PM40 Antifungal susceptibility and mechanism ofazole resistance in Candida albicans clinical isolates from oropharyngeal candidiasis patients in Iran

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Objectives: Oropharyngeal candidiasis (OPC) is the most frequent opportunistic fungal infection in head and neck cancer patients. This study was done to investigate the antifungal susceptibility of Candida albicans (C. albicans) from oropharyngeal candidiasis (OPC) and to examine the relationship between ERG11 gene mutations in these isolates andazole resistance. Methods: A total of 324 clinical isolates of Candida species were collected. Identification of the oral clinical samples was determined by culturing on CHROMagar, carbohydrate assimilation and ITS sequencing methods. Antifungal susceptibility was tested in-vitro by broth microdilution method. The ERG11 gene of 42 isolates of C. albicans were amplified and sequenced. Results: Of the 324 isolates collected, 44.75% (145 isolates) were C. albicans. ERG11 gene was sequenced in 42 isolates. In total, 412 antifungal-mutations were detected in ERG11 gene from 42 isolates. Among them, 4M4C and G143A substitutions were most prevalent and were known to cause fluconazole resistance. Conclusions: A total of 14 mutations in the ERG11 gene were identified in azole-resistant C. albicans isolates, which indicated a possible role of azole resistance in subcultures in Candida albicans. Finding new mutations and relevance studies require a higher number of samples.

PM43 Candidemia: Isolate profiling and antifungal susceptibility testing experience from Jodhpur, Western India

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Objectives: The study was undertaken over a 9-month study period at a tertiary care and super specialty hospital situated in Jodhpur, Western Rajasthan, in India, with the following objectives:

1. To determine the prevalence of Candida among all blood culture positive patients.
2. To profile and speculate of Candida sp.
3. To Antifungal susceptibility testing of the Candida isolates

Methods: Autamotic blood culture bottles (BD BACTEC 9240) that flagged positive were taken up for in vitro testing. Those bottles which showed growth-positive, budding yeast with or without pseudohyphae were selected as the study isolates for candida. All such isolates were subcultures onSabouraud’s dextrose agar and macerated aseptically at 37°C for 2-5 days. Gram, pour, whole-blood cultures of Candida were further taken up for identification by tube testing methods, CHROMagar, and VITEK-MS.

Antifungal susceptibility testing was performed for all isolates by VITEK 2 against fluconazole, caspofungin, voriconazole, micafungin, and amphotericin B.

Results: In the study period of 9 months (January 2021–January 2022), the microbiology laboratory received a total of 10,941 automated blood culture bottles, of which, overall, 1051 flagged positive. Building rooms were seen in 92 bottles. The prevalence of candidaemia was found to be 1.49%. Building rooms made up 87.75% of all positive blood cultures. Conserved and automated identification methods showed no flocculant Candida made up the majority (91.27%) of isolates. Candida tropicalis (45.47%) was the most common species overall, followed by C. parapsilosis (13.77%), C. albicans (14.35%), C. paracasei (5.43%), C. glabrata (5.43%), and C. anamyloliquefaciens (5.4%). Two isolates each of C. krusei, C. guillermondii, and Phaffiopsis were also obtained.

The antifungal susceptibility testing results for the commonest species C. tropicalis showed susceptibility of 90% against caspofungin, 89.8% against voriconazole, 84.4% for micafungin, and 87.7% against amphotericin B. C. albicans showed 100% susceptibility to the aforementioned drugs, while C. parapsilosis showed a lower susceptibility percentage against all drugs in the panel. The two strains of C. tropicalis were totally susceptible to caspofungin.

Demography: Of the patients who showed a total prevalence (MiP ratio) was 2:1. The mean age of patients was 42 years. Prevalence: The prevalence of candidaemia in Jodhpur, Western India was found to be 1.41%, a figure much less than that reported from other tertiary care centers of the country. The commonest isolate was C. tropicalis (65.66%), same as that reported from most Indian studies. Our isolates were largely (>95%) susceptible to the drugs of choice, caspofungin, including the multidrug-resistant C. albicans strains. The study findings reflect a low prevalence of candidiasis, indicating adequate antifungal and antifungal stewardship practices in Jodhpur.

PM50 Candida auris and non-aeus candida in adult patients with candidemia: a retrospective study on a tertiary care setup in New Delhi, India

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Objectives: The aim of this study was to determine the species distribution, compare Candida auris and non-C. auris candida isolates and factors and antifungal susceptibility pattern of candidemia cases in adult patients at a tertiary care hospital, New Delhi, India.

Materials and Methods: Candida species identification was performed by phenotype methods, VITEK (Biomérieux, France), and DNA sequencing (PGM-Chipper, Cepheid). The antifungal susceptibility was performed by broth microdilution method as per CLSI M38-A4 guidelines 2017.

Results: Out of 1,274 blood samples, 78 samples (5.3%) yielded the growth of Candida species. There was a predominance of NAC sp. over C. albicans in candidemia patients. C. auris (12.65%), C. tropicalis and non-aeus Candida (87.4%), C. glabrata (17.9%) were isolated in this study. In non-aeus candida, C. tropicalis (28.57%, 2070) was the predominant Candida sp followed by C. parapsilosis (29.96%, 2244) and C. glabrata (14.28%, 1070). Rare species among NAC sp. included C. tenuis, C. lusitaniae, C. krusei and C. dubliniensis were isolated. The most common predisposing factor for C. auris and non-aeus candida was urinary catheter (72.82%, 1070) followed by an increased period of hospitalization (42.82%, 3070), diabetes mellitus (16.31%, 1570), and the elderly. The significantly associated risk factor associated with C. auris was diabetes mellitus (P = 0.02). The overall resistance was 22.77% to all antifungal drugs. The multidrug resistance (MDR) was noted in 7.1% of isolates.

Conclusions: Early identification of risk factors for fungal candidemia, and timely management are crucial for the outcome of candidemia cases. Non-aeus Candida species were predominant over C. auris depicting the change in the epidemiology and emergence of MDR Candida spp. like C. auris, C. glabrata, C. tropicalis, C. lusitaniae, and Pfalla kudriavzevii (C. kruiser). This warrants further antifungal surveillance (AFST) and dose modulation of antifungals. The antifungal susceptibility profile of Candida spp. suggest antifungal species identification, and their antifungal susceptibility is crucial for overall patient management.