

[132] Post Liver Transplant Biliary Complications in Deceased Donor Liver Grafts: Analysis of Preservation Solution.

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Objective: Histidine-tryptophan-ketoglutarate (HTK) and University of Wisconsin (UW) preservation solutions are the two solutions used primarily in abdominal organ procurement in the U.S. Bile duct complications are common in the post liver transplant (LT) period and may be related to the arterial blood supply for the biliary system. Because HTK is much less viscous than UW, it has been hypothesized that this solution provides a better flush of the biliary microcirculation. Improved blood clearance from these small vessels may lower the risk for thrombus formation and improve post-transplant biliary perfusion leading to a lower risk of biliary complications. This study reviews the biliary complications in a large number of deceased donor LTs and compares outcomes for HTK and UW.

Methods: Data were extracted using a retrospective review of all liver transplants between 2001 and 2010, with an extensive review of all endoscopic and percutaneous biliary imaging and post-transplant liver function enzymes. Our center uses doppler ultrasound and biliary imaging as first evaluation for elevated liver enzymes, prior to biopsy, resulting in a large number of imaging studies. Primary outcomes included need for imaging, any leak, and stricture formation.

Results: There were 1185 LTs reviewed, including 1049 (89%) with duct-to-duct and 132 (11%) with Roux-Y reconstruction. (4 OR deaths) Preservation solution included 804 HTK (68%) and 369 UW (32%). 1-year graft survival was higher for the HTK preserved livers (90% vs 86%, $p=0.06$). Any biliary imaging was required for 55% of HTK and 61% of UW LTs ($p=0.11$). The risk of any leak was higher for UW (12%) versus HTK (5%) ($p<0.001$). The risk of anastomotic stricture was higher for HTK (42% vs 35%, $p=0.07$), but intrahepatic ischemic-type strictures were more common for UW preserved grafts (6% vs 2%, $p=0.02$). Among donation after cardiac death (DCD) grafts, there were no significant differences in biliary complications, except for a much higher risk of intrahepatic ischemic-type strictures in UW-preserved grafts (46% vs 11%, $p<0.01$).

Conclusion: HTK-preserved livers have significantly less risk of biliary leak and intrahepatic stricture formation when compared to UW-preserved grafts. UW has a much higher risk of intrahepatic strictures in DCD grafts when compared to HTK.

Keywords: Liver transplantation; Bile duct; Preservation solutions; Outcome

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