

DONATION AFTER CARDIAC DEATH INCREASES THE NUMBER OF LIVER GRAFTS FOR LIVER TRANSPLANTATION. H. Le Dinh, M. Hans, J. Monnard, M.H. Delbouille, A. Deroover, J. Delwaide, A. Lamproye, S. Lauwick, P. Honoré, O. Detry. CHU de Liège, Liège, Belgium.

Introduction : Liver transplantation from donors after cardiac death (DCD) has been shown to increase the rate of primary graft dysfunction and ischemic cholangiopathy due to the unavoidable warm ischemia time prior to organ procurement and preservation. We evaluated the results of DCD liver transplants in a Belgian liver transplantation group.

Aim : Medical records of a consecutive series 41 DCD liver recipients from 2003 to 2010 were retrospectively reviewed with regards to patient and graft survivals and biliary complications. Mean follow-up was 24.4 months (range 1-90 months).

Methods : Mean donor age was 57.8 ± 14.7 years (mean \pm SD) with 48.8% of donors at the age of 60 or over. Donor causes of death were anoxia (43.9%), stroke (39%) and head trauma (14.6%). Mean time of treatment withdrawal to aortic cold perfusion was 20.1 ± 7.0 min (range : 10-39), mean cold ischemia time was 266.6 ± 90.7 min (range : 105-576) and mean suture time was 39.9 ± 7.6 min (range : 25-57). Liver grafts were transplanted locally in most cases (92.7%). HTK was the most used perfusion solution (82.9%).

Results : Mean recipient age was 55.5 ± 11.5 years (range : 29-73). Hepatocellular carcinoma (HCC) was the most frequent indication for DCD liver transplant (51.2%). Mean MELD score was 15.8 ± 6.7 (range : 6-40). Postoperatively, there was no primary nonfunction. Mean peak serum aspartate aminotransaminase level was 2,538.8 UI/mL, mean peak serum bilirubin was 54.6 mg/L. Six patients (14.6%) developed biliary complications and underwent endoscopic or surgery management. No patient developed symptomatic intra-hepatic bile duct strictures or needed a second transplantation. Patient and graft survival was 95% at 1 year. Nine liver grafts were lost during follow-up due to recipient deaths which included 3 multiple organ failures due to sepsis, 5 tumoral diseases and 1 death in the context of Alzheimer disease.

Conclusion : This experience confirms that controlled DCD donors may be a valuable source of transplantable liver grafts if short warm ischemia at procurement, minimal cold ischemia time and appropriate recipient selection are insured.

99MTC-MEBROFENIN CLEARANCE OF THE FUTURE REMNANT LIVER IS AN ACCURATE TOOL TO PREDICT LIVER FAILURE AFTER HEPATECTOMY. T. Chapelle, G. Roeyen, K. De Greef, N. Boeykens, B. Op De beeck, I. Hyughe, T. Lambrechts, A. Verbruggen, D. Ysebaert. UZ Antwerpen, Edegem, Belgium.

Introduction : Correct assessment of the remnant liver function is still difficult and acute liver failure after major hepatectomy is a serious complication in these patients. It is therefore important to develop accurate diagnostic tools that can predict the risk of liver resection-related morbidity.

Aim : The purpose of this study was to evaluate preoperative hepatobiliary scintigraphy of the future remnant liver in patients undergoing liver resection.

Methods : Postoperative morbidity was evaluated using the "Clavien Complication Score". Liver failure was defined as PT < 50 ; bilirubin > 50 μ mol/l, ammonium > 50 μ mol/l and therapy-resistant ascites, from day 5 until 3 months after hepatectomy. Preoperative hepatobiliary scintigraphy was performed by using 99m Tc-mebrofenin. Uptake in the liver is expressed as %/min/BSA.

Preoperative MRI volumetry was used to measure the volume of the total liver (TLV), the tumor volume and the future remnant liver volume (FRLV) and expressed in ml. Receiver-operating characteristic analysis was performed to assess cutoff values for risk assessment of morbidity and liver failure.

Results : Between October 2008 and August 2010, 61 patients were included in the study. Liver failure occurred in 8 patients. The volume of the future remnant was not significantly associated with liver failure and severe complications. FRLV below 40% had a low positive predictive value of 25% and a negative predictive value of 94% to predict liver failure and a low positive predictive value of 16% to predict serious liver-related complications. In contrast, patients with liver failure had significant lower 99m Tc-mebrofenin clearance than patients without liver failure (2.39 ± 0.78 vs 4.45 ± 1.63 respectively, $p < 0.001$). Fifteen patients had severe complications. Patients with severe complications had significant lower 99m Tc-mebrofenin clearance than patients without severe complications (2.67 ± 0.90 vs 4.67 ± 1.65 respectively ; $p < 0.01$). ROC curve analysis showed that a clearance below 2.1%/min/BSA of FRLV had a positive predictive value of 72% and a negative predictive value of 95% for the development of liver failure.

Conclusion : Hence, preoperative measurement of 99m Tc-mebrofenin uptake in the future remnant liver on hepatobiliary scintigraphy proved more valuable than measurement of the volume of the future remnant on MRI in assessing the risk of liver failure and liver related severe complications after partial liver resection. Therefore, preoperative measurement of 99m Tc-mebrofenin uptake in the future remnant liver on hepatobiliary scintigraphy is a valuable tool to predict liver-resection related morbidity.