

patients, such as increased volume of distribution and increased clearance. For instance, subtherapeutic plasma concentrations are a concern.

**Aim and objectives** The objective of this work was to determine if the current dosage of meropenem and piperacillin strategies in clinical practice are enough to achieve pharmacokinetic/pharmacodynamic targets (minimum 100% fT once above MIC, optimal 4–6 times above MIC).

**Material and methods** A prospective study was conducted from February to June 2019 of serum levels of meropenem and piperacillin in an intensive care unit in the south of Spain. In all patients, the initial dose was chosen by the prescribing intensivist (extended infusions, high doses and adjustments for renal impairment were also included). A predose sample (100% fT >MIC) of the target antibiotics within the first 48 hours was included. As the majority of treatments were empirical, the CMI target was defined by EUCAST PK/PD break points (MIC >16 µg/mL for suspected *Pseudomonas aeruginosa* in the case of piperacillin and >2 µg/mL in the case of meropenem)

**Results** Twenty-eight patients were included. Median age was 64 years (IQR 48–78 years), median APACHE II score was 15 (IQR 14–24) and 18/28 patients were men. Of the 28 patients treated, 10 did not reach 100% fT >MIC, mostly in the piperacillin group (6/9) and 4/9 in the meropenem group; 100% fT > 4–6×MIC was not achieved in 8/9 patients in the piperacillin group and in 12/19 in the meropenem group.

**Conclusion and relevance** Over 5 months, thanks to the active surveillance of patients who were candidates for beta-lactam therapeutic drug monitoring and the request for determination of plasma levels by the hospital pharmacist, more than 30% of meropenem and piperacillin prescriptions were found to be subtherapeutic and 70% were optimisable.

#### REFERENCES AND/OR ACKNOWLEDGEMENTS

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No conflict of interest.

#### 4CPS-049 UNDERDOSING WITH HIGH DOSE PIPERACILLIN/TAZOBACTAM ADMINISTERED VIA CONTINUOUS INFUSION IN OUTPATIENT PARENTERAL ANTIMICROBIAL THERAPY: A STABILITY OR VISCOSITY PROBLEM?

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**Background and importance** Continuous infusion of high dose piperacillin/tazobactam (16/2 g in 264 mL NaCl 0.9%) has been included in the UZ Leuven outpatient parenteral antimicrobial therapy (OPAT) protocol. Elastomeric pumps (Infusor LV10, Baxter) were selected as the drug delivery device, as the patient's mobility and comfort are maintained. Unfortunately, incomplete infusions after 24 hours were observed, related to a reduced flow rate. A mean daily residual volume of 50 mL, corresponding to a dose of 3/0.38 g piperacillin/tazobactam, was detected, resulting in substantial underdosing with the risk of treatment failure.

**Aim and objectives** To analyse two hypotheses: a reduced flow rate could be the result of particulate formation of piperacillin dimers due to the absence of stabilising excipients (hypothesis 1) or a result of high viscosity (hypothesis 2).

**Material and methods** Hypothesis 1: particulate formation was detected by comparing the flow rate of tazocillin (with stabilising excipients) versus generic piperacillin/tazobactam (without this excipients), by measuring light absorbance (600 nm) by spectrophotometry and by measuring total piperacillin content at different concentrations after storage for 24 hours at 33°C.

Hypothesis 2: the effect of concentration on the density and viscosity at 33°C was measured. Additionally, the relation between viscosity and flow rate was evaluated.

**Results** Hypothesis 1: no difference was observed in the flow rate between Tazocillin and generic piperacillin/tazobactam. No difference was observed in absorbance between Tazocillin and generic piperacillin/tazobactam, and no difference was observed in absorbance between piperacillin/tazobactam and a blank. Generic piperacillin/tazobactam seemed to be stable for 24 hours at 33°C.

Hypothesis 2: a linear relationship was observed between concentration and viscosity. An inverted linear relationship was observed between viscosity and flow rate of piperacillin/tazobactam solutions.

**Conclusion and relevance** The in vitro experiments suggest that the reduced flow rate is a result of high viscosity, related to the concentration of piperacillin/tazobactam. As it is impossible to lower the concentration, the final volume of the solution should be adjusted. Before being used in clinical practice for OPAT, this mode of administration will first be validated in five patients during hospitalisation. In general, healthcare teams need to be aware of factors which may lead to longer flow durations with these infusion devices.

#### REFERENCES AND/OR ACKNOWLEDGEMENTS

No conflict of interest.

#### 4CPS-050 CONFORMITY OF ANTIBIOTIC THERAPY DURATION IN PATIENTS WITH FEBRILE NEUTROPENIA, HOSPITALISED IN THE HAEMATOLOGY DEPARTMENT OF A UNIVERSITY HOSPITAL

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**Background and importance** The emergence of bacterial resistance and the proper use of antibiotics are major public health issues.

In 2011, the European Conference on Infections in Leukemia (ECIL) published recommendations for the management of febrile neutropenia. In this context, a university hospital wanted to evaluate follow-up of these recommendations.

**Aim and objectives** To evaluate conformity for duration of antibiotic therapy in patients with febrile neutropenia, hospitalised in the haematology department.

**Material and methods** The study was monocentric, retrospective, observational and conducted over a 6 month period in the haematology department. Data collection was carried out via a collection form. Two algorithms, created with the ECIL guidelines, were used to evaluate febrile neutropenia episodes. Duration of the prescription was considered to conform if it