

A study of candidiasis in HIV reactive patients in a tertiary care hospital, Mysore - South India

Sir,
National AIDS Control Organization reports candidiasis as the second most common opportunistic infection in HIV patients.^[1] Oral candidiasis is the commonest manifestation observed in HIV reactive patients reflecting a declining immune system and a prognostic indicator for the development of AIDS. It affects one-third of seropositive and more than 90% of patients with AIDS at some point during their progression to full-blown AIDS. *Candida albicans* is the most frequently isolated species from HIV patients but recently non-*albicans* species have emerged. The increasing use of fluconazole to treat HIV patients with candidiasis has resulted in a change in the prevalence of candida species and the emergence of azole resistance with refractory and recurrent infections.

The present study was carried out from 2010 to 2013 at a tertiary care hospital in Mysore, Karnataka, India to determine the occurrence of candidiasis and type of species infecting HIV patients. One hundred HIV seropositive in-patients with features of candidiasis were included for the study. Ethical clearance was obtained from Institutional ethical clearance committee and informed written consent was obtained from all patients. Detailed history of the patients was recorded in a proforma, and signs and symptoms of candidiasis were assessed. All cases studied had oral/esophageal candidiasis. Candidiasis of other sites was not encountered.

The samples were collected from lesions by swabbing palatal mucosa, dorsum of tongue and buccal mucosa using sterile rayon-tipped applicator sticks. Specimens from esophageal candidiasis were collected during endoscopy of the upper gastrointestinal tract. Smears were prepared from swabs and stained with Gram's stain to look for budding yeast cells and pseudomycelia. In addition, the swabs were streaked onto Sabouraud's dextrose agar with chloramphenicol. The plates were incubated at room temperature for 24-48 hrs. Morphology of the colonies were noted and confirmed to be *Candida* by

microscopy of Gram stained smears. The *Candida* strains were speciated by germ tube test, colour of the growth on HiChrome agar, morphology on corn meal agar, and by biochemical tests like sugar assimilation, sugar fermentation and urease tests.

Out of 100 HIV seropositive study subjects, there were 68 males and 32 females. The predominant age group was 31-40 years. Oral candidiasis (88%) was the most common type of candidiasis observed followed by esophageal candidiasis (10%); 2 patients showed candidiasis at both sites. There were 109 cultures grown from 98 patients while 2 patients did not yield any growth. The CD4 count of these patients ranged between 23 to 895. In 65 patients, the CD4 count was less than 350 while in the remaining 35 patients, the count was higher. *Candida albicans*, which was grown in 42-38.5% was the most common species isolated followed by *Candida tropicalis* (29-26.6%), *C. guilliermondii* (13-11.9%), *C. parapsilosis* (10-9.2%), *C. lusitaniae* (6-5.5%), *C. krusei* (5-4.6%), *C. dublinensis* (2-1.8%) and *C. glabrata* (2-1.8%). A single isolate was obtained in 87 patients and mixed isolates in 11 patients.

The proportion of *Candida albicans* and non-*Candida albicans* were found to be 38.5% and 61.5% respectively. The increased isolation of non-*Candida albicans* species concurs with other studies from Mysore and Andhra Pradesh (28.3% and 42.4% of *Candida albicans* and 71.7% and 58% of non-*Candida albicans* respectively).^[2,3] On the contrary, *Candida albicans* was the predominant cause of candidiasis in studies from Colombia (75.3%) and Pune (65%).^[4,5]

Among non-*Candida albicans* species, *Candida tropicalis* (26.6%) was the predominant species isolated, a finding that concurs with the studies from Colombia and Pune. The low proportion (1.8%) of *C. glabrata*, an emerging drug resistant isolate, in our study was similar to the findings of Champa,^[2] but differs from the findings of Castro *et al.* who reported *C. glabrata* to be the most common non-*Candida albicans* species in HIV-reactive patients.^[4]

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The diagnosis of candidiasis is usually made based on clinical symptoms and physical examination. However, as species other than *Candida albicans* are less susceptible to therapy and are emerging as drug resistant pathogens, culture of the sample with speciation and drug susceptibility testing appears necessary.

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