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#### 4CPS-071 SHORTAGE OF DRUGS ERA: IMPACT OF PIPERACILIN/TAZOBACTAM SHORTAGE

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**Background** In Spain, in the past 6 months there has been a mean of 0.9 shortages per day. A piperacilin/tazobactam shortage was announced in April 2018 by the Spanish Agency of Medicine and Health Products (AEMPS). In May 2018 the AEMPS offered it as a foreign drug to Spanish hospitals but it ran out quickly. After that no alternative was available until July 2018, when the AEMPS offered it again as foreign drug. However, its defined daily dose (DDD) cost twice more than the national product alternative. At the end of June, the hospital ran out of stock until the end of September when the national product was restored.

On the other hand, since April 2014, an Antimicrobial Stewardship Programme (ASP) has been implemented in hospitalisation units (HU). One of this programme's purposes is to work on the rational use of carbapenems. In this hospital carbapenems DDDs/100 bed days of HU were, in 2016 and 2017, 6.89 and 6.93, respectively.

**Purpose** The aim of this study is to analyse carbapenems exposure during piperacilin/tazobactam shortage in a tertiary care hospital.

**Material and methods** Carbapenems exposure was measured by DDDs/100 bed days 3 months before (April, May and June) and 3 months during the shortage (July, August and September), and furthermore expense variation was calculated. Carbapenems consumption, at HU and intensive care unit (ICU), was calculated.

#### Results

Abstract 4CPS-071 Table 1

Carbapenems	DDD (g)	Cost (€.)	DDDs/100 bed days HU before shortage	DDDs/100 bed days HU during shortage	DDDs/100 bed days ICU before shortage	DDDs/100 bed days ICU during shortage
Meropenem	2	12.5	2.96	7.48	7.72	16.87
Imipenem	2	12	1.77	2.18	0.75	1.69
Ertapenem	1	36	1.45	2.25	0	2.03
Total			6.18	11.9	8.47	20.59

During the shortage, carbapenems DDDs/100 bed days increased by 92% for HU and by 143% for ICU. This carbapenems DDDs/100 bed days rise cost an additional € 5300.

**Conclusion** These data show the huge impact of the piperacilin/tazobactam shortage in public health and economic resources.

The management of shortages should be a public health priority for European health authorities.

Also, this situation makes it difficult to get Antimicrobial Stewardship Programme purposes. Ecological impact must be evaluated after this excessive use of carbapenems.

#### REFERENCES AND/OR ACKNOWLEDGEMENTS

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No conflict of interest.

#### 4CPS-072 ABSTRACT WITHDRAWN

#### 4CPS-073 FOLLOW-UP OF RECOMMENDATIONS ON DOSE ADJUSTMENT OF CEFTOLOZANE/TAZOBACTAM IN RENAL FAILURE

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**Background** Ceftolozane/tazobactam is a novel antibiotic commonly used in infections by gram-negative bacteria resistant to conventional antibiotics. Drug-dosing errors are common in patients with renal impairment and can cause adverse effects or poor outcomes.

**Purpose** To determine the adequacy of ceftolozane/tazobactam dose adjustment according to renal function in hospitalised patients.

**Material and methods** Retrospective observational study in a third-level hospital involving patients treated with ceftolozane/tazobactam from January to August 2018. Variables collected: sex, age, creatinine clearance (CrCl), medical/critical care unit, type of infection, microorganisms isolated, type of therapy (empiric or targeted), posology, treatment duration, effectiveness of treatment (microbiological and/or clinical cure) and dosage adequacy. Underdosing was defined as any dose lower than the Summary of Product Characteristics recommended dose (based on CrCl) and overdosing was the opposite. For pneumonia (off-label), a double dose was considered according to the Stanford Health Care Antimicrobial Dosing Reference Guide.

**Results** Forty-six patients were included: 65.2% were male, mean age was 65.4±16.2 years and mean CrCl was 61.8±30.6 mL/min. At the beginning of treatment, 41.3% had CrCl <60 mL/min. Sixteen patients (34.8%) were admitted to the intensive care unit. Main infection sites were: respiratory (43.5%), urinary (30.4%) and intra-abdominal (15.2%). Therapy was basically targeted (73.9%) and the most common isolated pathogen was multidrug-resistant *Pseudomonas aeruginosa* (90.9%). Average treatment duration was 8.4 days.

Evaluation at first day of therapy showed that 29 patients (63.0%) received an inappropriate dosage, 18 (39.1%) were underdosed and 11 (23.9%) were overdosed. During treatment, 16 patients experienced a change in CrCl but dose was not adjusted accordingly in the majority of cases (n=10, 62.5%).

Patients with empiric treatment had a favourable evolution. Among patients with targeted therapy and respiratory, urinary or intra-abdominal infection (n=30) treatment was effective in

23 (76.7%). Ceftolozane/tazobactam was de-escalated in two (6.7%), changed by another antibiotic because of inefficacy in two (6.7%) and discontinued because of poor prognosis in three (10.0%).

**Conclusion** A considerable proportion of patients treated with ceftolozane/tazobactam were inappropriately dosed. Furthermore, dosage was not adapted to the changes in renal function throughout the treatment. These data highlight the importance of an adequate review of medication.

#### REFERENCES AND/OR ACKNOWLEDGEMENTS

No conflict of interest.

#### 4CPS-074 ROLE OF THE PHARMACIST IN THE EVALUATION OF THE PRESCRIPTIVE APPROPRIATENESS IN ANTIBIOTIC THERAPY AS A 'SINGLE DOSE'

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**Background** The importance of prescriptive appropriateness in antibiotic treatment derives from the need to combine the effectiveness of care with available resources, making them accessible to all.

An inappropriate prescription may cause errors that can have important consequences in both patient's health and healthcare costs. With the prescription of antibiotics, it is also important to reduce the phenomenon of resistance.

Currently, the strategies adopted to reduce errors in therapy are:

- Computerised systems for prescribing and administering therapy.
- Preparation and distribution of unit dose drugs.
- Control and validation of therapy by the clinical pharmacist.

Our hospital has been managing the unit dose system since 2005. Currently, there are 18 units under unique dose with a total of 400 beds.

**Purpose** The aim of this study was to evaluate the pharmacist's contribution to risk management to increase the appropriateness of antibiotic prescriptions and reduce costs.

All the therapies that have been modified following a pharmacist's report and, therefore, the degree of acceptance of notifications by the medical staff were examined.

**Material and methods** The analysis was carried out by extrapolating, from the prescription software, the medical prescriptions of the antibiotics during June to December 2016 and June to December 2017. We found the following discrepancies:

- Posology (dosage, administration frequency, route of administration, duration of therapy).
- Therapeutic indication.
- Pharmacological interactions.
- Instructions on how to dilute.
- Intolerances/allergies.

**Results** From June to December 2016, 279 inappropriate therapies were reported by the pharmacist. Of these, 19% (53) were modified by the doctor.

In the period June to December 2017, 430 reports were introduced, of which 26.51% (114) were modified by the doctor.