Title: EVALUATION OF HEMOLYTIC AND PHOSPHOLIPASE ACTIVITY OF Candida spp. OBTAINED FROM BLOODSTREAM INFECTIONS IN TERTIARY HOSPITALS OF NATAL-RN

Authors: Melo, A.P.V.¹, Zuza-Alves, D.L.¹, Chaves, G.M.¹

Institutions: ¹Laboratório de Micologia Médica e Molecular, Departamento de Análises Clínicas e Toxicológicas, Universidade Federal do Rio Grande do Norte

Summary

Yeasts of the genus Candida are one of the most common causes of bloodstream infection and associated with high rates of morbidity and mortality, mainly affecting immunocompromised patients. This study aimed to evaluate hemolytic and phospholipase activity of clinical isolates of Candida spp. obtained from blood cultures of patients with candidemia attended at tertiary hospitals in Natal city, RN. We analyzed 69 isolates of Candida spp. obtained from blood cultures between April 2012 and March 2015. Yeasts were identified by CHROMagar Candida®, microculture on cornmeal agar added tween 80 and classical methods (assimilation and fermentation of carbohydrates). The hemolysis index (HI) was determined by the ratio between the diameter of the colony and the diameter of the colony plus hemolysis zone, while the precipitation zone (Pz) was determined by the ratio between the diameter of the colony and the diameter of the colony plus halo of precipitation. We obtained isolates of the following species: Candida albicans (24), Candida parapsilosis species complex (18), Candida tropicalis (17), Candida glabrata (7) and a single isolate each of Candida lusitaniae and Candida ciferri, besides one isolate of Candida sp. that was not identified at species level. All isolates presented hemolytic activity, ranging from 0.72 ± 0.04 to 0.25 ± 0.03. It was observed that C. glabrata strains showed higher hemolytic activity (0.32 ± 0.05), followed by C. tropicalis (0.36 ± 0.06), C. parapsilosis species complex (0.43 ± 0.11) and C. albicans (0.49 ± 0.09). Phospholipase production was detected in 84% of the isolates, ranging from 0.75 ± 0 to 0.39 ± 0. Of note, all C. albicans isolates were able to produce phospholipase (mean of 0.53 ± 0.08), while only 94% of C. tropicalis isolates (mean of 0.53 ± 0.15), 86% of C. glabrata isolates (mean of 0.47 ± 0.21) and 50% of C. parapsilosis species complex isolates (mean of 0.62 ± 0.07) produced phospholipase. Our data suggest that, despite C. albicans is considered the most virulent species of the genus Candida, non-Candida albicans Candida species showed to be able to produce hemolysins and phospholipases, which are molecules that play an important role in infections caused by these fungi.

Keywords: Candidemia, hemolysins, phospholipase Candida albicans, non-Candida albicans Candida species

Financial support: CAPES