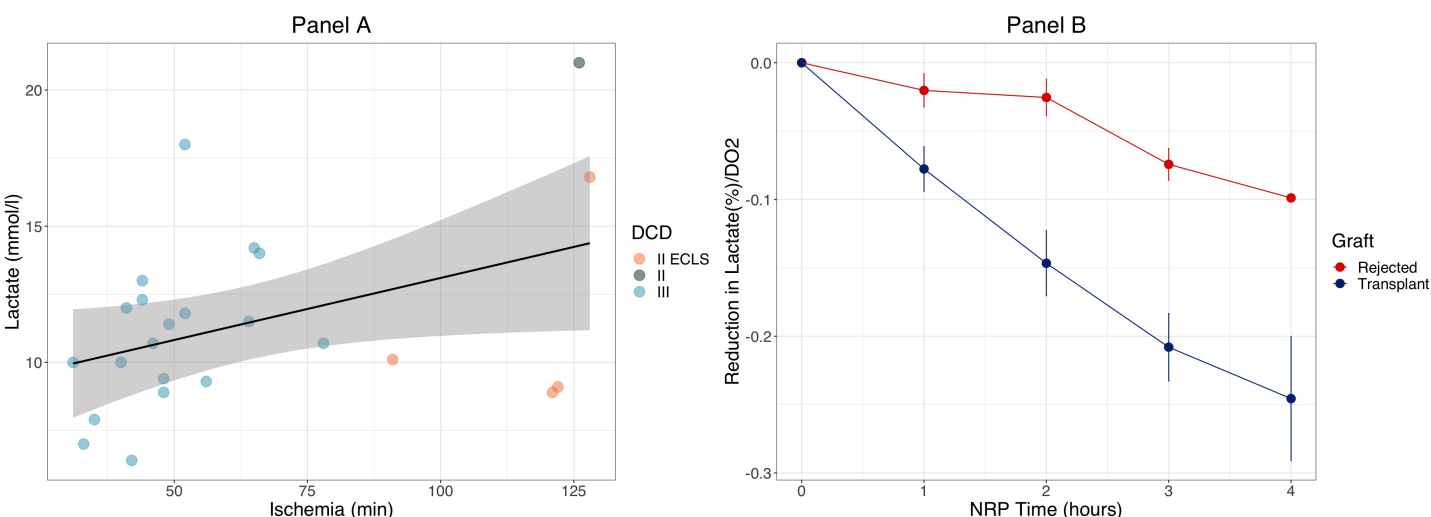
<sup>2</sup>"Città della Salute e della Scienza" Hospital

**Introduction:** Normothermic Regional Perfusion (NRP) is an extracorporeal technique that allows in-situ perfusion and evaluation of abdominal organs during Donation after Cardiac Death (DCD). Knowledge concerning the kinetics of ischemic organ damage and its markers is still growing.

**Methods:** Data collected during 25 NRP procedures were analyzed. Liver graft outcome was determined based on transplantation after ex-vivo evaluation. Statistic was computed using R.

**Results:** No differences were found between rejected and transplanted grafts in donor age, sex, BMI, hypertension or smoke history ( $p=0.13$ ,  $p=0.67$ ,  $p=0.14$ ,  $p=0.24$  and  $p=1$ ). Time of no-flow, low-flow and extracorporeal life support (ECLS) for DCD II and functional warm ischemia for DCD III did not differ between groups ( $p=0.49$ ,  $p=0.33$ ,  $p=0.5$  and  $p=0.43$ ). Lactate was not different at the beginning of NRP whereas it was lower at the end in the group that proceed to transplant ( $p=0.24$  and  $p=0.02$ ). Blood flow, oxygen delivery (DO<sub>2</sub>) and the necessary fluids and blood transfusion did not differ between groups ( $p=0.35$ ,  $p=0.43$ ,  $p=0.54$  and  $p=0.1$ )

In Figure 1 panel A we report the relationship between lactate at the beginning of NRP and ischemia time. A significant correlation was found between lactate and ischemia time in DCD III but not in DCD II ( $p=0.037$  and  $p=0.35$ ). The time course of the decrease from the baseline value of lactate, normalized for the DO<sub>2</sub>, is shown in Figure 1 panel B. A statistically significant difference was found between the two groups ( $p<0.001$ ).



**Discussion:** In this population, the reported donor's characteristics did not differ between groups. Lactate at NRP start was correlated to ischemia time in DCD III but not in DCD II probably because most DCD II donors were patients on ECLS suspended for refractory instability. Anyhow, lactate was not different at baseline but grafts that were eventually transplanted showed better clearance during NRP.