Title: Antifungal sensitivity and virulence factors of *Candida* spp. blood isolates from Hospital das Clínicas of Ribeirão Preto Medical School (HC - FMRP)

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Abstract:

Candida species are the fourth most frequent pathogen which causes bloodstream infection and they are responsible for more than 85% of fungal invasive infections. Candidemia can present up to 50% of mortality rate and are mainly caused by *Candida albicans*, *C. parapsilosis*, *C. glabrata* and *C. tropicalis.* There are differences on these species' prevalence, antifungal sensitivity and virulence factors production. Besides, the isolates of the same species can present different profiles, which make their characterization important. Therefore, the aim of this work was to characterize bloodstream isolates of *C. albicans*, *C. glabrata*, *C. parapsilosis* and *C. tropicalis* from patients of HC - FMRP. Fifty bloodstream isolates were used. The activity of the hydrolytic enzymes phospholipase, proteinase and haemolysin was measured using specific culture media. The sensitivity profile against amphotericin B, caspofungin, fluconazole and voriconazole was done using CLSI guidelines of disk diffusion and broth microdilution. As expected, *C. albicans* was the most predominant species (42%), followed by *C. glabrata* (24%), *C. parapsilosis* (20%) and *C. tropicalis* (14%). Only the *C. albicans* isolates showed phospholipase activity. Proteinase activity was showed by *C. albicans*, *C. tropicalis* and *C. parapsilosis* isolates. All species showed haemolysin activity. None of the isolates were resistant to the tested antifungals. However, the caspofungin and fluconazole MICs were lower for *C. albicans* than for the other species, which is usual. The prevalence of *C. albicans* and *C. parapsilosis* were consistent to the usually described range in Brazil. The *C. tropicalis* prevalence was a little lower than the usually described in Brazil and the *C. glabrata* prevalence was higher than the usually described. The rising of candidemia caused by *C. glabrata* has been described and it has been related to previous treatment with fluconazole. These four species are able to produce proteinase, phospholipase and haemolysin, however, *C. albicans* is the major producer of these enzymes. The species distribution and the isolates profile can be different between hospitals and even in sections of the same hospital, which makes these results useful to bring a better comprehension of candidemia in the studied tertiary care hospital.

Keywords: antifungal sensitivity, *Candida* spp. candidemia, virulence factors.

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