

Publication Brief

Modulation of graft vascular inflow guided by flowmetry and manometry in liver transplantation.

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BACKGROUND

Survival of the partial graft after living donor liver transplantation owes much to its tremendous regenerative ability. With excellent venous outflow capacity, a graft within a wide range of graft-to-standard-liver-volume ratios can cope with portal hypertension that is common in liver transplant recipients. However, when the ratio range is exceeded, modulation of graft vascular inflow becomes necessary for graft survival.

The interplay between graft-to-standard-liver-volume ratio and portal pressure, in the presence of porto-systemic shunt or other techniques for modulation, requires individualized modulation of graft portal and arterial inflows. Boosting of portal inflow by shunt ligation can be guided by Transonic flowmetry, whereas muting of portal inflow by splenic artery ligation can be monitored by portal electronic manometry.

CASE EXAMPLES are presented that demonstrate management of graft inflow modulation guided selectively by Transonic flowmetry or portal manometry:

Patient 1: with small-for-size syndrome presented with splenic artery steal syndrome resulting in a hepatic artery thrombosis. An emergency splenic artery ligation and re-anastomosis of the hepatic artery successfully muted the portal inflow and boosted the hepatic arterial inflow.

Patient 2: with portal vein thrombosis underwent thrombendvenectomy. Portal inflow was boosted with ligation of the portosystemic shunt, which is often present in these patients with portal hypertension.

Patient 3: with both a splenic aneurysm and splenorenal shunt required ligation of both.

Patient 4, with portal pressure and flow monitoring, avoided ligation of a coronary vein which became a main portal inflow after portal thrombendvenectomy.

TAKE HOME

These case examples from a 2011 paper demonstrate that management of graft inflow modulation is guided selectively by Transonic flowmetry or portal manometry

References:

Chan SC *et al*, "Modulation of graft vascular inflow guided by flowmetry and manometry in liver transplantation," *Hepatobiliary Pancreat Dis Int*. 2011 Dec;10(6):649-56. (Transonic Reference # TX11131AH).

Emond JC *et al*, "Hepatic Hemodynamics and Portal Flow Modulation: The A2ALL Experience," *Transplantation*. 2017 Oct;101(10):2375-2384. TRIAL REGISTRATION: [ClinicalTrials.gov NCT01619475](https://clinicaltrials.gov/ct2/show/study/NCT01619475) (Transonic Reference # TX11316AH).