

PHARMACOKINETIC MONITORING OF VANCOMYCIN, GENTAMICIN AND AMIKACIN IN PAEDIATRIC POPULATION

Lucas Mayol M José, Rodríguez Morote M, Gutiérrez Palomo S, Soriano Irigaray L, Morante Hernández M, Navarro Ruiz A.
Hospital General Universitario de Elche, Pharmacy Department

BACKGROUND AND IMPORTANCE

The aim of pharmacokinetic monitoring is to improve clinical outcomes. A protocol was agreed between the paediatric and the pharmacy services to establish an initial dosage in this population according to postnatal and gestational age to reach a therapeutic benefit.

AIM AND OBJECTIVES

To evaluate the initial dosage of these antibiotics by carrying out pharmacokinetic monitoring.

MATERIAL AND METHODS

Retrospective observational study (May 2020-May 2022)

Patients treated with vancomycin, gentamicin, or amikacin from the paediatrics service aged <1 year

Optimal trough intervals: 10-15 mcg/mL, 0.5-1.5 mcg/mL, 2-5 mcg/mL, for vancomycin, gentamicin, and amikacin, respectively.

Variables collected

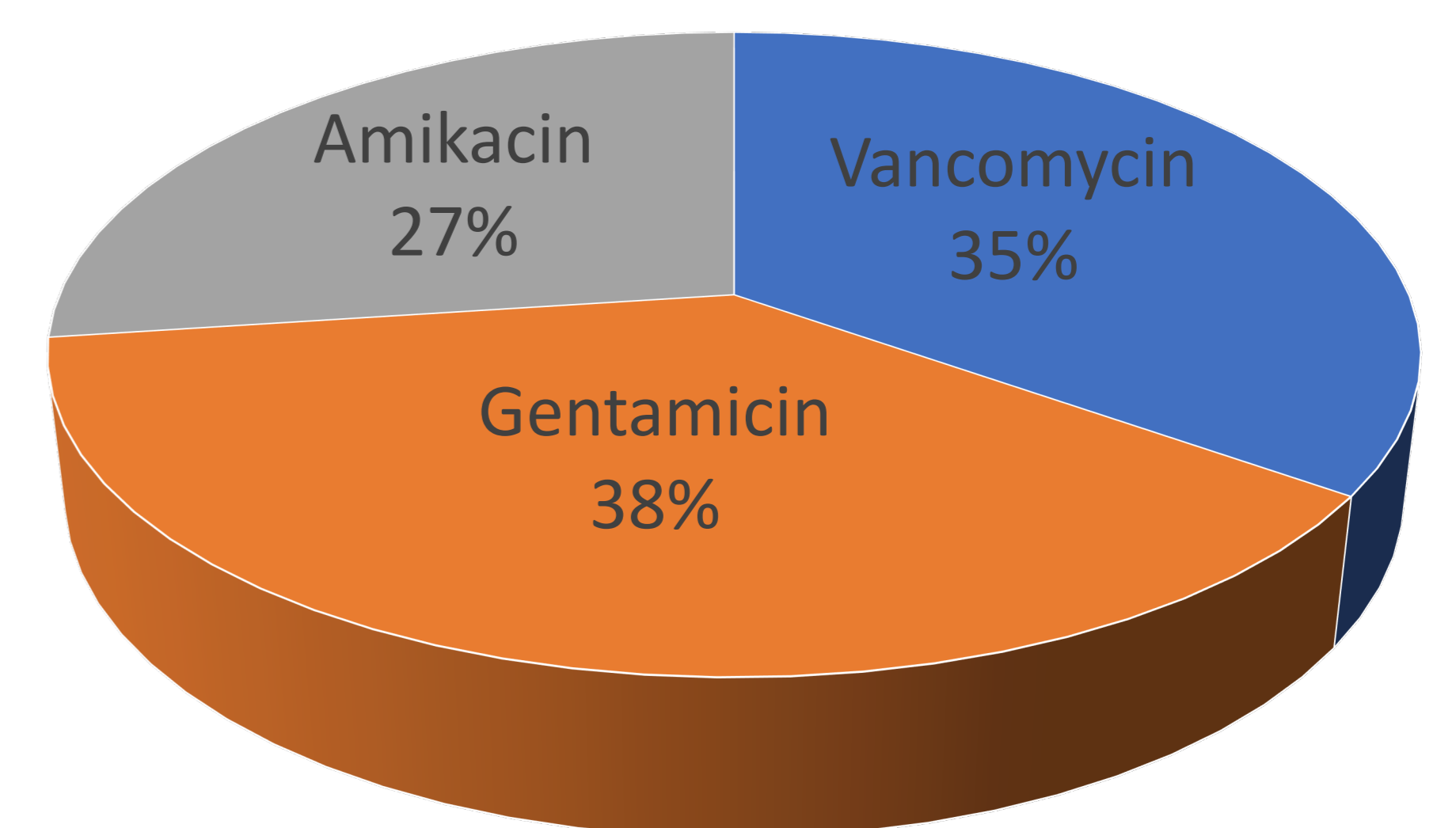
Orion Clinic®	Gestlab®
Age (postnatal, gestational)	Pharmacokinetic results
Weight	Creatinine
Dosage	Pharmaceutical recommendation

