4CPS-253 THE IMPORTANCE OF THE PHARMACOKINETIC PROFILE IN PATIENTS WITH ULTRA-RARE DISEASES: A CASE REPORT

C Castillo-Martin*, J Cordero-Ramos, R Castillejo García, A Martínez Suárez, L Rendón De Lope, M Camean Fernández. *Hospital Universitario Virgen Macarena, Pharmacy, Seville, Spain*

10.1136/ejhp-2021-eahpconf.85

Background and importance Mucopolysaccharidosis VII (MPSVII), also known as Sly syndrome, is an ultra-rare disease characterised by deficiency of β -glucuronidase. Sly phenotypes vary from severe forms with hydrops fetalis and skeletal dysplasia, hepatosplenomegaly, heart valve abnormalities and mental retardation, to milder forms with fewer manifestations.

Aim and objectives To compare the vancomycin pharmacokinetic (PK) profile observed in a newborn with MPSVII with that expected in an average neonate.

Material and methods Clinical data were collected from the electronic medical record (Diraya), and an extensive literature research was made using different electronic databases (Pubmed, Scopus). Serum concentration-time profiles were adjusted to a one compartment neonatal population PK model incorporating body weight and renal function as the significant covariates, using the Abottbase PK System (PKS) programme.

Results The patient was a 26-day-old male, with a postmenstrual age of 38 weeks, and diagnosed with MPS VII, who initially had phlebitis and fever during his stay in the neonatal intensive care unit. His blood cultures were positive for coagulase negative *Staphylococcus aureus*. The patient was treated with vancomycin 10 mg/kg/8 hours intravenously. PK were evaluated before the sixth dose, with weight of 2.2 kg, height 44 cm and a creatinine serum level of 0.92 mg/L. After obtaining a serum level of 123.6 μ g/mL (normal trough range 10–15 μ g/mL), vancomycin was stopped. After 2 days, serum levels were 11.4 μ g/mL, so vancomycin was restarted at 10 mg/kg/12 hours. After four administrations, serum levels were again out of range (48.2 μ g/mL), and the antimicrobial was switched to cloxacillin. Based on the vancomycin levels, we estimated a half-life of 15.8 hours, instead of the 4–8 hours described. The distribution volume calculated was 1.99 L with a clearance of 0.088 L/hour. The expected distribution volume was 1.8 L and a clearance of 0.148 L/hour.

Unfortunately, the baby passed away 3 days later due to other complications.

Conclusion and relevance A 2–3 times greater half-life was observed in this patient with Sly syndrome. The large accumulation of vancomycin was not described in the literature and was not expected with the features of this disease, highlighting the importance of therapeutic drug monitoring in patients with ultra-rare diseases whose pharmacokinetics could be disturbed by factors still unknown.

REFERENCES AND/OR ACKNOWLEDGEMENTS

Conflict of interest No conflict of interest

4CPS-254 A RETROSPECTIVE STUDY OF ANTIMICROBIAL STEWARDSHIP IN A UNIVERSITY HOSPITAL

¹A De Francesco, ¹M Zito, ¹S Esposito, ¹C Monopoli, ²MD Naturale, ¹M De Fina*. ¹Azienda Ospedaliera Universitaria 'Mater Domini', Hospital Pharmacy Unit, Catanzaro, Italy; ²Magna Graecia University, Hospital Pharmacy Resident, Catanzaro, Italy

10.1136/ejhp-2021-eahpconf.86

Background and importance Misuse and abuse of antibiotics are among the main causes of the increase in antibiotic resistance. Monitoring and evaluation of antibiotic prescriptions is an important activity involving the hospital pharmacist.

Aim and objectives The aim of the study was to assess attitudes and practices towards antibiotics. The objectives were to assess clinical governance, prescriptive appropriateness as well as costs incurred.

Material and methods A retrospective observational study was carried out from 1 January 2017 to 31 December 2019 in a university hospital. Outpatient dispensing was used for patient identification and data collection. Demographic, diagnostic, therapeutic and clinical variables were gathered. Consumption was expressed as defined daily dose (DDD). Drugs evaluated were: tigecycline, ceftazidime and beta-lactamase inhibitor, meropenem, ertapenem, ceftaroline, fosamil, ceftolozane and beta-lactamase inhibitor, levofloxacin, dalbavancin, linezolid, daptomycin, amphotericin B, voriconazole, caspofungin, micafungin and anidulafungin. First dispensation date was considered as the index date. Custom requests (CR) that reported prescribing errors were considered inappropriate. Drug costs were calculated based on ex factory prices (VAT excluded), net of the temporary reductions provided for by law. Avoided costs were calculated based on inappropriate prescriptions and unauthorised treatments.

Results 4017 CR, 1267 patients (70.72% men; mean age 66.54 years) and 26 457.22 DDD (19.89 DDD/patient) were included in the study. The expenditure incurred was 1 214 876.87€. Data showed a significant decrease in the patient treated rate (–2%), DDD required (delta 2019–2017 = –9.33%) and expenditure incurred (delta 2019–17 = –52.65%). The consumption (DDD/pz) of levofloxacin did not increase during the study period (mean 11.22 DDD/pz), while a considerable increase was highlighted for ceftaroline, fosamil and micafungin. Systemic antifungal therapy was started empirically in 181 patients (68.5% men; mean age 65 years). Daptomycin was used for persistent methicillin resistant *Staphylococcus aureus* bacteraemia (delta 2019–2018 = +191.43). 3.68% of CR (148/4017) were deemed inappropriate (56.4% in 2019). Costs saved were 29 730.37€. Prescribed daily dose represented the most common error (20.94%) in the CP examined.

Conclusion and relevance Hospital pharmacists detected and prevented harmful errors in prescribing therapies. Supervision by hospital pharmacists can significantly improve the management of clinical risk, patient safety, optimisation of care and effective management of expenditure.

REFERENCES AND/OR ACKNOWLEDGEMENTS

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Conflict of interest No conflict of interest

4CPS-255 CLINICAL EXPERIENCE OF CEFTAROLINE USE IN A THIRD LEVEL HOSPITAL

A Magallon Martínez*, R Huarte Lacunza, A Pinilla Rello, L Cazorla Poderoso, M Pérez Moreno, A López Pérez, J Perales Pascual, MR Abad Sazatornil. *University Miguel Servet Hospital, Hospital Pharmacy, Zaragoza, Spain*

10.1136/ejhp-2021-eahpconf.87

Background and importance Ceftaroline is approved for the treatment of complicated skin and soft tissue infections