

COMPARISON OF HYPOTHERMIC AND NORMOTHERMIC EX-SITU PRESERVATION IN DCD LIVER TRANSPLANTATION (DCDNET TRIAL)

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Background : In Italy, 20 minutes of continuous flat-line electrocardiogram are required for death declaration, increasing the risks of complications after DCD liver transplantation (LT). Good outcomes are reported combining normothermic regional perfusion (NRP) to end-ischemic machine perfusion (MP). It is to be demonstrated what is better between dual-hypothermic oxygenated (D-HOPE) and normothermic machine perfusion (NMP) in this setting.

Methods : From 2020 to 2024, LT from DCD donors were included in this prospective, randomized single centre trial. The aim is to compare graft and patient survival and biliary complications in LT from DCD with sequential use NRP and end-ischemic D-HOPE versus NMP. Graft viability was assessed during NRP.

Results : 38 LT were performed, 19 randomized to D-HOPE and 19 to NMP. Median donor age was 66.6 and 64.6 years ($p=0.73$) in D-HOPE and NMP group. No differences in terms of post-reperfusion syndrome rate (38.8% versus 33.3%, $p=0.72$), early allograft dysfunction (27.7% in both groups), acute kidney injury (15.7% versus 10%, $p=0.58$), ICU stay ($p=0.1$) and hospital stay ($p=0.14$) were noted. Two patients developed biliary stenosis in the D-HOPE group. Two anastomotic stenosis, 3 leakage and 1 ITBL were observed in the NMP group ($p=0.1$). One patient in the D-HOPE group was re-transplanted due to delayed non-function. 90-days graft and patient survival was 94.4% versus 100% ($p=0.31$) in D-HOPE and NMP group respectively.

Conclusions : Our results showed similar graft and patient survival and biliary complications in the two groups. The sequential use of NRP and end-ischemic MP allows the safe use of DCD grafts in LT.

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