BETA-LACTAM ANTIBIOTICS IN CRITICAL ILL PATIENTS: ARE WE DOSING CORRECTLY OUR PATIENTS?

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Aim and objectives

The objective of this work is to determine if the current dosage of meropenem and piperacillin strategies in clinical practice are enough to achieve pk/pd tardets (mínimum 100% f T one time above MIC, optimal 4-6 times above MIC).

Background and importance

Exposure to beta-lactam antibiotics due to their hydrophilic properties is widely known to be influenced by the typical pharmacokinetic alterations in critical patients such as increased volume of distribution and incrementedclearance. For instance, subtherapeutic plasma concentrations are a concern.

Material and methods

A prospective study from February to June 2019 serum levels of meropenem and piperacillin were conducted in an ICU from south Spain. In all patients initial dose was chosen by the prescribing intensivist (extended infusions, high doses, adjustments for renal impairment were also included). A predose sample (100% f T> MIC) of the target antibiotics within the first 48h were included. As mostly all treatments were empirical, CMI target was defined by EUCAST PK/PD breakpoints (MIC> 16 mcg / ml for suspected Pseudomonas aeruginousa in case of piperacillin and> 2 mcg / ml in case of meropenem).

Results

28 patients were included. The median age was 64 years ([RIQ], 48-78) years, median APACHEII score was 15 ([RIQ], 14-24), and 64% of the patients were male. Of the 28 patients treated, 35.7% did not reach 100% f T> MIC, mostly the piperacillin group 67% (6/9) and 21% (4/9) meropenem. 100% f T> 4-6xMIC was not achieved in 71% (8/9 with piperacillin and 12/19 with meropenem) of the patients.

Conclusion and relevance

In five months, thanks to the center's antibiotic monitoring program, we could identifie that more than 30% of meropenem and piperacillin prescriptions were subtherapeutic and 70% could be optimizable.

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