CONTINUOUS INFUSION OF VANCOMICYN: WHO ARE THE PATIENT CANDIDATES AND HOW SAFE IT IS?

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Background

Data about the efficacy and toxicity of vancomycin used by continuous infusion (CI) compared to intermittent infusion (II) are still controversial.

Purpose

To compare the profile of patients treated with II or CI of vancomycin and the frequency of nephrotoxicity within a therapeutic drug monitoring (TDM) program.

Material and methods

Retrospective pharmacokinetic (PK) study in adult patients treated with II/CI of vancomycin and undergoing TDM in a university hospital during 2022.

Data collected: demographics, clinical (serum creatinine (Cr) and estimated glomerular filtration rate (CKD-EPI) (eGFR) at baseline and end of treatment) and pharmacokinetic data (PK).

TDM samples: before dose (Cmin,ss) and 1h after the end of the intravenous infusion (Cmax,ss) (II) or at any time (Css) (CI). Mean area under the curve in plasma (AUC24h) was estimated by a Bayesian software.

Results

Patients included: 128: 62.7(14.6) years, 88(68.8%) males, 61 (47.7%) directed treatments. Most frequent pathogens: 22 (17.2%) *S. epidermidis*, 14 (10.9%) *E. faecium* and 7 (5.5%) MRSA.

Table 1. Comparative data between patients with continuous and intermittent infusion

	Intermittent (N = 72)	Continuous (N = 56)	p
Sex (male)	48(66.7%)	40(71.4%)	0.56
Age (years)	63.6(14.2)	61.4(15.1)	0.39
Weight (kg)	78.9(19.2)	80.1(21.3)	0.74
DOT (days)	9.4(6.5)	9.6(11.1)	0.87
Critically ill	26(36.1%)	33(58.9%)	**0.01**
Septic shock	1(1.4%)	6(10.7%)	**0.04**
Chronic kidney failure	6(8.3%)	1(1.8%)	0.14
Augmented renal clearance	6(8.3%)	6(10.7%)	0.65
Dose (mg/kg/day)	28.8(10.1)	26.1(9.4)	0.12
Baseline Cr (mg/dL)	0.8(0.5)	0.7(0.3)	0.15
Final Cr (mg/dL)	0.9(0.8)	0.6(0.3)	**0.01**
Baseline GFR (mL/min/1,73 m^2)	88.2(28.9)	96.6(28.4)	0.12
Final GFR (mL/min/1,73 m^2)	88.8(35.9)	104.2(27.3)	**0.01**
AUC24h (L/mg*h)	509.5(138.1)	464.7(162.0)	0.1
AKI (KDIGO)	14(19.4%)	5(8.9%)	**0.01**
Number of nephrotoxic drugs	1.5(1.0)	1.4(1.1)	0.55
In-hospital mortality	2(2.8%)	9(16.1%)	**0.01**

Conclusions

- The use of continuous infusion of vancomycin was more frequent among ICU patients, with septic shock and lower baseline serum creatinine.
- The CI group had better renal function at the end of vancomycin treatment and seem to have a lower nephrotoxicity rate.
- Despite the fact that mortality was higher in the group that received IC, more studies would be needed that included this variable as the main one.

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