Orthotopic liver transplantation (OLT), a treatment for end stage liver disease and certain metabolic disorders, can require massive blood transfusion. Studies have shown an association between intraoperative transfusion and post-operative morbidity and mortality, but it has been difficult to identify OLT patients at high risk for massive hemorrhage and resulting adverse outcomes. There has been little investigation into this relationship in OLT recipients weighing less than ten kilograms, a unique population for several reasons, including increased technical challenges and blood volume to weight ratio.

**Methods**

68 children weighing 10 kg or less underwent 73 OLTs from February 2009 to May 2014 at our institution. Blood products transfused and perioperative variables were collected by retrospective chart review.

Univariate and multivariate linear regression analysis was performed using R statistics program. IRB approval was obtained.

**Results**

Two patients required no transfusions, 49 patients were transfused less than 0.5 estimated blood volumes (EBV), and 9 patients were transfused greater than 1 EBV.

By univariate analysis, preoperative bilirubin, PT, PTT, creatinine, preoperative ICU, and surgical time demonstrated statistically significant positive correlations with percent EBV (%EBV) transfused. By univariate analysis, hematocrit, platelet and metabolic diagnosis demonstrated statistically significant negative correlations with %EBV transfused. By multivariate linear regression analysis, creatinine remained statistically significant (p < 0.047).

**Discussion**

In this single center experience, we noted a relatively low transfusion requirement. We found preoperative creatinine value to positively correlate with increased RBC transfusion during OLT in this patient population though the clinical significance is unclear.

Further study of liver transplant recipients weighing under 10 kg is needed to determine if creatinine or other factors may influence the magnitude of red blood cell transfusion during OLT.

**References**