IMPLEMENTATION OF A PHARMACOKINETIC/PHARMACODYNAMIC-GUIDE LINEZOLID MONITORING PROTOCOL IN A SECONDARY CARE HOSPITAL

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BACKGROUND AND IMPORTANCE

Linezolid monitoring is crucial to prevent toxicity and optimize efficacy, especially in renal impairment. Implementing a pharmacokinetic protocol ensures standardized, individualized, and safer antibiotic therapy.

AIM AND OBJECTIVES

Analysis of determinations after implementing a protocol for pharmacokinetic/pharmacodynamic (PK/PD) monitoring of linezolid.

MATERIAL AND METHODS

Study design:

- Ambispective study over 9 months (12/01/2024–09/30/2025).
- Included all patients with a request for linezolid plasma level monitoring.

Variables collected:

- Sex and age
- Clinical indication
- Prescribed dosage
- Pharmacotherapeutic adjustments
- PK/PD parameters
- Renal function (Hyperfiltration: eGFR >100 mL/mil and Impairment: eGFR <60 mL/min)
- Hepatic function (assessed through transaminases)
- Data sources: Selene® and Servilab®
- Analysis: Microsoft Excel®

Patient selection & evaluation:

Conducted by the pharmacokinetics pharmacist and the AST team.

After obtaining plasma levels:

- Dosing recommendations recorded in the electronic health record.
- PK analyses performed using MwPharm++®

STUDY POPULATION

457 patients
treated with linezolid

↓

45 plasma level requests

↓

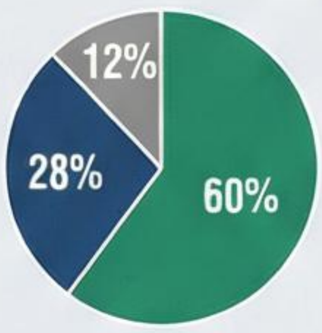
25 patients
included after exclusions
(sampling/analytical/pharmacy issues)

PATIENT CHARACTERISTICS

80% men

Mean age: 72.5 years

Infection types:

