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Mitigating Post-Reperfusion Syndrome In Living Donor Liver Transplantation: The Implications Of Inferior Vena Cava Clamping Techniques

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Background : This study aimed to investigate the association between inferior vena cava (IVC) clamping techniques and the onset of post-reperfusion syndrome (PRS) in living donor liver transplantation (LDLT).

Methods : We retrospectively reviewed a total of 788 patients who underwent LDLT between 2014 and 2022. Patients were divided into two groups according to how IVC was clamped during hepatic vein anastomosis; IVC partial clamping (group P) and IVC total clamping (group T). We conducted 1:1 propensity score analysis to adjust for baseline differences between the groups, with each group comprising 278 patients. We compared the incidence of PRS, intraoperative outcomes, and other postoperative outcomes according to two groups.

Results : Group T demonstrated a significant reduction in PRS incidence compared to Group P, both before and after matching (9.7% vs. 17.6%, $p=0.030$; OR 0.44, 95% CI: 0.25–0.77, $p=0.005$). Group T also exhibited reduced warm ischemic and operative times (25.0 min vs. 33.0 min, $p<0.001$; 352 min vs. 393.5 min, $p<0.001$, respectively). Notably, there were no significant differences in postoperative outcomes between the groups, including HV complications, graft dysfunction, and acute kidney injury. However, the use of inotropics was different between the groups.

Conclusions : While the present study demonstrates that during LDLT, the employment of partial clamping technique on the IVC during HV anastomosis harbors a significant association with the emergence of PRS, postoperative outcomes remain unassociated.

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