



News Release

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Session A36: With a Little Help From My Friends: All About Lung Transplant

Sunday, May 17, 2015, 9:30 a.m. – 4:15 p.m.

Location: Colorado Convention Center

Study Suggests Need for Renal Protective Care in Pediatric Lung Transplant Patients

ATS 2015, DENVER — Caucasian and Hispanic children who undergo lung transplantation appear to be at greater risk for developing chronic kidney disease, or CKD, according to a small retrospective study conducted at Texas Children's Hospital.

The study, believed to be the first to look at CKD in children who have received lung transplants, also found that those children with high levels of tacrolimus, a powerful immunosuppressant given to fight organ rejection, circulating in the blood and those who experience at least one episode of acute kidney injury during their recovery also appear to be at greater risk for CKD.

“These results show tendencies that need to be explored further,” said lead investigator Maria Gazzaneo, MD, who will present her research at ATS 2015, May 15-20, in Denver. “Still, we believe these results suggest pediatric lung transplantation patients can benefit from renal protective strategies.”

At Texas Children's Hospital, where Dr. Gazzaneo is assistant professor of pediatric critical care and lung transplantation, the health care team now measures tacrolimus levels and kidney function twice a day. When possible, they try to reduce tacrolimus dosage, particularly in the first seven days post-surgery. The transplant team also involves nephrologists earlier in the care of any child who appears to be at risk for CKD.

Dr. Gazzaneo examined the medical records of 38 children who received a lung transplant at her hospital between 2012 and 2014. Two were excluded because they died within two months of the surgery. Of the 36 others, 5, or 13.8%, developed CKD within one year of transplantation based on criteria established by an international clinical guideline, Kidney Disease: Improving Global Outcomes (KDIGO).

Three of the children with CKD were Caucasian and two were Hispanic. Tacrolimus levels were elevated (15 ng/ml or higher) during the first seven post-operative days in 80% of those who developed CKD. All patients who developed CKD had at least one episode of acute kidney injury, or AKI. Among the children who did not develop CKD, the incidence of AKI was 71 percent.

Dr. Gazzaneo noted that CKD almost always presents a life-long challenge that can lead to many other complications, including hypertension, anemia, growth retardation and bone disease.

“The patients who developed CKD in our study were adolescents,” she said. “If we could spare them this complication, it would greatly enhance their quality of life for the rest of their lives.”

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** Please note that numbers in this release may differ slightly from those in the abstract. Many of these investigations are ongoing; the release represents the most up-to-date data available at press time.*

Abstract 68152

Chronic Kidney Disease After Lung Transplantation: Incidence and Risk Factors in Pediatric Population: Retrospective Review

Type:

Scientific Abstract

Category:

17.02 - Transplantation: Clinical (CP)

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Abstract Body

Rationale: Chronic kidney Disease (CKD) is a potential complication following lung transplantation; however, the burden of this disease in pediatric population is not well-described. CKD is defined as abnormalities in kidney structure or function, present for > 3 months, with implications for health. The purpose of the study was to determine the incidence of CKD as well as risk factors for this condition after lung transplantation in a pediatric cohort.

Methods: This study retrospectively evaluated data on 38 patients who underwent lung transplantation in Texas Children's Hospital between 2012 and 2014. We excluded 2 patients; one died 2 months after transplant and the second one was within 30 days post-transplant. The primary outcome was CKD, defined and categorized according to the Kidney Disease: Improving Global Outcomes (KDIGO) criteria. GFR was calculated using CKD-EPI equation. We also included age, race, and immunosuppressive drug levels as potential risk factors.

Results: Of a total of 36 patients, 13.8% (5) developed CKD within 1 year post-lung transplant. According to KDIGO Glomerular Filtration rate (GFR) categories in CKD 40% (2) were classified as mildly decreased (G2), 40% (2) were mildly to moderately decreased GFR (G3a), and 20% (1) was severely decreased (G4). Of patients who developed CKD the median age was 15.8 years (14-18), 60% (3) females and 40% (2) males. 60% (3) Caucasian and 40% (2) Hispanic. Tacrolimus levels were elevated during the first 7 post operative days in 80% (4) of patients who developed CKD within the first year after lung transplantation. All patients who developed CKD had at least one episode of AKI after lung transplant.

Conclusions: Children with CKD can develop many complications including hypertension, anemia, growth retardation, bone disease. Our study identifies a high-risk population for end-stage kidney disease; therefore targeting renoprotective strategies in earlier stages of kidney disease may decrease CKD related morbidity and mortality.