What is the risk of vancomycin-associated nephrotoxicity?

To evaluate the correlation between incidence of nephrotoxicity associated with weight-based IV vancomycin dosing strategies in nonobese and obese patients” Choi et al (2017).

Abstract:

BACKGROUND: A consensus statement recommends initial intravenous (IV) vancomycin dosing of 15-20 mg/kg every 8-24 hours, with an optional 25- to 30-mg/kg loading dose. Although some studies have shown an association between weight and the development of vancomycin-associated nephrotoxicity, results have been inconsistent.

OBJECTIVE: To evaluate the correlation between incidence of nephrotoxicity associated with weight-based IV vancomycin dosing strategies in nonobese and obese patients.

METHODS: This retrospective cohort study evaluated hospitalized adult patients admitted who received IV vancomycin. Patients were stratified into nonobese (body mass index <25 kg/m2), obesity class I and II (BMI 30-39.9 kg/m2), and obesity class III (BMI ≥40 kg/m2) groups; patients who were overweight but not obese were excluded. Incidence of nephrotoxicity and serum vancomycin trough concentrations were evaluated.

RESULTS: Of a total of 62 documented cases of nephrotoxicity (15.1%), 13 (8.7%), 23 (14.3%), and 26 (26.3%) cases were observed in nonobese, obesity class I and II, and obesity class III groups, respectively (P=0.002). Longer durations of therapy (P<0.0001), higher initial maintenance doses in both total milligrams/day (P=0.0137) and milligrams/kilogram (P=0.0307), and any trough level >20 mg/L (P<0.0001) were identified as predictors of development of nephrotoxicity. Concomitant administration of piperacillin/tazobactam, diuretics, and IV contrast were associated with development of nephrotoxicity (P<0.005, all). Patients with class III obesity were 3-times as likely to develop nephrotoxicity when compared with nonobese patients (odds ratio [OR]=2.99; CI=1.12-7.94) and obesity class I and II patients (OR=3.14; CI=1.27-7.75).
CONCLUSIONS: Obesity and other factors are associated with a higher risk of vancomycin-associated nephrotoxicity.

Reference:


Thank you to our partners for supporting IVTEAM

Facebook Twitter LinkedIn