days prior to hospitalisation. Crude in-hospital mortality and composite cure rate (significant resolution or complete resolution of all signs and symptoms of the infection), defined as both clinical cure and microbiological eradication were evaluated. Statistical analysis was performed using SPSS statistics v24.0.

Results A total of 155 infections in 87 patients were included. Mean age was 67 (IQR 50–75) years. Median CCI was 3 (IQR 1–5). 43.9% of patients had previous hospitalisation and in 42.4% of patients antibiotics were administered previously. Thirty-three per cent of patients were transferred from another hospital or a social-sanitary centre. Death occurred in 19.4% of infections. The main infections were urologic (42.6%). 5.8% were PDR strains, 17.4% were colistin-resistant and 40.0% meropenem-resistant strains. The main systemic antibiotics used were: colistin 22.7% and meropenem 20.7%. Intratracheal and inhaled antibiotics were used in 4.0% and 1.0% of episodes respectively: 27.1% were combined treatments. Microbiological resolution was achieved in 54.2% of infections, while clinical resolution was observed in 75.5%. Non-statistically significant results were obtained when comparing the effectiveness of combination therapy versus monotherapy in achieving clinical resolution (OR:0.539; 95% CI: 0.246 to 1.181).

Conclusion In our hospital these kinds of infections were produced in the older population with a moderate CCI and previous exposure to antibiotics. A high percentage of meropenem-resistant strains were found. Combination therapy was not more effective than monotherapy in achieving clinical resolution.

REFERENCES AND/OR ACKNOWLEDGEMENTS

No conflict of interest.

4CPS-044 IMPACT OF CLINICAL PHARMACIST-VANCOMYCIN MONITORING ON PATIENT SAFETY OUTCOME

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Background Vancomycin is frequently used to treat gram-positive infections, especially methicillin-resistant staphylococcus aureus (MRSA). The level of vancomycin in blood should be kept in a specific range to give the optimal antimicrobial killing and avoid the development of resistant and nephrotoxicity with low or high serum levels, respectively. This is known as therapeutic drug monitoring (TDM). Vancomycin TDM in our hospital is performed by either clinical pharmacists or physicians.

Purpose In order to unify the practice and serve our patients with the best care, this study aimed to evaluate the safety consequences including nephrotoxicity of clinical pharmacist-based vancomycin TDM versus physician-based vancomycin TDM.

Material and methods This was a retrospective cohort study conducted at a single tertiary hospital. It included two groups of vancomycin TDM, one for physicians and one for clinical pharmacists. The patients included were all adults more than 18 years' old started on vancomycin intravenously for more than 24 hours for suspected or proven infection. The primary outcome was the development of nephrotoxicity. The

secondary outcomes included appropriate vancomycin initial dosing, sampling time and interpretation of vancomycin level.

Results A total of 100 patients were enrolled in the study, with 53 patients in the physician group. There were no significant differences in the baseline characteristics between the two groups. Nephrotoxicity was reported as 3.8% (n=2) in the physician group and 12.8% (n=6) in the clinical pharmacist group, with a P-value of 0.143. Moreover, there were significant differences in the defined secondary endpoints that included appropriate vancomycin initial dosing, sampling time and interpretation of vancomycin level. The results were reported as 84.9% (n=45), 37.7% (n=20) and 11.3% (n=6) in the physician group and 87.5% (n=28), 62.5% (n=20) and 48.9% (n=23) in the clinical pharmacist group, respectively, with the same P-value of less than 0.001.

Conclusion Although there was a non-statistically significant higher rate of nephrotoxicity in patients who received vancomycin TDM by clinical pharmacists compared to those monitored by physicians, the difference in appropriate vancomycin initial dosing, sampling time and interpretation of vancomycin level was statistically significant, favouring the clinical pharmacists group.

REFERENCES AND/OR ACKNOWLEDGEMENTS

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No conflict of interest.

4CPS-045 VALUE OF THE CLINICAL PHARMACIST IN THE PHARMACOKINETIC MONITORING OF ANTIMICROBIALS: HEALTH OUTCOMES

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Background There has been a marked rise in the prescription of vancomycin and aminoglycosides over recent years due to the increase in infections caused by multi-resistant microorganisms. The measurement of their plasma concentrations (Pcs) is necessary to correctly adjust the dosage and minimise the risk of nephrotoxicity.

Purpose To investigate pharmaceutical interventions (PIs) during the pharmacokinetic monitoring of hospitalised patients receiving vancomycin or gentamicin, and to analyse the health outcomes of monitored patients.

Material and methods We conducted a prospective observational study (May–September 2018) of PIs by the Clinical Pharmacokinetics Unit of the Pharmacy Department in a 350-bed general hospital. Inclusion criteria were age ≥ 18 years and treatment with vancomycin or gentamicin. Exclusion criteria were hospitalisation in the ICU and pre-surgical antibiotic prophylaxis. We gathered data on: sex, age and clinical (serum creatinine (Cr), diagnosis), pharmacological (drug, dosage, suspension motive) and pharmacokinetic variables and on PIs (Bayesian estimation of individual pharmacokinetic parameters: PI-1, maintain schedule; PI-2, modify dose and/or interval; and PI-3, temporary suspension to favour renal drug elimination). Treatment effectiveness was defined by the disappearance of initial symptoms/signs ('clinical recovery') or of the initial microorganism in control culture ('microbiological recovery'). 'Nephrotoxicity' was defined by Cr ≥ 1.4 mg/mL or $\geq 50\%$ above baseline value.

