Help for liver transplant patients with small-for-size syndrome

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Blocking off the splenic artery, either through surgical ligation or radiological coiling, helped six out of seven patients suffering from small-for-size syndrome after a partial liver transplant. This finding is in the February issue of *Liver Transplantation*.

Due to the shortage of liver donors, and the long list of patients in need of a transplant, doctors are increasingly using partial grafts. They may take half of the liver from a living donor, or split the liver of a deceased donor into two usable parts. These techniques have increased the number of transplants being performed; however, they have also led to new problems, such as small-for-size syndrome (SFSS), in which the new liver can't handle the metabolic demands of the recipient.

The syndrome causes liver dysfunction soon after the transplant; symptoms include problems with bile flow and coagulation, and ascites, which is the accumulation of fluid in the abdomen. Without treatment, about 50 percent of patients with SFSS will die of sepsis or another complication. Fortunately, there are ways to treat the condition, although the best approach is unclear.

To examine possible treatments for SFSS, researchers, led by Abhinav Humar of the University of Minnesota, conducted a retrospective database analysis of all adult recipients of partial liver transplants at their center between 1997 and 2007. There were 100 such patients, seven of whom developed SFSS. Five of the seven underwent additional abdominal surgery within two weeks of their transplant, to rule out a

technical complication of the transplant, and then to have their splenic artery ligated. The other two patients were treated radiologically by splenic artery coiling.

"Of the seven recipients, six had a good response to the splenic artery occlusion with improvement of liver function tests over the course of the next one to two weeks," the authors report. None developed post-operative spleen infections and all were alive and well after an average follow-up time of three years. One of the patients treated radiologically did not improve, and required a new transplant, which he received three months later.

The doctors at the center eventually altered their approach in an attempt to prevent SFSS before it could happen. They performed splenic artery ligation at the time of transplantation in patients who had high portal vein pressure.

While prevention of SFSS should be the goal, they say, this study indicates that occluding the splenic artery is a reasonable approach for treatment of established SFSS. "All except one of our recipients seemed to have a favorable response, and eventual complete normalization of their liver function tests," they report.

An accompanying editorial by Chung Mau Lo of Hong Kong, emphasizes the need for a consensus on how to diagnose SFSS. As for treating this condition, he supports the conclusions of Humar and colleagues.

He advocates routine monitoring of portal pressure and flow in high-risk partial liver transplant recipients. "Portal flow modulation such as splenic artery ligation should be done early rather than delayed," Lo writes.

The article is available online at Wiley Interscience (www.interscience.wiley.com).

Article: "Delayed Splenic Artery Occlusion for Treatment of Established Small-for-Size Syndrome after Partial Liver Transplant." Humar, Abhinav; Beissel, Joy; Crotteau, Shaina; Cohen, Melissa; Hill, Mark; Lake, John; Payne, William. Liver Transplantation ; February 2009.

Editorial: "Splenic Artery Occlusion for Small-for-Size Syndrome—Better Late Than Never But Early Is the Best." Lo,Chung Mau. Liver Transplantation; February 2009.

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