

## ARTICLE OF THE MONTH

Bekki Y, Myers B, Wang R, Smith N, Zerillo J, Rocha C, Tabrizian P, Moon J, Arvelakis A, Facciuto M, DeMaria S, Florman S. **Postreperfusion syndrome in liver transplantation: Outcomes, predictors, and application for recipient selection.** *Clinical Transplantation*. 2022.

**“Background:** This study aimed to identify risk factors for postreperfusion syndrome (PRS) and its impact on LT outcomes.

**Methods:** Data analysis was performed in 1021 adult patients undergoing donation after brain death (DBD) LT to identify PRS incidence, the risk factors for PRS development, and its impact on LT outcomes.

**Results:** The overall incidence of PRS was 16.1%. Independent risk factors for PRS included donor age (odds ratio (OR) 1.01,  $P = .02$ ), donor body mass index (BMI) (OR 1.04,  $P = .003$ ), moderate macrosteatosis (OR 2.48,  $P = .02$ ), and cold ischemia time (CIT) (OR 1.06,  $P = .02$ ). On multivariable analysis for 30-day graft failure, PRS (hazard ratio (HR) 3.49;  $P < .001$ ) and Model for End-stage Liver Disease (MELD) score (HR 1.01;  $P = .05$ ) were independent risk factors. Patients were categorized into four distinct groups based on PRS risk groups and MELD groups, which showed different 1-year graft survival ( $P < .001$ ). There were comparable outcomes between low PRS risk - high MELD and high PRS risk - low MELD group ( $P = .33$ ).

**Conclusions:** Donor age, donor BMI, moderate macrosteatosis, and CIT were identified as risk factors for the development of PRS in LT using DBD grafts. PRS risk evaluation may improve donor-to-recipient matching based on their MELD scores.”

Comments made by Cara Crouch, MD

This article conducted a retrospective review of all adult DBD liver transplants from a single center over a 15-year period, excluding patients who received multi-organ transplants, DCD grafts, split grafts, LDLT, retransplant and patients who were transplanted due to acute liver failure, to identify risk factors for the development of postreperfusion syndrome (PRS). The authors also reviewed outcomes and offer suggestions for donor/recipient matching to reduce the incidence of PRS. The authors defined PRS as “a  $>30\%$  decline in mean arterial pressure (MAP) from baseline within 5 minutes of graft reperfusion and lasting at least 1 minute.” A total of 1021 cases were reviewed and the overall incidence of PRS was found to be 16.1%.

The authors found no recipient factors that were statistically significant for an association with PRS. Four donor factors were found to be independently associated with PRS: donor age, donor BMI, moderate macrosteatosis (30-60%) and cold ischemia time. The authors used this data to develop a PRS risk score used to categorize patients as either low or high PRS risk.

Patients also underwent further risk stratification, low ( $\leq 25$ ) vs. high ( $> 25$ ) MELD, in combination with low vs. high PRS risk to analyze graft and patient survival. The occurrence of PRS was found to be associated with worse short-term graft and patient outcomes but not long-term outcomes. When PRS risk and MELD score were combined, it was found that patients with high MELD and high PRS risk factors had poor outcomes. The authors suggest that identifying the PRS risk factors and utilizing the risk score may allow for more optimal donor/recipient matching to improve overall outcomes.

**References:**

1. Bekki Y, Myers B, Wang R, Smith N, Zerillo J, Rocha C, Tabrizian P, Moon J, Arvelakis A, Facciuto M, DeMaria S, Florman S. **Postreperfusion syndrome in liver transplantation: Outcomes, predictors and application for recipient selection.** *Clinical Transplantation*. 2022.