

THERAPEUTIC MONITORING OF VANCOMYCIN IN A COHORT OF PEDIATRIC PATIENTS

Alonso Moreno M¹, Fernández Rubio B¹, Guisado Gil AB¹, Alfaro Lara ER¹
¹HOSPITAL UNIVERSITARIO VIRGEN DEL ROCÍO, PHARMACY, SEVILLE, SPAIN

BACKGROUND AND IMPORTANCE

routine monitoring and adjusting of serum vancomycin drug concentrations

to lessen the potential for nephrotoxicity and ototoxicity

to achieve therapeutic concentrations

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 ($t_{1/2}$), 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)

AIM AND OBJECTIVES

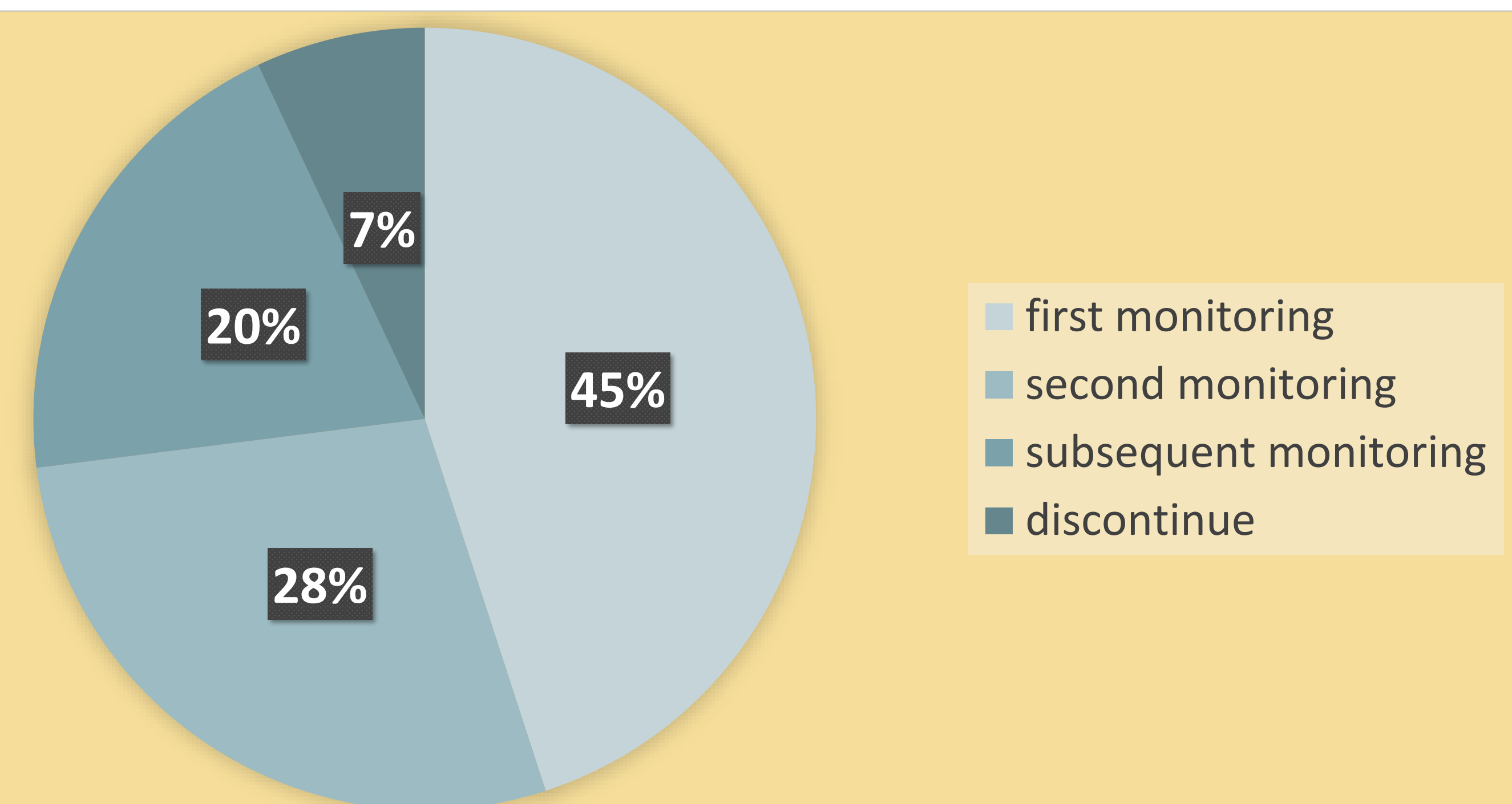
- to describe the clinical and pharmacokinetic parameters
- to analyze the achievement of the pharmacokinetic objectives after monitoring of vancomycin serum concentrations (SC) and dosage adjustment

RESULTS

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

N=32

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



Median Vd = 0.82 (0.77-0.91) L/kg
 Median Cl = 0.15 (0.06-0.85) L/h/kg
 Median $t_{1/2}$ = 3.46 (0.63-15.10) h
 Median AUC = 408 (57.57-958.90) mg*h/L

-78% intermittent infusion
 -22% continuous infusion.
 -38% changed from intermittent to continuous infusion

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.