THERAPEUTIC MONITORING OF VANCOMYCIN IN A COHORT OF PEDIATRIC PATIENTS

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BACKGROUND AND IMPORTANCE
Routine monitoring and adjusting of serum vancomycin drug concentrations to lessen the potential for nephrotoxicity and ototoxicity to achieve therapeutic concentrations

AIM AND OBJECTIVES
• to describe the clinical and pharmacokinetic parameters
• to analyze the achievement of the pharmacokinetic objectives after monitoring of vancomycin serum concentrations (SC) and dosage adjustment

MATERIAL AND METHODS
Retrospective study of pediatric patients treated with intravenous vancomycin from 2019 to 2020.

• Variables: sex, age, weight, diagnosis, bacterial isolation, infusion type, initial dosage and dose after two adjustments.

• Pharmacokinetic parameters: volume of distribution (Vd), total clearance (Cl), elimination half-life (t₁/₂), 24-h area under the curve (AUC).

Data were expressed as median (range) values

The goals for vancomycin SC were:
15-20 mg/dL (in intermittent infusion)
20-25 mg/dL (in continuous infusion)

RESULTS
N=32
62% males
Age = 2 months – 16 years
Weight = 16.5 (5-53) kg

Median initial dose = 51 (34-80) mg/kg/day
Median dose after first adjustment = 65.5 (40-95) mg/kg/day
Median dose after second adjustment = 68.6 (47-87) mg/kg/day

CONCLUSIONS AND RELEVANCE
Vancomycin was employed as target therapy in most cases. The wide use of vancomycin continuous infusion as well as the high doses employed were remarkable. Most patients needed dosage adjustments to achieve therapeutic SC and it was possible after the first two pharmacokinetic adjustments by hospital pharmacists.