Introduction

Cardiovascular disease is a leading cause of non-immunologic morbidity and mortality after kidney transplant (KTx). To date, much attention has focused on ischemic heart disease and heart failure in this population.

In recent years, pulmonary hypertension (P-HTN) has gained recognition as a clinically important cardiovascular condition among patients suffering from chronic kidney disease, including KTx candidates and recipients.

The incidence and mortality implications of P-HTN after KTx have not been described in large, national samples.

Methods

• We examined a linkage of Scientific Registry of Transplant Recipients (SRTR) data with Medicare claims to investigate P-HTN diagnoses among Medicare-insured KTx recipients in 2000-2016 (N=59,610).
• We identified diagnoses of “primary” and “secondary” P-HTN based on International Classification of Diseases, Clinical Modification (ICD-CM) diagnostic codes (ICD-CM-9 through October 2015, then ICD-CM-10) on billing claims.

• Cox regression was used to identify independent correlates of P-HTN (adjusted hazard ratio, 95% LCL-UCL), and to examine P-HTN diagnoses as time-dependent mortality predictors, stratified by baseline clinical factors.

• At 3 years post-KTx, P-HTN was diagnosed in 7.0% of patients without P-HTN in the year before KTx, but in 45.8% of those with P-HTN in the year before KTx.

• The incidence of new onset P-HTN was higher with baseline factors including older age (aHR for age >60 vs <18-30, 2.46; 95% CI 2.12-2.83), obesity (aHR, 1.04; 95% CI 1.15-1.28), limited functional status (aHR, 1.09; 95% CI 1.25-1.42), coronary artery disease (aHR, 1.34; 95% CI 1.30-1.46), chronic obstructive lung disease (aHR, 1.57; 95% CI 1.47-1.66), longer pre-KTx dialysis duration (aHR for >5 yrs vs preemptive, 1.30; 95% CI 1.18-1.45), dialysis modality (aHR for hemo- vs peritoneal, 1.28; 95% CI 1.17-1.40), and lower organ quality (aHR Kidney Donor Profile Index >85 vs 20-25, 1.17; 95% CI 1.07-1.32).

• P-HTN diagnosis was associated with 3.0-fold increased risk of subsequent mortality, with relative risk being highest in young recipients, those of non-white/non-black race, those with kidney failure due to glomerulonephritis or polycystic kidney disease, those without pretransplant P-HTN, and those who underwent transplant in more recent years (Figure).

• Clinical diagnosis of P-HTN after KTx is correlated with increased risk of subsequent mortality.

• More work is needed to refine diagnostic and management strategies to improve outcomes in KTx recipients who develop this challenging complication.