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Paper Poster Session

Antifungal drug treatment

Therapeutic drug monitoring of antifungal drugs: another tool to improve patients outcome?

Antonio Vena*¹, Patricia Muñoz², Miriam Mateos³, Fritz Cajuste³, Jesus Guinea⁴, Pilar Escribano Martos⁴, Maricela Valerio Minero⁴, Emilio Bouza Santiago⁵

¹*Hospital General Universitario Gregorio Marañón, Madrid, Spain*

²*Hospital General Gregorio Marañón, Madrid, Spain*

³*Hospital General Gregorio Marañón, Madrid, Spain*

⁴*Hospital General Universitario Gregorio Marañón, Clinical Microbiology and Infectious Diseases, Madrid, Spain*

⁵*Hospital General Universitario Gregorio Marañón, Madrid, Spain*

Background: Systemic Therapeutic Drug Monitoring (TDM) of antifungal agents is not considered routinely necessary, mainly due to the belief that adequate antifungal serum concentration may be achieved prescribing fixed doses as suggested by international guidelines.

Actually, few authors have evaluated the variability inter-patients in antifungal pharmacokinetics and, to the best of our knowledge, no studies have examined whether recommended doses of antifungal drugs accurately predict serum concentrations in non-selected hospitalized patients. Our aim was to analyze these two issues in a large tertiary care center.

Material/methods: Prospective open study assessing antifungal drug concentrations in 100 consecutive hospitalized patients receiving a systemic antifungal between February 2015 and June 2015. Dosage of antifungals was considered adequate according to the IDSA guidelines recommendation. Drug interactions and hepatic and renal dysfunction were taken into consideration when necessary. Through antifungal concentrations (voriconazole, posaconazole, fluconazole and echinocandins) were determined with high-performance liquid chromatography. According to pharmacokinetics data, the following through serum concentration were considered as adequate: fluconazole >11 µg/ml, echinocandins >1 µg/ml, voriconazole 1-5.5 µg/ml and posaconazole > 0.7 µg/ml.

Results: Overall, 40% of the patients received echinocandins (29% micafungin, 8% anidulafungin, 3% caspofungin) 32% fluconazole, 15% voriconazole and 7% posaconazole. Overall, sixty-six patients were male and age and body weight ranged from 25 to 91 years and 40 to 117 kg, respectively. The main reasons for starting antifungals were prophylaxis (31%), empirical treatment (35%) and targeted treatment (34%) and the median duration of therapy was 15 days. All antifungals showed large

interindividual variability with echinocandins ranging from 0-7.13 µg/ml, fluconazole 0-47.70 µg/ml, voriconazole 1.1-11.10 µg/ml and posaconazole 0.19-2.17 µg/ml. According to current guidelines, doses were considered adequate in 89 patients, but only 59.5% of them attained an adequate serum concentrations. Of the remaining patients receiving inadequate antifungals dosage, 4 attained therapeutic serum concentration and 7 did not.

Conclusions: Considerable interindividual variability was observed for all antifungals with a large proportion of the patients (59.5%) not attaining adequate through serum concentrations, despite receiving an adequate antifungal dose. Although studies determining the clinical impact related to patient outcome are needed, we believe that TDM of these drugs can help to improve patient management.