Emerging Microbiological Trends in Candiduria

SIR—During the past 30 years, Candida in urine has evolved from a scientific curiosity described mainly in case reports to a common finding seen in 10% of hospitalized patients who have a pathogen recovered from urine [1]. The microbiology of candiduria differs from that of candidal infections at other sites in that, although Candida albicans remains the most common species found in cases of candiduria, non-albicans species of Candida constitute a higher proportion of isolates from other sites of candidal infection [2]. We undertook a study to identify the clinical and microbiological trends in candiduria at our 1900-bed tertiary-care center.

Among 12,618 urine specimens cultured from January through August 2001 (a total of 8 months), only 21 specimens with >100,000 cfu/mL of Candida species were seen. Of the 21 individuals who provided these specimens (age range, 2–70 years), 13 were female. Twenty of these patients were hospitalized at the time of fungal isolation, and 1 was treated as an outpatient. Concomitant factors included the following: presence of a self-retaining urethral catheter in 14 patients; bacterial infection at another site in 12; prior therapy with an antimicrobial for 10 (cephalosporins for 8 patients, fluoroquinolones for 5, penicillins for 4, metronidazole for 4, and aminoglycosides for 2); renal failure (defined as a creatinine level of ≥1.5 mg/dL) in 9; diabetes mellitus in 8; and urological malignancies in 3. Ten subjects were located in intensive care units, and 8 underwent nonurological surgeries prior to candidal isolation.

Candida species were isolated from another site in 2 subjects: from a surgical wound in one and from sputum in the other. Candidemia was not discovered. Of the 21 patients, only 5 were treated. Three recovered with catheter removal alone; oral fluconazole and intravenous amphotericin B was administered to 1 subject and oral fluconazole alone was administered to another. Eight subjects (38.1%) died during the hospital stay, and 1 subject had persistent candiduria, despite treatment.

Of the 21 Candida isolates, Candida tropicalis was more common (accounting for 9 of 21 isolates) than Candida glabrata and C. albicans (each accounting for 4 of 21) while 4 specimens identified as non-albicans species of Candida were not further speciated. All 4 C. glabrata isolates were recovered from female urinary tracts.

Most observational studies of candiduria have reported C. albicans to be the predominant species isolated. Although patient characteristics in our study were similar to those previously observed, C. albicans was the species isolated for only 19% of our subjects, with the other 81% of isolates being non-albicans species, the most prevalent of which was C. tropicalis (43%). We are not the first to report a predominance of non-albicans species in candiduria. In 1997, Chakrabarty et al. [3] reported C. tropicalis to be the predominant species isolated from 46 children with candiduria—C. tropicalis was found in 58.7% of the children—whereas C. albicans was isolated from only 19% of them. De Oliviera et al. [4] found C. albicans in only 22% of their 166 candiduria patients. When viewed together, these 3 recent studies suggest that the fungal species causing candiduria might be shifting to the non-albicans spectrum.

The emergence of non-albicans species of Candida in bloodstream isolates is well established, and these species have constituted a majority of isolates in many cancer centers since the late 1980s [5]. This has been attributed to the widespread use of triazole-based antifungal prophylaxis for chemotherapy-induced neutropenia. The changing microbiological trends in candiduria, however, remain unexplained, and the current evidence does not support a significant role for antifungal prophylaxis. This occurrence has to be viewed with concern, because the newly emerging species are either intrinsically resistant to azoles (e.g., C. tropicalis) or susceptible only to high doses (e.g., C. glabrata). Strategies to counter this rising threat, includ-
ing the development of novel antifungal agents, need to be worked out.

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