Characterization of Candida species causing nosocomial infections in Assiut University Hospitals.

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Abstract:

Objectives: 1- To identify Candida species isolated from nosocomial infection cases and to determine their antifungal susceptibility patterns. 2- To describe the epidemiological features of nosocomial Candida infections (NCI) and the risk factors associated with such infections in our hospital. Methods: A total of 16095 patients hospitalized in Assuit University Hospital, during the period from October 2009 to May 2011. They were monitored for development of nosocomial infections. Clinical specimens were screened for isolation of Candida species. Candida isolates were identified by conventional phenotypic methods and seminested PCR (snPCR). Antifungal susceptibility testing to fluconazole, amphotericin B, ketoconazole, itraconazole, nystatin, and voriconazole was determined by the disc diffusion method or the E-test. Risk factors and mortality rate were determined in association with Candida infections. Results: Three hundreds and twelve (1.94%) patients had acquired nosocomial infections. One hundred and twenty seven Candida strains were isolated from various clinical specimens (blood, urine, endotracheal aspirate, sputum, oropharyngeal swabs, wounds, and bed sores) collected from 119 (38%) nosocomially infected patients. The nosocomial infection rate due to Candida spp. was 0.74% and it was significantly higher in ICUs (92.4%) than in other wards. Candida spp. (16%) were the third common organisms isolated from nosocomially infected patients after Klebsiella spp. (29.5%) and MRSA (24%). NCI occurred most frequently among patients admitted at the chest ICU (46%) and at the trauma ICU (25%). Non-albicans Candida spp. isolates were frequently isolated (75%) in comparison to C. albicans (25%). Frequent isolates were from urine (43.3%). All Candida isolates were sensitive to amphotericin B and voriconazole, while resistance to fluconazole, ketoconazole, itraconazole, and nystatin was 6%, 13%, 32%, and 1% respectively. Binary logistic regression analysis of risk factors identified that older age (≥60 years) (Odds ratio (OR), 1.01; 95% Confidence interval (CI), 1.01-1.02, P value= 0.02) and surgical procedures (OR, 0.4; 95% CI, 0.2-0.2, P value= 0.01) were independently associated with NCI. The overall mortality rate among patients with NCI was 28%. Conclusion: Candida species are important nosocomial pathogens in the ICUs especially non-albicans Candida spp. which are frequent. The resistance to antifungal therapeutic agents is still low.

Keywords:

nosocomial, candida, antifungal susceptibility

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