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Distribution of Candida Species and Antifungal Susceptibility Pattern Among Hiv Positive Individuals with Oropharyngeal Infection in Selected Mekelle Health Facilities, Tigray, Northern Ethiopia

Abstract:

Oropharyngeal candidiasis (OPC) is the most common opportunistic infection encountered among human immunodeficiency virus-infected patients and is considered an independent predictor of immunodeficiency in patients with acquired immunodeficiency syndrome. The study aimed to determine the distribution and antifungal susceptibility patterns of Candida species among HIV-positive oropharyngeal patients. A cross-sectional study was conducted among 381 HIV positive individuals with oropharyngeal infections from September 2021 to May 2022. Socio-demographic data on clinical risk factors and oral swabs were collected from the study participants. The collected swab samples were transported to the microbiology laboratory and cultured on Sabouraud dextrose agar containing chloramphenicol. Among the 381 study participants, the overall Candida species isolation rate was 59.8% (228/381). A total of 240 Candida isolates were recovered, with C. albicans being the most predominant species at 151 (62.9%). Among the non-albicans Candida species, the most prevalent were Candida glabrata at 47 (19.6%), followed by Candida tropicalis at 26 (10.8%) and Candida krusei at 16 (6.7%). The isolated Candida species from HAART-naïve individuals and those on HAART were 127 (52.9%) and 113 (47.1%), respectively. The age group of 40-49 years ($p = 0.019$), previous history of antifungal drug treatment ($p = 0.039$), and TB co-infection ($p = 0.041$) were significantly associated with Candida species isolates. Antifungal susceptibility testing was performed on all Candida species isolates, with 12.9% and 9.2% showing resistance to fluconazole and ketoconazole, respectively. Candida species isolation in this study was 59.8%. Both Candida albicans (62.9%) and non-albicans (37.1%) were isolated from a significant number of the study participants. Though not uniform for all Candida species and antifungal drug types, our results showed that non-albicans Candida species drug resistance, especially to azole groups, is increasing.

Biography

Haftay Abraha Tadesse was born and raised in Tigray, Northern Ethiopia. He completed his primary education in Maynebri and pursued his secondary education at Adi-guide Comprehensive Secondary School. Haftay earned both his BSc in Animal Health and MSc in Medical Microbiology from Mekelle University. He has held positions in teaching and research at Mekelle University, where he currently teaches Molecular Biology, Microbiology, and Biochemistry at the College of Veterinary Science. His expertise encompasses various areas, including food and medical microbiology, mycology, virology, public health (focusing on zoonosis and food safety), and molecular biology. Additionally, Haftay is involved in conducting studies in microbiology and molecular biology, specifically related to antimicrobial resistance (AMR) and drug screening across different streams.