RESULTS

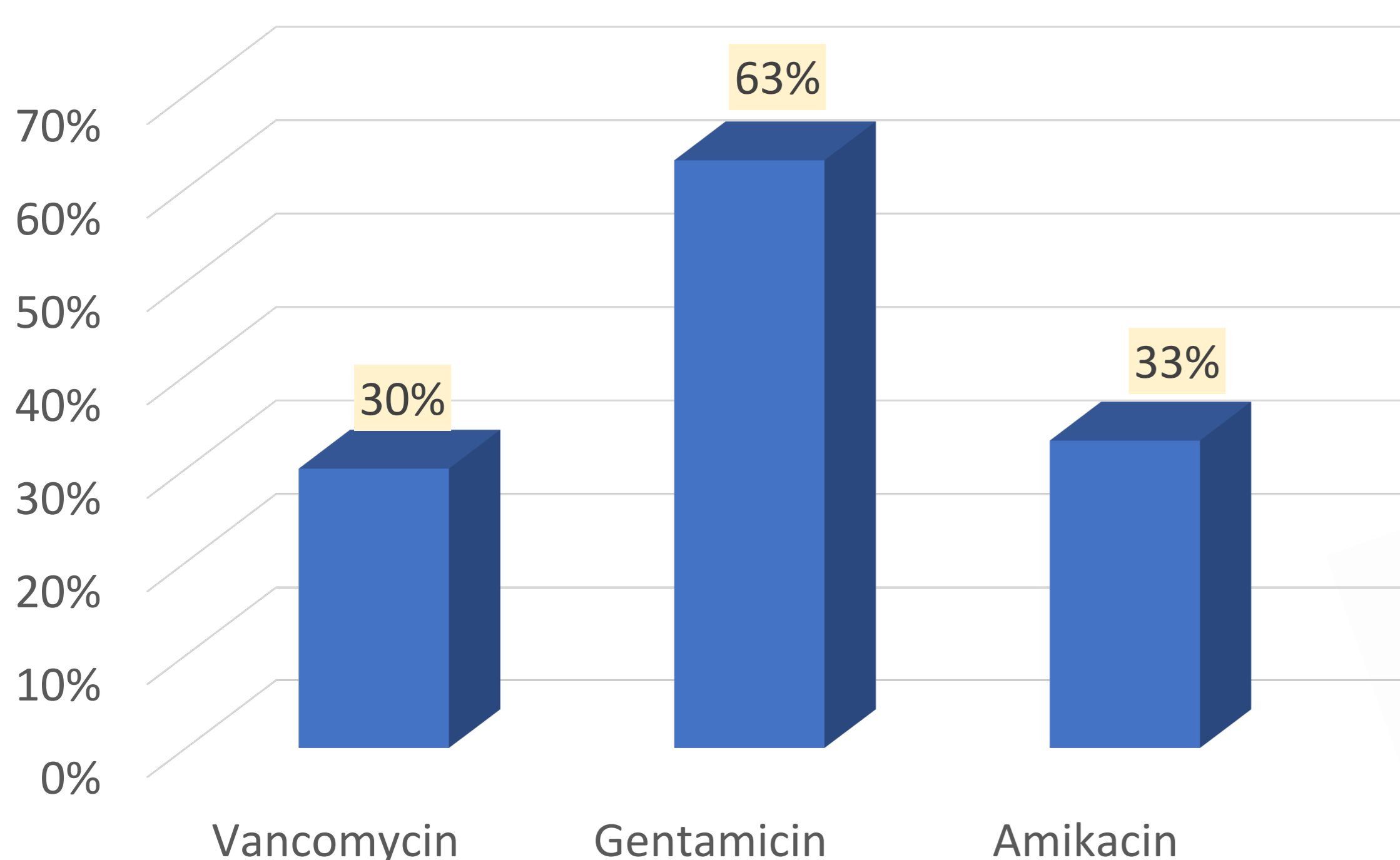
N = 231 patients

Vancomycin → 50 patients (2.58 kg)
Gentamicin → 169 patients (2.52 kg)
Amikacin → 12 patients (1.79 kg)

