

## **IMPROVEMENT OF PROTEINURIA WITH CALCITRIOL IN A HEART TRANSPLANT PATIENT: A CASE REPORT**

Marco Ladino, Alex Manju, Manuel Garcia-Estrada, and Ivonne Hernandez Schulman

Nephrology-Hypertension Section, Veterans Affairs Medical Center and University of Miami Miller School of Medicine, Miami, FL, USA

Vitamin D analogues have been shown experimentally to play a protective role against renal injury via inhibition of the Renin-Angiotensin-Aldosterone System (RAAS). Clinical studies have reported improvement in proteinuria with vitamin D analogues. Combining vitamin D analogues with inhibitors of RAAS to suppress reactive renin increases may generate better therapeutic effects. We report the case of a patient with nephrotic-range proteinuria despite treatment with an angiotensin II type 1 receptor blocker (ARB) that responded to treatment with calcitriol.

The patient is a 55-year old male with a 10-year history of heart transplant due to ischemic cardiomyopathy. His immunosuppressive regimen includes Sirolimus, Prograf, and Cellcept. His post-transplant course has been complicated by type 2 diabetes, hypertension, and stage IV chronic kidney disease (CKD; eGFR 28ml/min). He was taking an ARB for hypertension and presumed diabetic nephropathy without improvement in his nephrotic-range proteinuria (4.5 gm/24hrs to 4.0 gm/24 hrs). He developed secondary hyperparathyroidism (iPTH 280pg/ml) and calcitriol 0.25 mcg PO daily was started. Several months after starting calcitriol his iPTH normalized and proteinuria decreased to 0.8 gm/24 hours.

The efficacy of RAAS inhibitors may be compromised by the reactive renin increase caused by disruption of feedback inhibition. 1,25-dihydroxyvitamin D represses renin gene transcription. A study showed that combination therapy with an ARB and vitamin D analog blocked the development of diabetic nephropathy in a type 1 diabetes animal model via inhibition of renin and angiotensin II production within the kidney. In this model the combination therapy prevented glomerular basement membrane thickening and podocyte effacement.

In our case, we found that the use of calcitriol had an anti-proteinuric effect; this may result in the slowing of the progression of CKD.