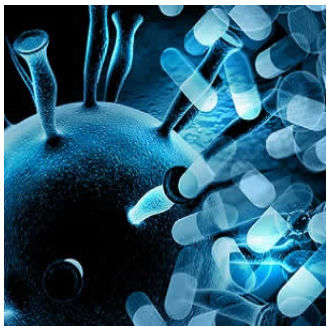
ICU
MANAGEMENT & PRACTICE

## Optimising beta-lactam treatment in the ICU - expert consensus



The French Society of Pharmacology and Therapeutics (SFPT) and the French Society of Anaesthesia and Intensive Care Medicine (SFAR) have released guidelines on the optimisation of beta-lactam treatment in intensive care unit (ICU) patients. The two groups strongly recommend the use of personalised dosing, continuous or prolonged infusion and therapeutic drug monitoring when administering beta-lactam antibiotics (βLA) in critically ill patients.

βLA are the most commonly used antibiotics in the ICU. ICU patients present many pathophysiological features that cause pharmacokinetic (PK) and pharmacodynamic (PD) specificities, leading to the risk of underdosage. The new guideline, published in the journal Critical Care, highlights the need for personalised medicine when using βLA in the ICU setting.

The most important recommendations regarding βLA administration in ICU patients pertain to four areas:

1) The consideration of the many sources of PK variability in this population;

2) The definition of free plasma concentration between four and eight times the Minimal Inhibitory Concentration (MIC) of the causative bacteria for 100% of the dosing interval as PK-PD target to maximise bacteriological and clinical responses;

3) The use of continuous or prolonged administration of βLA in the most severe patients, in case of high MIC bacteria and in case of lower respiratory tract infection to improve clinical cure; and

4) The use of therapeutic drug monitoring (TDM) to improve PK-PD target achievement.

The guidance document was created by a consensus committee of 18 experts from the SFPT and the SFAR. A list of questions formulated according to the PICO model (Population, Intervention, Comparison, and Outcomes) was drawn-up by the experts. Then, two bibliographic experts analysed the literature published since January 2000 using predefined keywords according to PRISMA recommendations.

The quality of the data identified from the literature was assessed using the GRADE® methodology. Due to the lack of powerful studies having used mortality as main judgement criteria, it was decided, before drafting the recommendations, to formulate only “optional” recommendations. After two rounds of rating and one amendment, a strong agreement was reached by the SFPT-SFAR guideline panel for 21 optional recommendations.

The objective of these guidelines is to produce a framework enabling an easier decision-making process for the prescribing and monitoring of beta-lactam treatment for intensivists. The expert panel worked to produce a minimum number of recommendations to highlight the key points to focus on the four predefined fields: PK variability, PK-PD relationship, administration modalities, and therapeutic drug monitoring (TDM). In case of doubt, published data prevailed over expert opinion.

The basic rules of general good medical practice were considered as known and excluded from the scope of these guidelines recommendations. The guidance document is intended for use by all medical professionals working in intensive care units and pharmacology laboratories.

Source: Critical Care

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