PROPHYLAXIS OF GENTAMICIN NEPHROTOXICITY

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Gentamicin is a known cause of acute kidney injury (AKI) secondary to nephrotoxic acute tubular necrosis (ATN). The duration of therapy and dosing interval are significant factors in the development of AKI. We present a renal transplant patient with MRSA endocarditis who was treated with Vancomycin and Gentamicin for fifteen days. The combination of intravenous saline and acetylcysteine was used to preserve renal function.

A 44 yo male s/p renal transplant five years ago presented with MRSA sepsis. Despite initial treatment with Cefepime and Vancomycin he still had persistent MRSA bacteremia. A transesophogeal echocardiogram showed mitral valve endocarditis.

For this patient who weighed 55 kg, the gentamicin was dosed at 100 mg for 1 day then decreased to than 60 mg q 12 for a fifteen day course. During this treatment period he was prophylaxed against AKI with .45% NSS with acetylcysteine at doses of 30mg/kg infused at rates of 60 ml/hr and NSS run at rates 70 ml/hr continuously duration of gentamicin therapy. There was no change in his serum creatinine during treatment or two weeks following therapy.

In the aminoglycoside family, the number of cationic groups per molecule has a direct relationship on nephrotoxicity. Previously reported prophylactic strategies involved the co- administration of a cationic molecule, such as calcium channel blockers which may compete with the aminoglycoside for binding to anioic membranes. Other examples include the use of a polyanion, sodium bicarbonate to alkanalize the urine and a penicillin that may decrease aminoglycoside uptake in the proximal tubule.

To our knowledge, this is the first case of combination saline plus of acetylcysteine therapy for prevention of aminoglycoside therapy. Our case is further unique in that our patient had a renal transplant. Further study is required before universal applicability can be recommended.