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Abstracts

ERRATUM—This abstract should have been included in the abstract set.

CPK-5

Vancomycin dose adjustment in obese patients

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Introduction Multiple pharmacokinetic (PK) studies have demonstrated that total body weight is the best method to dose vancomycin. However, clinicians usually prescribe the standard dose of antibiotic (1 g/12 h), independently of weight.

The aim of this study is to obtain the percentage of obese patients treated with vancomycin at the standard doses of 1 g/12 h with sub-optimal serum concentrations.

Materials & Methods Study conducted at 800-bed University General Hospital.

Observational study from July 2009 to May 2010 in (1) obese patients (BMI ≥ 30 kg/m²), (2) with creatinine clearance (Clcr) >50 ml/min and (3) monitored for vancomycin concentrations after the third dose of antibiotic (dosage: 1 g/12 h).

Individual PK parameters were estimated by assuming a bicompartamental PK model and Bayesian forecasting (PKS[®] Abbot Software). Afterwards, daily dose was adjusted to achieve a minimum vancomycin concentration at steady state (C_{\min}^{SS}) of 7–15 mg/l and a maximum vancomycin concentration at steady state (C_{\max}^{SS}) of 20–40 mg/l, in case of bacteraemia, or C_{\min}^{SS} of 15–20 mg/l and C_{\max}^{SS}

of 30–40 mg/l, in case of meningitis, pneumonia, osteomyelitis, wound infection or abscesses.

Data reviewed were: (1) demographics; (2) vancomycin serum concentrations withdraw 30 min before dose (C_{\min}^{SS}) and 2 h after ending antibiotic infusion (C_{\max}^{SS}) and (3) individual PK parameters.

Results Ninety-one patients were recruited. Only 37 out of 91 patients fulfilled the inclusion criteria. Demographic data: 54% men (20 patients), age (mean \pm SD) 62.8 \pm 12.0 years, weight 95.9 \pm 17.2 kg, BMI 35.2 \pm 5.2 kg/m², Clcr 70.1 \pm 17.1 ml/min. Observed vancomycin serum concentrations after 3 doses of 1 g/12 h: mean C_{\min}^{SS} 7.0 \pm 3.3 mg/l, mean C_{\max}^{SS} 16.4 \pm 5.7 mg/l. Individual drug PK parameters (mean \pm SD): steady-state volume of distribution 59.6 \pm 13.4 l, total clearance 6.1 \pm 2.0 l/h.

Dose increase was needed in 27 patients (73.0%): 1,000 mg/6 h was set in 1 patient, 1,250 mg/8 h in 2 patients, 1,000 mg/8 h in 15 patients and 1,250 mg/12 h in 9 patients. Dose decrease to 750 mg/12 h was needed in 3 patients (8.1%). Six patients (16.2%) remained with the initial regimen, and in 1 case (2.7%), vancomycin was switched to linezolid because of *Staphylococcus aureus* methicillin-resistant pneumonia.

Discussion, Conclusion Results indicate that a high percentage of the patients included were underdosed (75.7%). Monitoring serum concentrations of antibiotic is necessary to adjust vancomycin dose to achieve therapeutic concentrations at the target infection site.

Bibliographic references

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Keywords Dose adjustment, Obese patients, Vancomycin