Outcomes of Acute Pancreatitis in Liver Transplant Patients. A Nationwide Readmission Database Analysis

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INTRODUCTION: Acute pancreatitis (AP) is a well-recognized and generally serious complication following liver transplantation. We sought to assess AP following adult liver transplantation to define the risk factors, natural history of the disease and outcomes.

METHODS: Data from Nationwide Readmission database from 2010 to 2015 was analyzed. All adult patients who were hospitalized for a primary diagnosis of acute pancreatitis were identified and patients who had a history of liver transplantation were compared to patients with no transplant, using the appropriate ICD 9 codes. Continuous variables were expressed as means ± standard deviation or median (IQR), and categorical variables were expressed as percentages. All statistical tests were two-sided.

RESULTS: 1,575,148 AP patients were included, and out of those 1581 patients (0.1%) had a history of liver transplantation. Patients with a history of transplantation had higher rates of hypertension 59.1% vs. 53.8%, \( P < 0.001 \), diabetes mellitus with chronic complications, 5.8% vs. 3.8%, \( P < 0.001 \), chronic pancreatitis, 18.2% vs. 16.1%, \( P = 0.02 \), chronic renal failure 39.6% vs. 7.9%, \( P < 0.001 \). Transplant patients had higher rates of in-hospital AP complications: acute kidney injury 20.3% vs. 8.3%, \( P < 0.001 \), transfusion requirement 7.2% vs. 3.0%, \( P < 0.001 \), ARDS 5.3% vs. 2.1%, \( P = 0.004 \), or sepsis 4.3% vs. 3.7%, \( P = 0.055 \). Transplant patients had lower rates of acute respiratory distress syndrome and/or ventilation need, 0.6% vs. 2.3%, \( P < 0.001 \), and sepsis 0.5% vs. 1.6%, \( P < 0.001 \). In-hospital mortality was higher in patients with history of liver transplantation 0.9% vs. 0.3%, \( P = 0.053 \). Median length of stay was not significantly different 3.0 (2-4) days vs. 3.0 (2-5), \( P = 0.17 \). Charges of hospitalization were significantly higher in the transplant group 23,615 USD vs. 21,020 USD, \( P < 0.001 \).

CONCLUSION: Post-liver transplant AP carries significant morbidity and mortality. The extensive nature of the anatomic dissection around the pancreas, the reconstruction of the biliary tree and the potential factors contributing to the morbidity and mortality of AP in the post-liver transplant population. Our study highlights possible areas for further investigation in the liver transplant population.

Assessment of the Impact of Hypertriglyceridemia on Organ Failure During Acute Pancreatitis: A Different Perspective

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INTRODUCTION: Hypertriglyceridemia (HTG) may impact acute pancreatitis (AP) outcomes. This study investigates the effect of different serum triglycerides (TG) thresholds on the development of persistent or multiple organ failures in patients with AP.

METHODS: Cohort study of a prospectively maintained database of patients admitted with AP at a tertiary center in the last 15 years. We strictly included patients who met AP diagnosis by revised Atlanta Classification. Severity of HTG was determined by the American Endocrine Society guidelines. Control group: AP (including all common etiologies, except HTG-induced AP). Study groups included other common HTG scenarios: 1) HTG-AP (i.e. HTG-induced AP), 2) HTG-AP + DKA (i.e. Traid, and 3) AP + diabetes ketonuria (AP-DKA). We assessed the levels of TG and its impact on organ failure. Multivariable logistic regression models were constructed using STATA software version 9.4.

RESULTS: 26,654 patients were reviewed, of whom 124 patients had the triad (HTG-AP-DKA), 100 had HTG-AP only (triglyceride levels >1,000 mg/dL), 67 had AP + DKA and we included 101 with AP only as control for the analysis. Overall, any level of hypertriglyceridemia in all of the three study groups (HTG-related syndromes) had higher odds for developing organ failure when compared to the control group (Table 1). All study groups had higher odds to develop ARDS, AKI, ileus, and shock. The highest odds ratios for organ failures were: HTG-AP patients with moderate levels of HTG were almost 25 times more likely to develop ARDS. AP-DKA patients with moderate levels of HTG were 32 times more likely to develop AKI. HTG-AP patients with severe HTG levels were 16 times more likely to develop ARDS. AP-AP patients with moderate levels of HTG were 7 times more likely to develop shock. Interestingly, all study groups had lower odds to develop SIRS, persistent SIRS at 24 or 48 hrs, and myocardial infarction (MI) (Table 1).

CONCLUSION: Increased TG levels were associated with the development of multiple organ failure among AP patients, particularly in the settings of HTG-induced AP, the Traid of HTG-AP-DKA, and AP-DKA. Interestingly, HTG did not correlate with SIRS (transient or persistent), which one could have expected. It seems that the severe organ failure is driven by direct lipotoxicity from HTG rather than pancreatitis-inflammation (i.e. SIRS).