

ACUTE AND REVERSIBLE VANCOMYCIN NEPHROTOXICITY: A CASE SERIES

Marco Ladino, Manju Alex, and Ivonne Hernandez Schulman
Division of Nephrology and Hypertension, Veterans Affairs Medical
Center and University of Miami Miller School of Medicine, Miami,
FL, USA

Vancomycin is a glycopeptide antibiotic commonly used for the treatment of methicillin-resistant *Staphylococcus aureus*, which has significantly increased in prevalence. It has been described that the current preparations of vancomycin are not nephrotoxic. We present two cases of acute renal failure related to high vancomycin blood levels.

The first case is that of a 52-year old male with a history of liver cirrhosis admitted with fevers and chills. Physical exam revealed blood pressure 110/80mmHg, pulse 81, respiratory rate 18, temperature 101F, ascites, splenomegaly, and spider angiomas. On admission his creatinine was 1.0mg/dL, blood urea nitrogen (BUN) 22mg/dL, urinalysis normal, and blood cultures grew methicillin-resistant *Staphylococcus aureus*. Vancomycin 1gm IV every 12hr was given and 72 hours later the creatinine was 4.2mg/dL, BUN 44mg/dL, and vancomycin trough level 52mcg/mL. The second case is that of an 80-year old male with a history of coronary artery bypass graft admitted with methicillin-resistant *Staphylococcus aureus* wound infection. On physical exam his blood pressure was 130/85, pulse 78, respiratory rate 16, and temperature 98F. His baseline creatinine was 0.7mg/dL and BUN 17mg/dL. Vancomycin 1gm IV every 12hr was given and 96 hours later the patient developed oliguria, creatinine 7.7mg/dL, BUN 32mg/dL, and vancomycin trough level 49mcg/mL. In both cases, other causes of acute renal failure (ARF) were excluded, vancomycin was stopped, and in the following days the renal function returned to baseline.

Although vancomycin nephrotoxicity is uncommon, levels above 40mcg/mL may produce ARF. Experimental studies suggest that vancomycin induces oxidative stress, resulting in tubular injury. We propose that vancomycin nephrotoxicity may be more common than previously described and that trough levels be closely monitored, particularly in patients with or at risk for chronic kidney disease.