by Epi Info 7,[3] a P-value of less than 0.05 being considered as proof of significance.

Results Antibiotic consumption:

Antibiotic costs:

Abstract 4CPS-041 Table 1

	2016	2017
Total cost/1000 EMERG	€ 1422.23	€ 1256.64

Conclusion We found a significant antibiotic consumption decrease after the implementation of the EATG. This reduction is associated with cost savings.

We noticed important changes in the antibiotic prescription profile: quinolones, third-generation cephalosporins and carbapenems prescriptions decreased (by about 30%–40%) and, simultaneously, amoxicillin clavulanic acid prescriptions increased (by less than 10%).

Levofloxacin is the main factor related to quinolones reduction. This could indicate a proper use of antibiotics in respiratory pathology.

These changes suggest an optimisation of antibiotic prescription in the Emergency Department because we observed a reduction in the use of antibiotics associated with resistance development.

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No conflict of interest.

4CPS-042 SWITCH FROM CLARITHROMYCIN TO AZITHROMYCIN – ONE OPTION TO OPTIMISE MACROLIDE USE THROUGH CLINICAL PHARMACISTS

C Querbach*. *Klinikum Rechts der Isar der Tum München, Pharmacy, München, Germany*

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Background Clarithromycin is a strong inhibitor especially of cytochrome-P450 3A4 in contrast to azithromycin. Clinicians may often not be aware of the importance of clarithromycin drug interactions. To date, we could not find published data directly comparing potential interactions of clarithromycin and azithromycin.

Purpose The aim of this study was to evaluate macrolide prescriptions with respect to the interaction potential of either clarithromycin or azithromycin, as well as the indication and duration of therapy by clinical pharmacists.

Material and methods From May 2018 to July 2018, a total of 48 patients for whom clarithromycin IV was ordered were identified at a German university hospital. Two clinical pharmacists independently evaluated drug therapy and performed database-based interaction checks[1–4] of the complete medication regimens with clarithromycin according to a German validated classification system (ABDA[5]) and compared them to azithromycin. The most important antibiotic-related interventions were discussed with the physician in charge. Complete medication regimens, indications, duration of therapy, number and severity of interactions as well as the implementation of the interventions were documented.

Results Interventions were necessary in 37/48 patients. Clarithromycin was combined with 166 different medications, and, in total, 548 combinations were checked with the following results:

- In 16 patients discontinuation of clarithromycin due to missing indication.
- In eight patients switch to azithromycin IV, in four patients switch to azithromycin PO.
- In seven patients continuation of clarithromycin under close monitoring.
- in two patients interventions regarding the comedication.

A complete switch from clarithromycin IV to azithromycin would have resulted in a reduction of clinically relevant drug interactions from 168/548 to 115/548, with a shift to lower severity of interaction according to the ABDA classification system:

- Contraindicated combination: reduction from 15 to 0.
- Dosage adjustment or close monitoring needed/not recommended combination: reduction from 72 to six.
- Consider some monitoring: increase from 81 to 109.
- Generally no action needed: increase from 380 to 433.

Conclusion Involvement of clinical pharmacists helps to optimize macrolide prescription with respect to the interaction potential of either clarithromycin or azithromycin as well as the indication and duration of therapy.

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No conflict of interest.

4CPS-043 EXTENSIVELY PANDRUG-RESISTANT PSEUDOMONAS AERUGINOSA INFECTIONS: ANALYSIS AND OUTCOMES

M Achaques-Rodriguez*, F Fernandez-Fraga, ME Martinez-Nuñez, T Molina-Garcia. *Hospital Universitario de Getafe, Pharmacy, Getafe, Spain*

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Background The incidence of infections due to extensively drug-resistant (XDR) and pandrug-resistant (PDR) strains of *Pseudomonas aeruginosa* (PSA)is increasing, mainly due to the overuse of antibiotics.

Purpose The aim of this study was to identify and describe the infections due to XDR and PDR PSA occurring in our hospital, as well as to compare the effectiveness of monotherapy versus combination therapy.

Material and methods Observational, retrospective and longitudinal study was performed. Patients with positive cultures in diagnostic samples for XDR and PDR PSA from March 2009 to August 2018 were included. Magiorakos criteria were used to define XDR and PDR PSA. Only infections with directed treatment with systemic, inhaled, intratracheal antibiotics or a combination were considered. Data were collected from hospital electronic records. Comorbidity was measured by calculating the Charlson Comorbidity Index (CCI) at the beginning of hospitalisation. Previous hospitalisation and previous antibiotic treatment were considered if they occurred in the 90

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

R Al-ruwaisan*, R Bahmaid, N Albanyan. *King Fahad Medical City, Pharmacy Services Administration, Riyadh. KSA, Saudi Arabia*

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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

MM Alañon Pardo*, MC Conde García, C Notario Dongil, A Marcos de la Torre, D Fraga Fuentes, N Andrés Navarro. *Hospital General Mancha Centro, Pharmacy, Alcázar de San Juan, Spain*

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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 ≥50% above baseline value.