Western Surgical Association
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– Virtual Meeting –
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Q 8. PORTAL VEIN FLOW AND THE DEVELOPMENT OF POST-TRANSPLANT ASCITES

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Background: The development of ascites following orthotopic liver transplantation (OLT) is common with most cases resolving spontaneously or with a short course of diuretic therapy. However, some patients develop refractory ascites requiring recurrent paracentesis and medical therapy. Refractory ascites is also a component of small for size syndrome (SFSS) after living donor transplant. Portal hyperperfusion injury is a known cause of graft dysfunction in SFSS, but portal hyperperfusion and the subsequent graft dysfunction and ascites have not been studied in deceased donor OLT.

Methods: A single center retrospective review of a prospectively kept database of patients receiving liver-only transplantation between 1/1/2009 and 12/31/2018 was performed. Information on demographics, liver disease, intraoperative portal vein (PV) flow, and the development and management of post-transplant ascites and outcomes was collected. Patients were stratified into three group based on development of ascites: no ascites (NA), transient ascites (TA), and refractory ascites (RA). Groups were analyzed using univariate analysis and regression analysis.

Results: 900 patients received deceased donor OLT during the study period. Thirty two patients were excluded due to death within the first ninety days following transplantation. Data were collected on the remaining 868. 520/868 patients (59.9%) developed no post-OLT ascites. 177/868 (20.4%) patients developed TA, defined as ascites resolving within four weeks of onset. 171/868patients (19.7%) developed RA, defined as ascites that persisted >4 weeks. The RA group was younger, had higher MELD scores ($p < 0.0001$), had a pre-OLT history of ascites that required intervention and had large volume ascites at the time of transplant ($p=0.0001$) vs. NA and TA groups. The RA group had higher intraoperative post reperfusion PV flows compared to the NA group ($p=0.0018$). On multivariate analysis, it was determined that PV flows >2 L/minute were associated with the development of RA ($p=0.04$). On Cox regression survival analysis, RA was associated with decreased overall patient ($p=0.013$) and graft-survival ($p=0.031$).

Conclusion: Refectory ascites is associated with reduced patient and graft-survival and may be related to PV flow over 2L/min. Intraoperative portal flow alteration by ligation of the splenic artery has been shown to improve outcomes in SFSS cases. This study suggests that there is potential to consider portal flow alteration in deceased donor OLT to minimize development of refractory ascites and the morbidity and mortality associated with this debilitating condition.