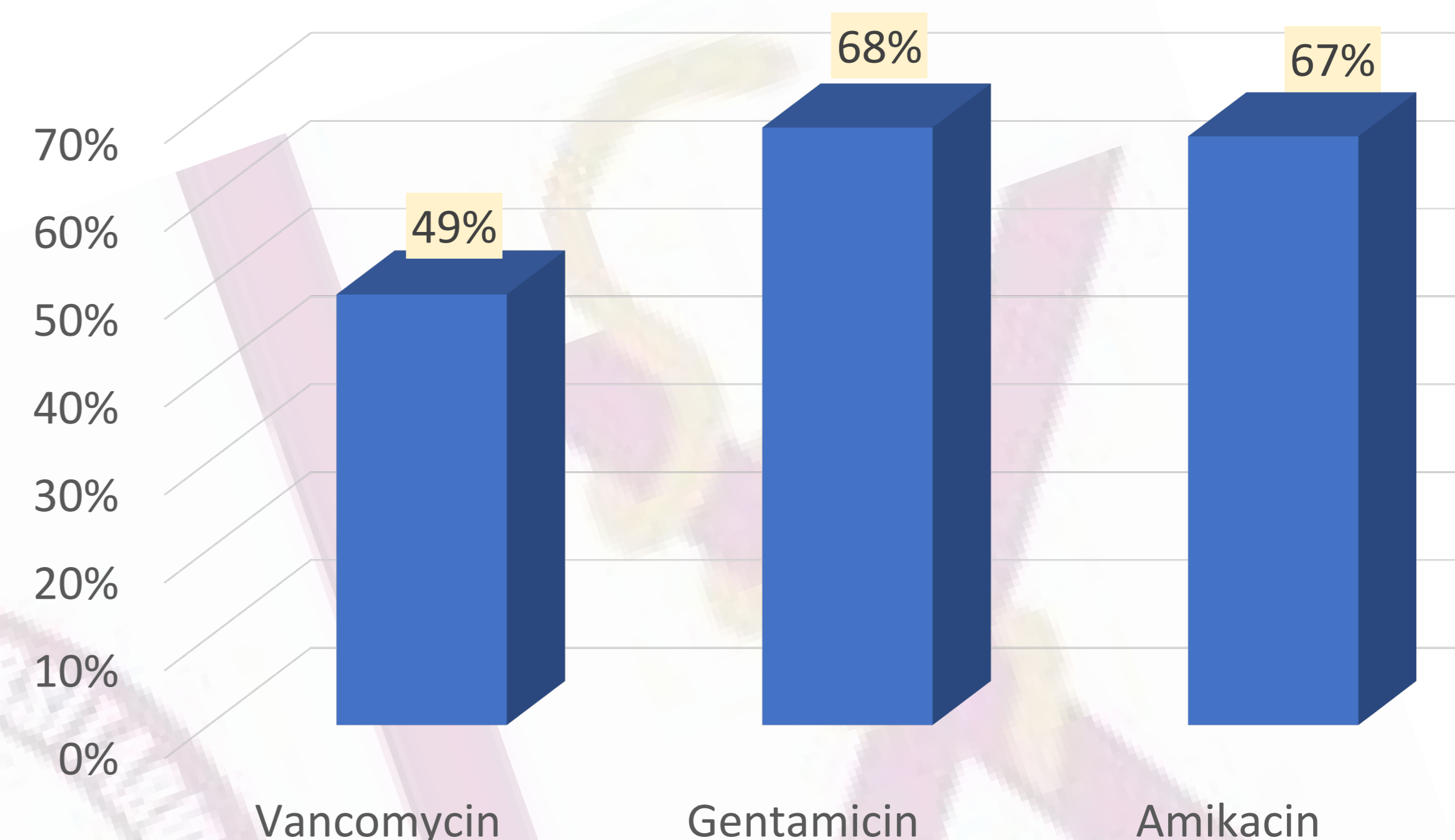
Initial dosage in line with the protocol



Within the target range after first monitoring



Within the target range after dosage individualization



Dosage individualization:
- 15 patients with vancomycin
- 19 patients with gentamicin
- 6 patients with amikacin

CONCLUSIONS

In most patients, the initial dosage of the three antibiotics was adjusted to the hospital protocol. A high number of patients treated with vancomycin required dose adjustment, in contrast with gentamicin and amikacin. The role of the pharmacist, together with pharmacokinetic monitoring, is appreciated to achieve optimal concentrations.

