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Letter to Editor

Microbiology Section

Nosocomial Candida Infection in a Rural Tertiary Care Hospital

SHEEVANI, POONAM SHARMA, ARUNA AGGARWAL

Fungal infections are the major cause of morbidity and mortality in immunocompromized individuals. *Candida albicans* and its related species have been labeled as the 6th most common cause of nosocomial infections as per the Nosocomial Infections Surveillance (NIS) study of the Centre for Disease Control (CDC) [1]. The increased usage of broad spectrum antibiotics, increased immunosuppression, a prolonged hospital stay, parenteral nutrition and gastrointestinal tract (GIT) surgeries are predominantly responsible for the rise in the fungal infections [2].

Therefore, a short study was undertaken over a period of four months, to explore the prevalence of the Candida infections in a rural tertiary care hospital of Amritsar, Punjab, India. A total of 1200 samples were received from different departments. Of these, 52 (4.33%) were identified as Candida spp. on the basis of the Potassium Hydroxide (KOH) mount, gram staining and culturing on Sabouraud's Dextrose agar. These 52 isolates of Candida spp. formed the study group. The maximum number of Candida positive isolates were isolated from Intensive Care Units (ICUs), 17/52 (32.69%), followed by surgical units 13/52(25%), Department of Medicine 10 /52(19.23%), Department of Obstetrics and Gynaecology 9/52(17.31%), Department of Paediatrics 2/52(3.85%) and Department of Orthopaedics 1/52(1.92%). The species identification was done by using conventional methods like germ tube production, assessing the morphology on corn meal agar, the carbohydrate fermentation assimilation test and checking for the pigmentation on Hi-Chrome Candida differential Agar (HIMEDIA). The conventional methods took about five days for the species identification, while it took only 48 hours on the Hi Chrome Candida differential agar. It was found that a majority of the isolates 28/52 (53.85%) belonged to the non Albicans Candida species (NAC), while 46.15 %(24/52) species were of *Candida albicans*. Our findings were in coherence with the findings of other studies which had been done in India [3,4]. Among the NAC, the maximum number of isolates were of *C. glabrata, C. tropicalis, C.kefyr and C. krusei,* which showed prevalence rates of 25 % (7/28), 21.43% (6/28), 21.43% (6/28) and 17.86 % (5/28) respectively .*C. parapsilosis* and *C. dublieniensis* shared the common prevalence rate of 7.14% (2/28). An antifungal susceptibility test was performed by the disc diffusion test by using the Muellar Hinton Agar which was supplemented with 2% Glucose and 0.5mcg/ml methylene blue dye. The antifungal agents which were used were Fluconazole (25mcg), Itraconazole (10mcg) and Clotrimazole (10mcg). The agar disc diffusion tests have not been standardized for fungi and these tests should not be used as a guide to the anti-fungal therapy, but these tests are simple to perform and are inexpensive and they may be useful in a large scale survey of the clinical isolates for the initial identification of the resistant population. A zero susceptibility was observed to all the azoles i.e. Clotrimazole, Fluconazole and Itraconazole in case of *C. krusei* and only 51%, 36%, and 69% susceptibility rates to the respective azoles were observed in case of *C. glabrata*. The rest of the species which included albicans were highly sensitive to these azoles.

The present study indicated an increased prevalence of the Candida spp. in ICUs and surgical wards . This can be explained on the basis of the fact that the use of invasive devices are common in these wards and that the immune status of the patients are also compromised to the maximum as compared to that of the patients of other wards. A significant increase in the isolation rate of NAC indicated the shift of the spectrum of the fungal diseases from C. albicans to NAC spp. The resistance to the antifungal agents which was observed in the latter, may be one of the contributing factors for this shift. It could also be said that *C. krusei* and *C.glabrata* may emerge as resistant organisms. Our study also supplemented the findings of other authors that CHROM AGAR was a convenient, reliable and a rapid method for the identification of Candida species [4, 5].

To conclude, an increased awareness regarding the risk factors of the transmission of fungal infections amongst health care workers will substantially contribute in containing the nosocomial outbreaks which are caused by Candida spp. The inclusion of rapid and reliable methods in the diagnostics will aid an early identification, an appropriate treatment and reduced mortality rates in Candida infections.

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AUTHOR(S):

1. Dr. Sheevani
2. Dr. Poonam Sharma
3. Aruna Aggarwal

PARTICULARS OF CONTRIBUTORS:

1. Associate Professor, Department of Microbiology, PIMS, Jalandhar, India.
2. Assisstant Professor, Department of Microbiology, SGRDIMSR, Amritsar, India.
3. Professor and Head, Department of Microbiology, SGRDIMSR, Amritsar, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Sheevani,
144, Gurjeet Nagar, Garha Road, Jalandhar, India.
Phone: 9417314494
E-mail: drsheevani@yahoo.com

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