24th ECCMID Barcelona, Spain 10 - 13 May 2014
ESCMID
eP253

Candida parapsilosis antifungal resistance: a portuguese surveillance

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Introduction

The first fungal epidemiological study carried out in a Portuguese hospital unveiled a high fluconazole resistance among nosocomial fungal isolates which was associated with high mortality rates. Following *C. albicans*, *C. parapsilosis* was the most common yeast species isolated from patients with bloodstream infections. Yet this situation is not restricted to Portugal. In other European countries and in Latin America and Asia, *C. parapsilosis* is commonly found. Azoles, namely fluconazole, are widely used as prophylactic and therapeutic drug; however *C. parapsilosis* acquires azole resistance in a rapid and stable manner. This finding suggests that an emergent of *C. parapsilosis* azole resistance may be imminent. This study aims to asses and characterize the antifungal susceptible profile of *C. parapsilosis* sensu stricto etiologic agent of human infections from two major Portuguese hospitals, Centro Hospitalar de Coimbra and Centro Hospitalar São João.

Materials and Methods

Clinical isolates (n=98) collected from respiratory tract (bronchoalveolar lavage fluids, nasopharyngeal aspirates and sputum), urine, central venous catheter, blood, stools and skin were assessed regarding the antifungal susceptibility profile to azoles, namely fluconazole (FLC), voriconazole (VRC), posaconazole (PSC), and echinocandins, such as caspofungin (CSF), micafungin (MCF) and anidulafungin (ANF). The minimal inhibitory concentration (MIC) of each antifungal drug was determined according to the M27-A3 protocol and M27-S4 supplement of the Clinical and Laboratory Standard Institute (CLSI). The MICs were registered after 24 hours of incubation for echinocandins and after 48 hours for all the azoles. The susceptibility breakpoints were those described in the CLSI. For PSC, strains inhibited by ≤1 µg/ml were considered to be susceptible.

Results

Among *C. parapsilosis* isolates, 12% were resistant to FLC; 8% were resistant to VRC; 4% were resistant to PSC. The incidence of susceptible–dose-dependent found was 6% for FLC and 11% for VRC. For echinocandins, no resistance was found for micafungin and anidulafungin; conversely 14% of the isolates were resistant to CSF.

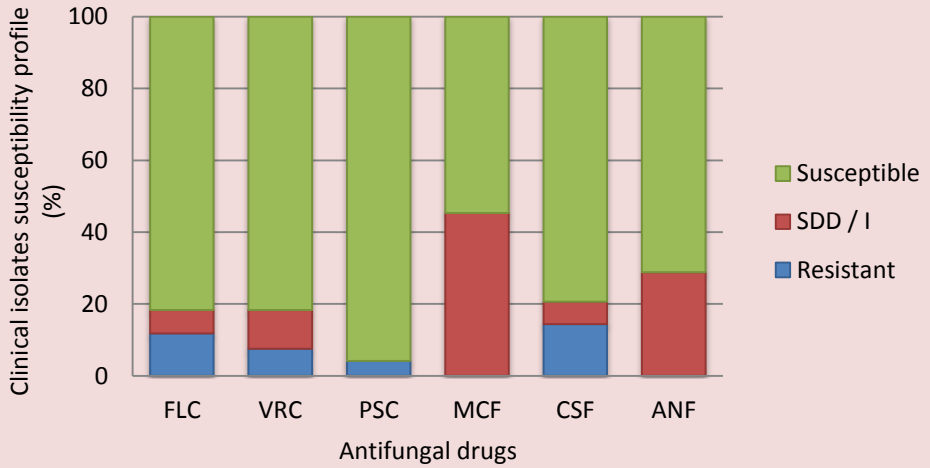

Fig. 1. *C. parapsilosis* clinical isolates susceptibility profile determined according to CLSI recommendations.

Conclusions

Our study showed that prevalence of azole *C. parapsilosis* resistant isolates has increased dramatically since the last survey carried out in 2009 at the same Hospital; the incidence of resistance to FLC doubled. For the first time, we report about VRC and PSC resistant phenotype.

Acknowledgments

This study was supported by the project PTDC/DTP-EPI/1660/2012) financed by Fundação para Ciência e Tecnologia (FCT). IMM is supported by FCT Ciência 2008.