

IMPLEMENTATION OF A CLINICAL PHARMACOKINETICS UNIT IN A THIRD-LEVEL HOSPITAL

WHAT WAS DONE?

A Clinical Unit of Pharmacokinetics was implemented in the Service of Pharmacy (PS) for **therapeutic drug monitoring (TDM)** in patients.

WHY WAS IT DONE?

Patients with special characteristics show a great variability in **pharmacokinetic and pharmacodynamics (PK/PD)** parameters, which may influence the **efficacy and safety of antibiotic therapy**.

HOW WAS IT DONE?

- Selection of drugs to be monitored:** Antimicrobials (Vancomycin, amikacin, linezolid and voriconazole), immunosuppressants (tacrolimus), antineoplastics (methotrexate) and digoxin.
- Installation of the Abbottbase Pharmacokinetics Systems (Pks®) software**
- Creation in the Computerized Clinical History (CCH) a sheet** for collecting anthropometric and pharmacological data and pharmacokinetic interpretation of the results obtained.
- Creation in CCH of **an consultation option** for clinicians to request monitoring from the PS.
- Formative sessions** for clinicians and nurses

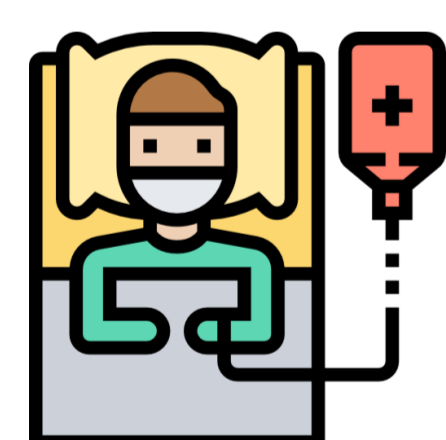


WHAT HAS BEEN ACHIEVED?

DRUG	Nº DETERMINATIONS (%)	Nº PATIENTS (%)
Vancomycin	134 (78.36)	50 (68.50)
Amikacin	24 (14.06)	20 (27.40)
Voriconazole	13 (7.60)	3 (4.10)
TOTAL	171	73



December-2021 and September-2022



46 (63.01%) patients → men
Mean age → 56.58 (17-97) years' old
18 (24.66%) → obese
Mean creatinine level → 0.82 (0.4-2.69) mg/ml
Glomerular filtration (Cockcroft and Gault formula) → 81.16 (23.68-161.98) ml/min/m²

The hospital pharmacist or the clinician chose the susceptible patients.



Vancomycin

45 (88.24%) patients started the treatment with a standard dose (1000 mg every 12 hours)

First determinations → 27 (52.94%) under-therapeutic and 20 (42.55%) were overdosed.

After modifying the dosage regimen → 35 (74.47%) in range, 3 (6.38%) under-therapeutic, 13 (27.66%) supra-therapeutic.

Amikacin

17 (85%) patients started with a standard dose (1000 mg every 24 hours) achieving target levels only in one case.

All were under-therapeutic. After modifying the dosage regimen → we achieved the objective in all of them.

Voriconazole

3 patients were monitored.

In 10 (43.5%) determinations → subtherapeutic levels → change de dosage regimen.



100% of the recommendations accepted

WHAT NEXT?

The implementation of the unit in our hospital shows the **usefulness and the need to extend pharmacokinetic monitoring** to other medical services and drugs.