Results The study included 61 patients (55.7% female) receiving vancomycin (n=39) or gentamicin (n=22) with mean age of 65.9 ± 19.5 years and mean Cr of 0.7 ± 0.5 mg/mL. The main diagnosis was urinary tract (18.0%) or osteoarticular (14.8%) infection; 104 analytical determinations were conducted (69.2% vancomycin, 30.8% gentamicin); and 57.6% of Pcs were outside the therapeutic range. PIs were: PI-1 (42.3%), PI-2 (53.8%) and PI-3 (3.8%). The reasons for vancomycin versus gentamicin suspension were: 'clinical/microbiological recovery' (66.6 vs. 31.8%); 'therapeutic failure' (2.6 vs. 0.0%); 'de-escalation' (7.7 vs. 22.7%); 'sequential therapy' (17.9 vs. 40.9%); 'severe toxicity' (0.0 vs. 4.5%); or death (5.2 vs. 0.0%). We observed nephrotoxicity in 2.6% of vancomycin-treated patients and 9.0% of gentamicin-treated patients.

Conclusion The pharmacist adds value to antimicrobial optimisation. Dose or interval modification (PI-2) was the most frequent intervention, increasing treatment effectiveness in a large number of patients and minimising as far as possible the risk of nephrotoxicity.

REFERENCE AND/OR ACKNOWLEDGEMENTS

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No conflict of interest.

4CPS-046

PHARMACEUTICAL INTERVENTIONS IN ANTIMICROBIAL TREATMENT IN A 150-BED HOSPITAL

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Background The correct use of antimicrobial treatment is necessary to ensure their effectiveness, the control of resistance and to avoid the occurrence of adverse reactions.

Purpose To analyse the pharmaceutical interventions (PI) in antimicrobial treatment and quantify the degree of their acceptance.

Material and methods Descriptive and retrospective study in a 150 bed-hospital was made. PI on antimicrobial treatments were analysed over a period of 16 months (December 2016 – March 2018). The collected data were: age, antimicrobial treatment, type of PI and degree of acceptance of the PI. The reasons for PI were classified into: inadequate dosage, dose adjustment due to renal insufficiency, drug change after antibiogram, therapeutic duplicity, suspension of treatment due to inadequate duration and change of route of administration. The degree of acceptance of the PI was detected based on the medical prescription modifications according to the recommendations. The pharmaceutical recommendations were made through the daily evolutions in the patient's history in the Ticares computer program.

Results Two-hundred and forty-four PI were carried out in 132 patients (1.84 PI per patient). The average age of the patients was 79 years (53% women). The PI, according to classification were: 160 (65.6%) PI due to changes in the antimicrobial administration route (92 were accepted, 57.5%); 70 (28.7%) PI due to suspension of treatment due to inadequate duration (44 were accepted, 62.90%); seven (2.9%) PI for dose adjustment due to renal failure (three were accepted, 42.9%); three (1.2%) PI due to therapeutic duplicity (100%

accepted); three (1.2%) PI due to inadequate posology (two were accepted, 66.7%); and one (0.4%) PI due to antimicrobial change after antibiogram (the patient was discharged and it could not be confirmed if there was a change in the prescription). Regarding the degree of acceptance, 144 (59%) IP were accepted and 60 (37,29%) IP were not accepted.

Conclusion More than half of the pharmaceutical interventions resulted in a change in the medical prescription according to the recommendation. The pharmaceutical validation adds safety to the hospitalisation process and represents an improvement in the quality of care.

REFERENCES AND/OR ACKNOWLEDGEMENTS

No conflict of interest.

4CPS-047

FEASIBILITY OF PHARMACY FOLLOW-UP OF ANTIBIOTIC RE-EVALUATION IN A UNIVERSITY HOSPITAL: DAY-2 OR/AND DAY-7?

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Background Despite the benefits of antibiotic re-evaluation (decrease in the emergence of bacterial resistance, adverse effects and costs) physicians do not systematically trace it. In our hospital, after the implementation in June 2013 of a day-2 antibiotic re-evaluation (AR) module in the prescription software and three awareness periods of prescribers, only 53% of AR were done for 10 high-risk antibiotics.

Purpose The aim of this work was to study the feasibility of a follow-up by pharmacy of antibiotic re-evaluation.

Material and methods All antibiotic re-evaluation of the 10 antibiotics followed in 2017 were analysed by pharmacy from the AR module (status of prescriber, indication, date of AR). This analysis was compared with the number of patients initiated under these antibiotics and delivered by the pharmacy. In order to determine the feasibility of follow-up, all antibiotic prescriptions were analysed during 2 weeks to know the number of prescriptions and re-evaluation at day-2 and day-7 delivered by the pharmacy per day.

Results In 2017, there were 464 patients treated with linezolid and only 34 AR were traced at day-2 (7.3%). For other antibiotics, AR module use rate was: Imipenem/Cilastatine 38/308 (12.3%), Ceftazidime 32/225 (14.2%), Levofloxacin 130/590 (22%) and Cefepime 42/137 (30.7%). The AR was made on average at 4.3 days. A mean of 85 antibiotic prescriptions were analysed and delivered by the pharmacy per day. Among these prescriptions a daily mean of 31 prescriptions were sent to the pharmacy at day-2 and four at day-7. To enable the feasibility of follow-up, infectious disease physicians have validated an exhaustive list of infections requiring antibiotic therapy for more than 7 days, based on new international antibiotic therapy duration recommendations. This list allows the pharmacy to check the indication of treatment and to dispense antibiotics or not at day-7.

Conclusion Pharmacists have a crucial role to play in the AR through its follow-up. A day-7 AR module will be added in early 2019 to our prescription software. The day-7 follow-up of all antibiotic prescriptions by the pharmacy and its ability to halt dispensing might reduce the emergence of bacterial resistance and limit antibiotic consumption through a better traceability of AR.