

IMPACT OF OBESITY ON VANCOMYCIN PHARMACOKINETIC PARAMETERS IN ADULT PATIENTS

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Background and Importance

Information regarding the impact of obesity on the pharmacokinetics of most drugs is limited. Obesity is associated with physiopathological changes that may affect the pharmacokinetics of vancomycin. Therefore, there is a need for pharmacokinetic models specific to the obese population to optimize dosing schedules in this group of patients.

Aim and objectives

To determine the differences in pharmacokinetic parameters (PKP) in hospitalized obese patients.

Material and methods

- Retrospective observational study.
- Included: adult patients who had a plasmatic concentration (Cp) of vancomycin between March 2022-August 2023.
- Excluded: critically ill patients and those with renal failure.
- Variables collected: sex, age, weight, height, body mass index, PKP (volume of distribution (Vc), stade state volume of distribution (Vss), clearance (Cl), half-life (t_{1/2}), peak (Cmax) and trough (Cmin) level, start date of vancomycin treatment and sample collection date.
- Patients were grouped according to BMI: obese (BMI ≥30 kg/m²) and non-obese (BMI <30 kg/m²).
- Data were analysed by SPSS statistics 21[®]: Qualitative variables were presented by frequency and quantitative variables by mean ± standard deviation and median (interquartile range). T-student and U-Mann-Whitney were used to compare parametric and non parametric variables.

Results



N=57
63.2% men
Mean age: 67.4 ± 12.8 years
17.5% obese

	Obese group	Non-obese group
Cmin (mg/L)	10±7.7	12 (9-16.7)
Cmax (mg/L)	39.3± 28.1	24.7±7.3
Vc (L)	19.8 (19-23.4)*	14.4±2.3*
Vss (L)	74.6±19.8*	49.1±8.8 *
Cl (L/h)	5 ±2.4	4 (3.3-4.6)
t _{1/2} (h)	11.4 (7.5-15.2)	9.6 (8.1-12.1)

*Statistically significant differences (p<0.05)

Conclusion and relevance

The volume of distribution (Vc and Vss) in obese patients is higher than in non-obese patients, with significant differences being found.

For the rest of pharmacokinetic data, no significant differences were found.

It is necessary to carry out studies that allow designing a pharmacokinetic model of vancomycin in obese patients in order to optimize treatment.

