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Hypoalbuminemia in pediatric renal transplantation

Lavjay Butani
University of California Davis Medical Center, USA

In patients with chronic kidney disease, hypoalbuminemia is a strong predictor of morbidity and mortality. Children with chronic kidney disease often have low serum albumin, but there are no data addressing how commonly childrenwith a low serum albumin are transplanted, nor on the impact of hypoalbuminemia on post-transplant outcomes.

A retrospective cohort study of pediatric renal transplant recipients in the US from January 2000-December 2010 was conducted using the Organ Procurement and Transplantation Network (OPTN) database. Data collected included recipient & donor demographics, serum albumin at registration and transplant related variables. The primary outcome measure was 30 day graft survival. Secondary outcome measures included graft loss at 30 days due to infections, thromboses and urologic complications. Cox regression analyses were performed to determine the independent effect of albumin on outcomes.

Of the 6,032 transplants, 308 (5.1%) had hypoalbuminemia (serum albumin <2.5 g/dl). Rates of transplantation in children with hypoalbuminemia varied significantly across the OPTN regions ($p<0.001$); in the lowest region, 14 of 572 (2.4%) recipients were hypoalbuminemic and in the highest 50 of 574 (8.7%). Albumin was inversely associated with 30-day graft survival. Each 1 g/dl increase in serum albumin level was associated with a 33% reduction in risk of graft failure (adjusted hazard ratio =0.67, 95% CI: 0.53-0.84). Serum albumin <2.50 g/dl was associated with higher adjusted hazard of graft failure of 2.18 (95% CI: 1.15-4.11, reference category > 3.50 g/dl). There were no differences in rates for any of the secondary outcome measures by serum albumin.

Hypoalbuminemia is an independent risk factor for short term graft loss. It remains to be determined whether graft failure is a consequence of hypoalbuminemia or both are a reflection of a higher inflammatory milieu. Transplant centers and patients need to be aware of this and make informed decisions regarding the optimal timing of transplantation.

Biography

Lavjay Butani is a Professor of pediatrics and Chief of Pediatric Nephrology at the University of California, Davis Medical Center in Sacramento. He is on the editorial board of and also is the editor-in-chief of several journals, and is well known in the field of pediatric renal transplantation and chronic kidney disease.

lavjay.butani@ucdmc.ucdavis.edu