

Multicenter evaluation of vancomycin dosing: emphasis on obesity.

Hall RG 2nd, Payne KD, Bain AM, Rahman AP, Nguyen ST, Eaton SA, Busti AJ, Vu SL, Bedimor R.

BACKGROUND: There is a paucity of data available regarding the dosing of antimicrobials in obesity. However, data are available demonstrating that vancomycin should be dosed on the basis of actual body weight. **METHODS:** This study was conducted at 2 tertiary care medical centers that did not have pharmacy-guided vancomycin dosing program or other institutional vancomycin dosing policies or protocols. Patients who received vancomycin between July 1, 2003, and June 30, 2006, were stratified by body mass index and randomly selected from the computer-generated queries. Patients ≥ 18 years of age with a creatinine clearance of at least 60 mL/min who received vancomycin for at least 36 hours were included. **RESULTS:** Data were collected on a random sampling of 421 patients, stratified by body mass index, who met the inclusion criteria. Most patients in each body mass index category received a fixed dose of vancomycin 2 g daily divided into 2 doses (underweight 82%, normal weight 90%, overweight 86%, and obese 91%). Adequate initial dosing (≥ 10 mg/kg/dose) was achieved for 100% of underweight, 99% of normal weight, 93.9% of overweight, and 27.7% of obese patients ($P < .0001$). Ninety-seven percent of underweight, 46% of normal weight, 1% of overweight, and 0.6% of obese patients received ≥ 15 mg/kg/dose recommended by several Infectious Diseases Society of America guidelines. Pharmacists also failed to correct inadequate dosing because only 3.3% of patients receiving less than 10 mg/kg/dose had their regimen changed in the first 24 hours of therapy. **CONCLUSION:** In this multicenter pilot study, obese patients routinely received inadequate empiric vancomycin using a lenient assessment of dosing. Greater efforts should be undertaken to ensure patients receive weight-based dosing because inadequate dosing can lead to subtherapeutic concentrations and potentially worse clinical outcomes.