

M6

Normothermic mAchine Perfusion of the Liver to Enable transplantation in difficult recipients (NAPLES)

Mrs Siobhan McKay¹, Mrs Amanda Carvalheiro¹, Mr Buddhika Dassanayake¹, Mr Prashant Kadam¹, Mr Suchintha Tillakaratne¹, Mr Joseph Attard¹, Mr Yuri Boteo¹, Dr Amardeep Khanna¹, Dr Rachel Moore¹, Dr Davinia Bennett¹, Dr Hentie Cilliers¹, Dr James Cuell¹, Dr Thomas Faulkner¹, Dr Nick Murphy¹, Mr Manuel Abradelo¹, Mr Keith Roberts¹, Ms Andrea Schlegel¹, Professor Darius Mirza¹, Professor Paolo Muiesan¹, Mr John Isaac¹, Dr Matthew Armstrong¹, Dr Neil Rajoriya¹, Mr David Bartlett¹, Mr Thamara Perera¹

¹University Hospitals Birmingham NHS Foundation Trust, Birmingham, United Kingdom

Abstract

Introduction: The National Liver Offering Scheme (NLOS) disadvantages high-risk candidates; some never receive offers whilst 25% retrieved organs are discarded nationally. The potential of Normothermic Machine Perfusion (NMP) of marginal grafts to serve high-risk candidates has not been explored before. Here we report early outcomes using marginal Donation after Brainstem Death (DBD) grafts that would otherwise be declined for high risk recipients.

Methods: Patients were consented to receive a marginal NLOS or fast-track (FT) DBD liver after NMP. Back-to-base NMP was performed and the organ transplanted if previously defined viability criteria were fulfilled and outcome data collated and reported as median (interquartile range).

Results: 30 livers (n=23 FT) underwent NMP of which 23(77%) met criteria for transplant. The donor age was 51 (40-67), donor risk index 1.68 (1.28-2.74) and donor BMI 27.7 (24-30). The majority [n=14 (61%)] were re-transplant candidates; the remainder were high risk for other reasons and deemed suitable only for a good DBD graft using standard cold storage. The waiting time was 361 (216-599) days and UKELD 58 (52-59). The NMP time was 750 (527-873) minutes following a cold ischaemic time of 369 (320-424) minutes. There was 100% graft function. One patient required re-transplant 4 days later due to a technical arterial issue. 30-day graft and patient survival were 96% and 100% respectively. 13 (57%) patients developed ≥ 1 Clavien-Dindo grade 3-4 complications. Currently 21 (91%) patients have been discharged after 4 (3-6) days in ITU and overall length of stay of 15 (10-20) days.

Discussion: NMP expands horizons in liver transplantation such that marginal DBD livers can be transplanted into higher risk patients after viability assessment and overcomes the problem of prolonged cold storage that precludes the use of marginal grafts in patients undergoing complex explants. This approach could minimise organ wastage whilst benefitting those waiting longer for a graft.

Categories

10. Organ preservation and retrieval