OPTIMIZATION OF BETA-LACTAM THERAPEUTIC DRUG MONITORING IN CRITICALLY ILL PATIENTS

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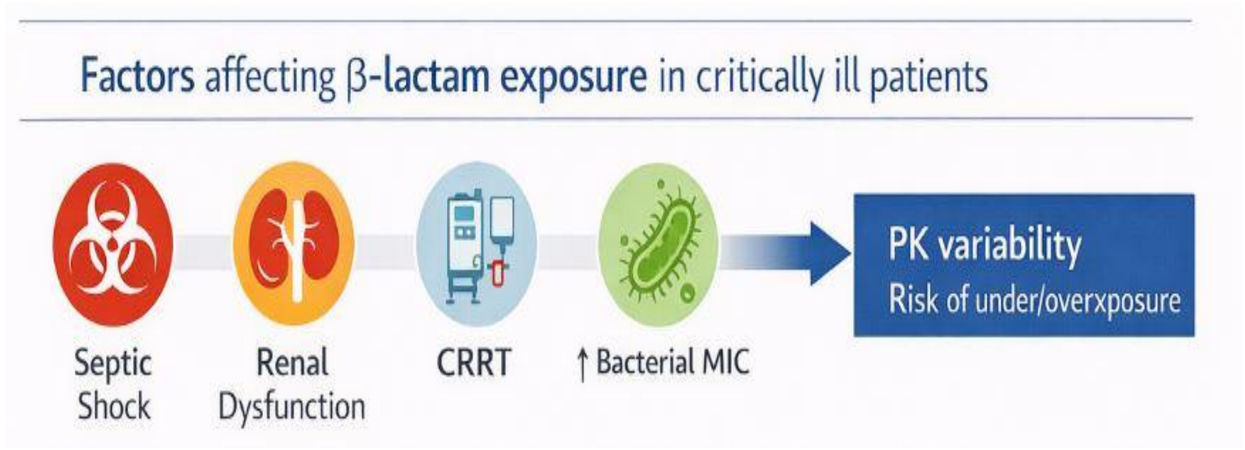
BACKGROUND AND IMPORTANCE

Pharmacokinetic monitoring of β-lactam antibiotics is becoming increasingly more relevant, particularly in critically ill patients whose condition entails major physiological alterations.

Variability in volume of distribution, renal impairment, and rising resistance rates leading to higher minimal inhibitory concentrations (MIC), making it essential to evaluate whether PK/PD targets are being achieved.



AIM AND OBJECTIVES

- To highlight the relevance of therapeutic drug monitoring (TDM) of β-lactam antibiotics to achieve PK/PD targets, enhance treatment efficacy and microbiological eradication, and reduce the risk of adverse effects

MATERIAL AND METHODS

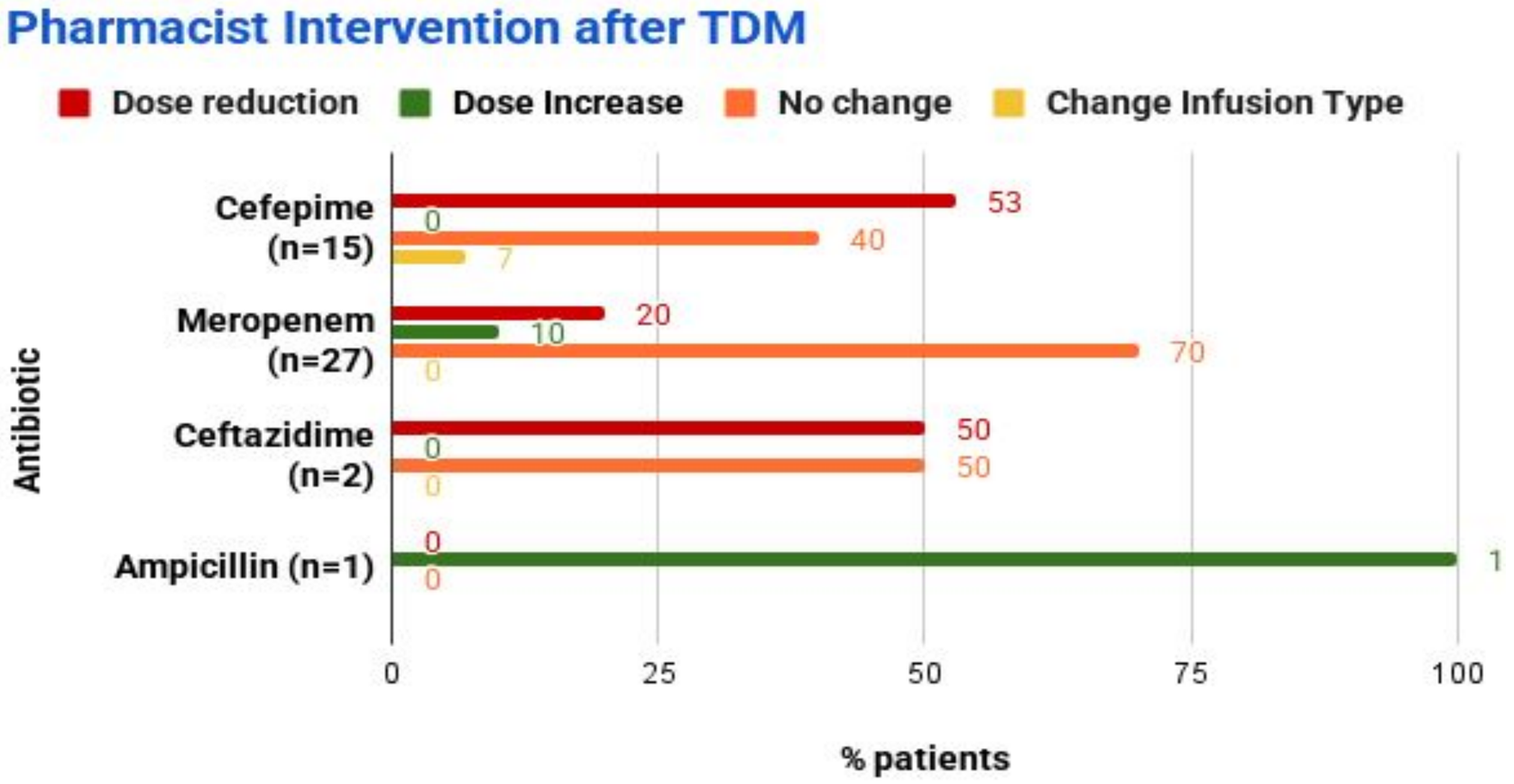
Retrospective, single-center study conducted over 9 months (January-September 2025) in an intensive care unit.

Pharmacokinetic monitoring was performed in patients with septic shock, altered renal function, immunosuppression, complicated infections, or infections caused by microorganisms with elevated MICs.

Data collected included age, sex, antibiotic used, type of infusion, plasma concentration,and pharmacist intervention.

RESULTS

Patients included: n=45	
Mean age	70 years [25-]
Sex	Male: 67% (n=30)
	Female: 33% (n=15)
Type of therapy	Empiric: 49% (n=22)
	Directed: 51% (n=23)



CONCLUSION AND RELEVANCE

- **Therapeutic drug monitoring (TDM) of β-lactam antibiotics is essential to optimize antibiotic therapy in critically ill patients with complicated infections. Despite the use of maximum recommended doses, some patients required even higher doses to achieve therapeutic targets.**

- **A considerable proportion of patients required dosage adjustments based on pharmacokinetic results.**

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