## Pharmacokinetics of glycopeptide antibiotics in children.

## Ito H, Shime N, Kosaka T.

## Abstract

Vancomycin (VAN) and teicoplanin (TEIC) are the glycopeptide antimicrobials commonly used to treat methicillin-resistant Staphylococcus aureus (MRSA) infection in pediatric patients. This study examined the relationship between the initial doses of glycopeptides and the trough serum concentrations of drugs in children, with the intent to determine their optimal dosing. Consecutive patients between 0 and 18 years of age, who between June 2003 and December 2010 were treated with VAN (n = 50) or TEIC (n = 187) for >48 h, were enrolled in this study. Patients were classified into three groups depending on the dose administered: lower than, equal to, or higher than the recommended dosage by each package insert. The patient's age, body weight, dose of antimicrobial administered during the first 24 h, median trough serum concentrations between 48 and 72 h after the onset of treatment, and serum creatinine concentrations before and 3 and 7 days after its administration were recorded. Median trough concentrations for VAN and TEIC in the three dosage groups were 8.0, 8.5, and 13.0 µg/ml, and 11.8, 13.0, and 17.7 µg/ml, respectively. The median serum creatinine concentrations did not rise significantly between baseline and 3 and 7 days after the onset of treatment in any treatment group. Therapeutic serum concentrations of VAN and TEIC to treat MRSA infections, 15-20 and  $\geq$ 20 µg/ml, respectively, were rarely reached by the administration of standard doses of drugs for children.

PMID: 22872188