Liver Transplant Publication Brief

Clinical Relevance of Adapting Portal Vein Flow in Living Donor Liver Transplantation in Adult Patients

Roberto Troisi MD, Bernard de Hemptinne MD
Depts. General, Hepato-Biliary, & Transplantation Surgery, Ghent University Hospital, Ghent, Belgium

INTRODUCTION
Graft size mismatch is a major concern in adult living donor liver transplantation because hyperperfusion to the newly grafted liver is considered the main factor leading to graft dysfunction and poor survival. In this paper the authors describe the clinical significance of modifying graft inflow by ligating the splenic artery to prevent “Small-for-Size Syndrome (SFSS)” in adult living donor liver transplants (ALDLT) and preventing its accompanying complications.

STUDY
Portal venous and hepatic arterial flow measurements were compared: pre-transplant in the donor and then post-transplant in the recipient as follows.

REPORTED RESULTS

<table>
<thead>
<tr>
<th>Vessel</th>
<th>Flow: Donors Onset of Hilar Dissection</th>
<th>Flow: Recipients After Reperfusion &amp; Biliary Anastomosis</th>
<th>Hepatic-Portal Ratio Pre-Transplant</th>
<th>Hepatic-Portal Ratio Post-Transplant</th>
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</thead>
<tbody>
<tr>
<td>PORTAL VEIN</td>
<td>712 ± 172 ml/min</td>
<td>2,100 ± 1,153 ml/min</td>
<td>30/70</td>
<td>6/94</td>
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<tr>
<td>HEPATIC ARTERY</td>
<td>104 ± 62 ml/min</td>
<td>202 ± 102 ml/min</td>
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</tbody>
</table>

After reperfusion, recipient portal venous blood flow was three times greater than that in donors. In recipients, hepatic arterial blood flow doubled from that of donors. The portal venous blood flow contribution to the liver graft flow increased from 70% to 94%. Statistically significant higher portal flow in some patients mandated a graft inflow modification procedure which reduced total portal flow from 2,600 ± 832 ml/min to 1,700 ± 689 mL/min.

STUDY’S CONCLUSION
An increase in portal blood flow is commonly observed after reperfusion in standard cadaver liver transplantation. In ALDLT, these hemodynamic changes seems more pronounced. The study confirms that poor outcome is associated with graft hyperfusion and that the portal venous flow in the recipient should be lowered when graft to recipient body weight ratio (GRBWR) < 0.8 is accompanied by portal inflow of > 250 mL/min/100g graft weight.

TAKE HOME POINTS
This paper demonstrates that flow measurements are important in determining liver donor/recipient graft mismatch in order to decide whether measures should be taken to moderate a mismatch by ligation of the splenic artery or other shunt procedures.

REFERENCES