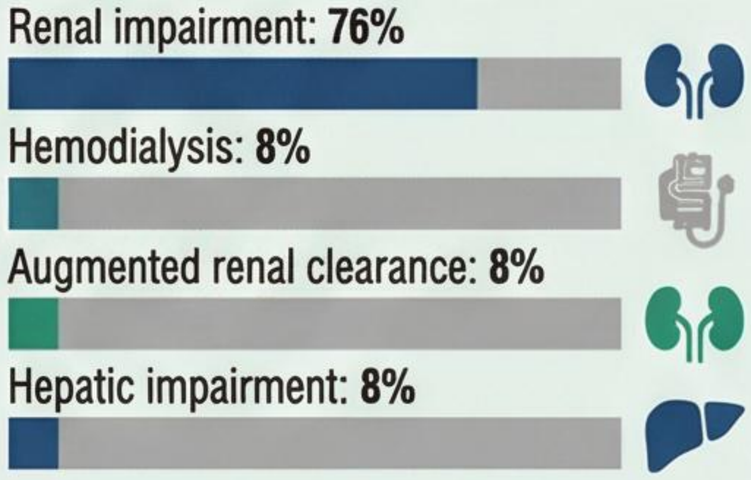


- Skin & soft tissue: **60%**
- Respiratory: **28%**
- Urinary: **12%**

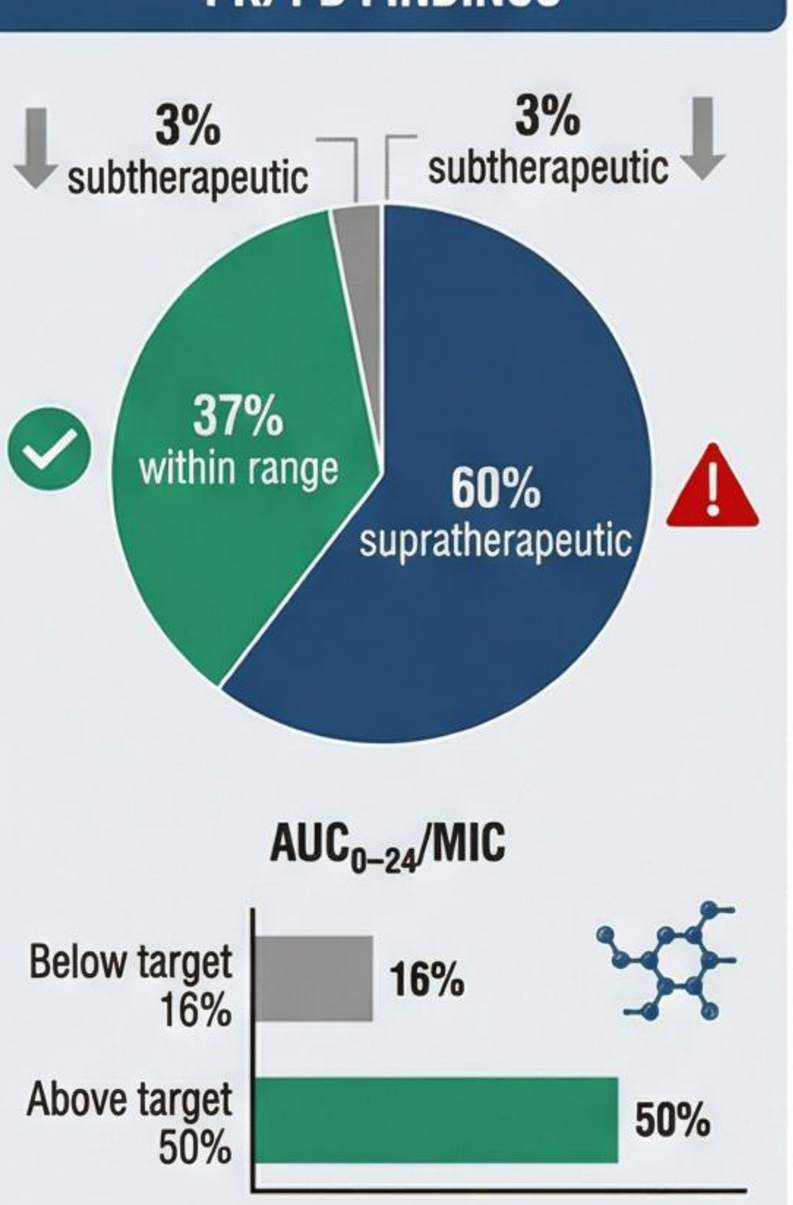
Directed therapy: 66.6%
(Predominantly *Staphylococcus aureus*)

Initial regimen:
Linezolid 600 mg / 12 h

CLINICAL STATUS

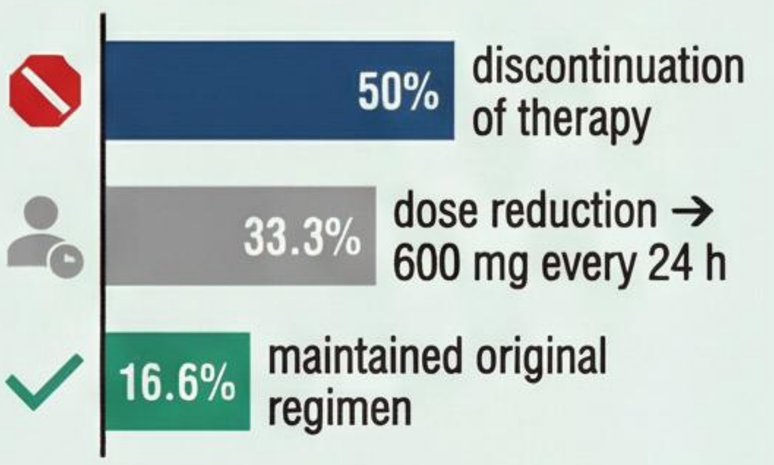


PK/PD FINDINGS



PHARMACIST INTERVENTIONS

36 total (100% accepted)



CONCLUSION AND RELEVANCE

Linezolid plasma monitoring is essential in hospitalized patients, especially those with renal impairment. The high rate of supratherapeutic levels (63%) reflects reduced clearance in this population.

PK/PD-guided dosing enables individualized therapy, improving antibiotic safety and effectiveness.