

Non-Candida Albicans Candida: Virulence Factors and Species Identification in India

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Abstract : Background and Purpose: The predominant cause of candidiasis was *Candida albicans* which has shifted towards non-*Candida albicans* *Candida* (NCAC) (*Candida* species other than the *C. albicans*). NCAC, earlier considered non-pathogenic or minimally virulent, are now considered a primary cause of morbidity and mortality in immunocompromised. With the NCAC spp. gaining weightage in the clinical cases, this study was conducted to determine the prevalence of NCAC spp. in different clinical specimens and to assess a few of their virulence factors. Material and Methods: Routine samples for bacterial culture and sensitivity, showing colony characteristics like *Candida* on Blood Agar and microscopic features resembling *Candida* spp. were processed further. *Candida* isolates were tested for chlamydospore formation, biochemical tests including sugar fermentation and sugar assimilation tests, and growth at 42°C, colony colour on HiCrome™ *Candida* Differential Agar, HiCandida Identification Kit and VITEK-2 Compact. Virulence factors like adherence to buccal epithelial cells (ABEC), biofilm formation, hemolytic activity, and production of coagulase enzyme were also tested. Results: Mean age of the patients was 38.46 with a male-female ratio of 1.36:1. 137 *Candida* isolates were recovered. 45.3% isolates were isolated from urine, 19.7% from vaginal swabs and 13.9% from oropharyngeal swabs. 55 (40.1%) isolates of *C. albicans* and 82 (59.9%) of NCAC spp. were identified, with *C. tropicalis* (23.4%) in NCAC. *C. albicans* (3; 50%) was the commonest species in cases of candidemia. Haemolysin production (85.5%) and ABEC (78.2%) were the major virulence factors in *C. albicans*. *C. tropicalis* (59.4%) and *C. dubliniensis* (50%) showed maximum ABEC. Biofilm forming capacity was higher in *C. tropicalis* (78.1%) than *C. albicans* (67%). Conclusion: This study suggests varied prevalence and virulence based on geographical locations, even within a subcontinent. It clearly demarcates the emergence of NCAC and their predominance in different body fluids. Identification of *Candida* to species level should become a routine in all the laboratories.

Keywords : ABEC, NCAC, non-*Candida albicans* *Candida*, Vitek-2TM compact

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