

**Report of the 15th Annual International
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By N. Warnaar

Concurrent Session: Pediatrics

Room Location: Sutton Center, 16.45 – 18:05

Chairs: Mohammed Rela, MD & Anil Dhawan, MD



Introduction

At the ILTS 2009 meeting in New York, USA, I presented my abstract “long-term outcome after urgent revascularization for hepatic artery thrombosis after pediatric liver transplantation” in this session. Because of the many questions about this very subject, it turned out to be a nice session with a lively discussion.

Hepatic artery thrombosis (HAT) after pediatric orthotopic liver transplantation (OLT)

Orthotopic liver transplantation has become the treatment of choice for children with acute liver failure or chronic end-stage liver disease. Over the last decades graft and patient survival have improved considerably, and one- and five-year patient survival rates are around 90% and 75%, respectively, in experienced pediatric centers. Graft survival rates are generally 10% lower due to graft-related complications requiring retransplantation. One of the most common causes of graft loss after OLT in children remains hepatic artery thrombosis, especially when this occurs early after transplantation. The reported incidence of HAT after pediatric OLT varies from 1% to 26% and has been associated with significantly lower patient survival rates. If left unnoticed or untreated, HAT occurring within the first weeks after OLT may cause acute ischemic injury of the bile ducts, leading to biliary necrosis and sepsis. In this situation, urgent retransplantation of the liver is generally considered the best treatment option.

Urgent surgical thrombectomy, either with or without thrombolysis, has been reported as a potentially successful treatment to restore arterial blood flow to the liver graft. In most of the previous reports follow-up was either not specified or usually less than one year and the study population small. The aim of our study was to analyze the long-term results of urgent revascularization after early HAT in children after OLT and to define which children with HAT can benefit from urgent revascularization.

Long-term outcome after revascularization for HAT after pediatric OLT

The incidence of HAT seen in the time period studied was 13.8% in our center. Sixteen children (50%) underwent urgent surgical thrombectomy, either with or without thrombolysis. This resulted in long-term restoration of the hepatic artery flow in 6/16 patients (37.5%). Fourteen children (44%) were directly retransplanted without an attempt to perform thrombectomy. Two children (6%), who developed recurrent HAT after a retransplant for HAT complicating a first transplant procedure, received no further surgical interventions because of a very poor general condition.

Urgent surgical thrombectomy appears justified in children after liver transplantation complicated by early HAT. Salvage of the liver graft can be obtained in about one-third of the patients. When arterial blood supply to the liver graft can be restored successfully one-year graft survival was 83% in the current series, and none of the livers required late retransplantation because of post-ischemic biliary stricture formation. However, when thrombectomy is not successful and retransplantation inevitable, patient survival is lower than in patients who underwent immediate retransplantation without a prior attempt to restore arterial blood flow (50 vs 71% respectively). Unfortunately, we were unable to identify risk factors that may predict success or failure of an attempted urgent thrombectomy. The effect of immediate detection of HAT by continuous flow monitoring on the success rate of urgent revascularization has to be awaited.

Conclusion and Discussion

It is still debated whether an urgent thrombectomy is treatment of choice in case of HAT in children who underwent a liver transplantation. We were hoping to be able to answer that question in this study, but this remains unanswered. The discussion was mainly focused at how and when the HAT was detected and how the decision was made to or perform a thrombectomy, or to relist a patient for a retransplantation. Again, since it is a retrospective study, we could only speculate why that choice was made at that time. Possibly the type of graft (full-size vs split) and therefore the diameter of the vessels, or the time interval between transplantation and detection of the thrombosis influenced this decision. To minimize this interval and therefore minimize the damage done, our center started continuous flow monitoring in the hepatic artery. These results have to be awaited and will possibly be presented at a next ILTS-meeting!