Both of our patients had estimated and subsequently measured CRCl alone is an insufficiently sensitive marker. In addition to calcium-reinhibitor toxicity in these cohorts, patients with CF are furthermore predisposed to oxalate nephro- and pigmented tubulopathy. The lifetime use of antibiotics in patients with CF reduces the oxalate scavenging organism Oxalobacter formigenes from the colon, resulting in enteric hyperoxaluria. Perioperative stressors, including dehydration, hypoxia, and antibiotics, in conjunction with hyperoxaluria can result in crystallization of calcium oxalate on proximal tubular cells around the time of surgery, which can be demonstrated on renal biopsy. The pigmented tubulopathy in patients with CF post-lung transplant is characterized by intracellular accumulation of silver stain-positive pigmented granules with the histopathologic characteristics of lipofuscin and correlates clinically with the use of antivirals, aminoglycosides, and glycopeptide antibiotics in the month preceding their accelerated renal function loss. We believe an increased awareness in the detection and pathogenesis of renal dysfunction in patients with CF will facilitate tailored strategies.

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Peri-Lung Transplant Renal Issues in Patients With Cystic Fibrosis

To the Editor:

We read with interest the article by Quon et al1 in an issue of CHEST (July 2012) on the risks of post-lung transplant renal dysfunction in patients with cystic fibrosis (CF). We agree that patients with CF are at a heightened risk posttransplant for renal dysfunction secondary to pretransplant risk factors, including dehydration and chronic aminoglycoside use. In our own cohort of adult patients with CF, we have shown an increasing prevalence of renal dysfunction with declining lung function, particularly in patients approaching the need for lung transplantation assessment. Using the Cockcroft-Gault formula, 36 of 90 (40%) stable consecutive adult patients with CF attending our center had estimated creatinine clearance (CrCl) <90 mL/min/1.73 m2, (mean, 101.8 mL/min/1.73 m2, SD = 28.5). Applying multivariable linear regression, estimated CrCl correlated with declining lower lung function (r = 0.33, P = .002) but not with age, sex, BMI, or CF-related diabetes mellitus.

We also agree that the need to identify pretransplant renal dysfunction in patients with CF is of increasing importance as a predictor for post-lung transplant renal dysfunction as highlighted in Quon et al. Only two patients (2.2%) in our cohort exhibited serum creatinine concentration outside the laboratory reference range (70-130 μmol/L), further emphasizing that as an assessment of renal function in patients with CF, serum creatinine concentration alone is an insufficiently sensitive marker. Both of our patients had estimated and subsequently measured 24-h CrCl <50 mL/min/1.73 m2 and may, therefore, not be eligible for lung transplantation. The quarterly pretransplant use of surrogate markers, such as the Cockcroft-Gault equation, the Modification of Diet in Renal Disease estimated glomerular filtration rate evaluation, or other validated tools in stable adult patients with CF3 will highlight renal dysfunction earlier.

One important caveat, however, not highlighted in Quon et al1 is the increased incidence of accelerated renal function decline in patients with CF when compared with that of patients with idiopathic pulmonary fibrosis or COPD post-lung transplant. In addition to calcium-reinhibitor toxicity in these cohorts, patients with CF are furthermore predisposed to oxalate nephro- and pigmented tubulopathy. The lifetime use of antibiotics in patients with CF reduces the oxalate scavenging organism Oxalobacter formigenes from the colon, resulting in enteric hyperoxaluria. Perioperative stressors, including dehydration, hypoxia, and antibiotics, in conjunction with hyperoxaluria can result in crystallization of calcium oxalate on proximal tubular cells around the time of surgery, which can be demonstrated on renal biopsy. The pigmented tubulopathy in patients with CF post-lung transplant is characterized by intracellular accumulation of silver stain-positive pigmented granules with the histopathologic characteristics of lipofuscin and correlates clinically with the use of antivirals, aminoglycosides, and glycopeptide antibiotics in the month preceding their accelerated renal function loss. We believe an increased awareness in the detection and pathogenesis of renal dysfunction in patients with CF will facilitate tailored strategies.

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