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Isolation, speciation and antifungal susceptibility testing of *Candida* isolates from various clinical specimens at a tertiary care hospital, Nepal

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Background: *Candida* species are responsible for various clinical infections ranging from mucocutaneous infection to life threatening invasive diseases. Resistance to antifungal agents has increased during the last decades. Thus identification of *Candida* up to species level and its antifungal susceptibility testing has paramount significance in the management of candidal infections. CHROM agar media can be reliably used for speciation of *Candida* isolates which helps to rapid identification of *Candida* species. The objective of the present study was to determine different species of *Candida* from various clinical specimens and to determine antifungal susceptibility pattern of *Candida* species to four antifungal agents namely ketoconazole, fluconazole, miconazole, and clotrimazole.

Methods: A total of 100 consecutive *Candida* isolates from various clinical samples were studied. Growths on Sabouraud's Dextrose Agar were evaluated for colony appearance, macroscopic examination, gram staining, germ tube test and urea hydrolysis test. They were further processed for *Candida* speciation on CHROM agar. Different species of *Candida* were differentiated based on type of growth and color of isolates on CHROM agar media. Antifungal susceptibility testing was performed and interpreted for all the isolates using disc diffusion method as recommended by Clinical and Laboratory Standards Institute (CLSI) M44-A document.

Results: Out of 100 *Candida* isolates, *Candida albicans* (56%) was the most common species. Among the non-*albicans candida* (NAC), *Candida tropicalis* (20%) was the commonest isolate followed by *Candida glabrata* (14%) and *Candida krusei* (10%) respectively. Overall susceptibility pattern of *Candida* species to clotrimazole found to be more sensitive (82%) followed by fluconazole (64%), miconazole (44%) respectively whereas ketoconazole was found to be more resistance (86%).

Conclusions: *Candida albicans* was the predominant species responsible for various candidal infections. Among commonly used antifungal drugs clotrimazole, miconazole and fluconazole showed high sensitivity while ketoconazole was the least effective for both *albicans* and *non-albicans* group. CHROM agar is a simple, rapid & inexpensive method for identification of *Candida* species and is suitable for clinical laboratory with limited resources.

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