The Impact of De Novo Post-Transplant Diabetes on Hepatic Steatosis and Liver Transplant Outcomes
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Introduction: As the prevalence of diabetes (DM) increases in the general population, it is also increasing in the transplant (Tx) population. Post-transplant diabetes (PTDM) has historically led to inferior outcomes after Tx. With the rising population of patients transplanted for fatty liver disease, the impact of DM, de novo PTDM, and hepatic steatosis on post-liver Tx outcomes has not been clearly defined.

Purpose: We sought to determine the incidence and prevalence of PTDM, post-Tx hepatic steatosis and the impact on liver Tx outcomes.

Methods: This was a single center retrospective cohort study from 2003 to 2016 of adult patients undergoing LTx. Pediatric, acute liver failure and re-Tx were excluded. Glucose levels in the first 30 days post-Tx were excluded. DM was defined as ≥ 2 random glucose levels ≥ 200 mg/dl at 1 year. The outcomes were recurrent or de novo DM and steatosis at 1, 3, 5 years, as well as patient survival. Time-to-event analyses were performed with Kaplan-Meier survival curves.

Results: 433 patients met inclusion criteria. 13% Tx were performed for NAFLD, and 23% of patients had DM at the time of Tx. 81% of patients with DM at the time of Tx continued to have uncontrolled DM at 1 year. Among patients without DM at Tx, 44% developed de novo PTDM by 5 years; 77% of these occurred in the first 12 months (Figure 1). PTDM was associated with de novo hepatic steatosis at 1, 3 and 5 years (6% vs 4%, 17% vs 9%, and 27% vs 17%, p=0.05). There was a numerical trend toward inferior survival among patients with DM at 5 years (78% vs 72%) in unadjusted analysis.

Conclusion: De novo PTDM is common and the vast majority occurs within the first year. PTDM is associated with post-Tx hepatic steatosis and a trend toward inferior patient survival. The early onset of PTDM provides a potential window for intervention that may reduce the risk of steatosis and decreased survival.
Figure 1: Proportion of patients without PTDM