# To characterize the pharmacokinetics (PK) of vancomycin in patients in the initial phase of septic shock" Katip et al (2016).

Abstract:

OBJECTIVE: To characterize the pharmacokinetics (PK) of vancomycin in patients in the initial phase of septic shock.

METHODS: Twelve patients with septic shock received an intravenous infusion of vancomycin 30 mg/kg over 2 h. The vancomycin PK study was conducted during the first 12 h of the regimen. Serum vancomycin concentration-time data were analyzed using the standard model-independent analysis and the compartment model.

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RESULTS: For the noncompartment analysis the mean values ± standard deviation (SD) of the estimated clearance and volume of distribution of vancomycin at steady state were 6.05±1.06 L/h and 78.73±21.78 L, respectively. For the compartmental analysis, the majority of vancomycin concentration-time profiles were best described by a two-compartment PK model. Thus, the two-compartmental first-order elimination model was used for the analysis. The mean ± SD of the total clearance (3.70±1.25 L/h) of vancomycin was higher than that obtained from patients without septic shock. In contrast, the volume of the central compartment (8.34±4.36 L) and volume of peripheral compartment (30.99±7.84 L) did not increase when compared with patients without septic shock.

CONCLUSION: The total clearance of vancomycin was increased in septic shock patients. However, the volume of the central compartment and peripheral compartment did not increase. Consequently, a loading dose of vancomycin should be considered in all patients with septic shock.

Full Text

Reference:

Katip, W., Jaruratanasirikul, S., Pattharachayakul, S., Wongpoowarak, W., Jitsurong, A. and Lucksiri, A. (2016) The pharmacokinetics of vancomycin during the initial loading dose in patients with septic shock. Infection and Drug Resistance. November 22nd. 9, p.253-260. eCollection 2016.

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