TITLE: *TRICHOSPORON* SPP. IN A HOSPITAL ENVIRONMENT: CHARACTERIZATION, VIRULENCE AND ANTIFUNGAL SENSITIVITY

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ABSTRACT

The groups of microorganisms that cause invasive fungal infections in hospitals have been progressively increasing, among which the *Trichosporon* species are noteworthy, that despite being the second or third most common non-*Candida* yeast, current data on pathogenicity, species epidemiology and treatment of patients remain scarce. Thus, this study aimed to characterize phenoltypically and genotypically *Trichosporon* species from hospitals in the Brazilian State of São Paulo-SP; and to study the species in relation to the factors of virulence and antifungal susceptibility. The yeasts were isolated from March/2015 to November/2016 at Hospital Estadual de Bauru-SP (State Hospital of Bauru-SP), Hospital Darcy Vargas, São Paulo-SP and Irmandade Santa Casa de Misericórdia, São Paulo-SP (Sodality Holy House of Mercy). Traditional, molecular and mass spectrometry techniques were used to identify the genus and species of the isolated yeasts. The production of the protease, phospholipase and hemolysin enzymes, and the production of biofilm were verified according to methods recommended in the literature. The antifungal susceptibility was studied against four antifungal drugs by the broth microdilution method. A total of 19 specimens were identified, from which 18 were isolated from urine and one from skin secretion, being the most frequently identified species were genotypes and MALDI-TOF as *Trichosporon asahii* (89.47%). Most patients had variable baseline conditions such as catheter use, mechanical ventilation and antibiotics. Regarding to the virulence factors, it was verified that 94.73% and 100% of the samples did not show production of proteinase and phospholipase enzymes, respectively. In relation to the hemolysin enzyme, 10.53% of the isolates showed no hemolysis and 89.47% produced partial hemolysis. The ability to form biofilm under the surface of polystyrene plates was observed in 100% from the isolates. However 63% were considered as poor producers. Regarding to the *in vitro* antifungal susceptibility test, the isolates presented low values of minimum inhibitory concentrations against itraconazole and voriconazole, and high values were observed for amphotericin B and fluconazole. A greater knowledge about the phenotypic and genotypic behavior of *Trichosporon* species in hospitalized patients may help in the implementation of preventive strategies for the acquisition of infections caused by *Trichosporon*.

Keywords: *Trichosporon* spp., hospital infection, virulence, antifungal

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