Post-Reperfusion Syndrome in Pediatric Patients Undergoing Allopathic Liver Transplantation

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Introduction

• Pediatric orthotopic liver transplantations are becoming increasingly more common.
• During liver reperfusion, a marked decrease in systemic blood pressure, systemic vascular resistance, and cardiac output following unclamping of the portal vein and liver reperfusion is frequently observed and is termed post-reperfusion syndrome (PRS).
• In adult liver transplantation, PRS occurs in approximately 30% of the recipients and is associated with an increase in morbidity and mortality.
• The purpose of this study is to determine the incidence of PRS during pediatric liver transplantation.

Methods

• After IRB approval, we identified all patients who underwent orthotopic liver transplantation at Children’s Hospital of Atlanta at Egleston from April 1st, 2014 to November 29th, 2015 after implementation of an electronic medical record.
• Demographic, surgical, and other perioperative variables were then collected on members of this cohort.
• For this analysis, PRS was defined as a reperfusion mean arterial blood pressure (MBP) that was at least 30% less than the averaged MBP over the ten minute interval immediately prior to reperfusion. This definition corresponds to previous literature.
• SAS 9.4 was used for the statistical analysis.

Results

• 38 patients were identified during this time period.
• The age range in this cohort was 3 weeks to 17 years with a 50:50 male to female ratio.
• The average MELD/PELD was 18 (range 4 – 50) with cold ischemia times ranging from 175 to 942 minutes.
• Nine patients (23.7%; 95% CI 12.8 – 39.4%) had PRS in this cohort (Figure 1).

Discussion

• The PRS rate in this pediatric group was similar to that noted for adult patients undergoing liver transplantation.
• Several demographic (MELD score) and intraoperative (graft cold ischemia time) are associated with PRS in the adult literature.
• Our next step is to discover any demographic and perioperative variables that are correlated with pediatric PRS and to establish any associated postoperative morbidity and mortality in pediatric patients with PRS.

Figures