ABSTRACT

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Title of master's thesis: *In vitro* susceptibility of potentially pathogenic fungi isolated in the University Hospital Hradec Králové to antifungal drugs

Subtitle: Blood cultures tested from 2008 to 2018

Background: The aim of the work was to describe and evaluate epidemiological situation of fungemia in the University Hospital Hradec Králové (FNHK) from 2008 to 2018, focusing on *in vitro* susceptibility of blood isolates to antifungals.

Methods: Required data were obtained from the laboratory information system of the Department of Clinical Microbiology FNHK and processed using Microsoft Excel program.

Results: From January 2008 to December 2018, fungemia was identified in 231 patients with overall incidence of 0.51 cases per 1000 admissions. *Candida albicans* accounted for most cases (52.8 %) followed by *C. glabrata* (14.7 %), *C. tropicalis* (8.2 %) and *C. parapsilosis* (6.9 %). *C. albicans*, *C. tropicalis* and *C. parapsilosis* susceptibility to echinocandins, as determined on the basis of minimum inhibitory concentration, was 100 %, in 2 cases *C. glabrata* was resistant to anidulafungin and *C. krusei* to caspofungin. *C. albicans* and *C. tropicalis* manifested good susceptibility to azole antifungals as well. 6 *C. glabrata* isolates (17.1 %) and 1 *C. parapsilosis* isolate were resistant to fluconazole, 2 *C. parapsilosis* isolates and 1 *C. krusei* isolate were resistant to voriconazole. Disk diffusion method showed corresponding susceptibility of *Candida* species to caspofungin and fluconazole on the other hand resistance to voriconazole was higher. All strains exhibited wild type phenotype to amphotericin B.

Conclusion: The trend of fungemia incidence was stable over 11 years. In general, epidemiological situation in FNHK corresponded to results of studies carried in the Czech Republic and other European countries.

Key words: antifungal susceptibility, fungemia, candidemia, incidence, species distribution