A detailed study of Trichosporon fungemia cases from tertiary care center in north India

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Objective: Incidence of fungemia with Trichosporon spp is increasing especially in immunocompromised patients. High mortality of 40% is associated with T. funigera. Trichosporon species are intrinsically resistant to subinhibitory, sublethal high MICs of voriconazole, but have a propensity to form biofilms and develop resistance to antifungal agents and timely diagnosis. Cases of Trichosporon fungemias are often misdiagnosed and under-reported owing to the difficulties in diagnosis. Here, we report the clinical presentation and outcome of Trichosporon fungemia cases at the tertiary care center from north India.

Methods: This is a descriptive study conducted at the Department of Medical Microbiology, PGIMER, Chandigarh, India. A total of 8 patients who had fungemia due to Trichosporon spp were included in the study. Trichosporon spp was identified by matrix-assisted laser desorption ionization-time of flight mass spectrometry (MALDI-TOF MS). The study was approved by the institutional ethics committee.

Antifungal susceptibility was done using microdilution method as recommended by the Clinical and Laboratory Standards Institute (CLSI). Beta-D-glucan (BDG) assay was performed as per the manufacturer’s recommendations. Demographic and clinical data along with outcome of all the patients were recorded from medical records.

Results: The average age of presentation of patients diagnosed with Trichosporon fungemia was 44 years and the male to female ratio was 5:3. The underlying conditions included neutropenic patients (n = 2), infection endocarditis (n = 2) and renal transplant (n = 1). The other factors included case of broad spectrum antibiotic (n = 2), a central venous catheter (n = 4), and prior surgical procedures (n = 1). BDG test was noted in 4 patients and 4 patients had a positive value of >80 pg/ml. A total of 19 had received anti-fungal treatment. Six patients clinically improved and were discharged while two patients died of refractory shock despite treatment with amphotericin B. Minimum inhibitory concentration of Trichosporon isolates was (range): amphotericin B 0.5-16 μg/ml, fluconazole 0.12-5 μg/ml, voriconazole 0.05-1 μg/ml, micafungin 0.05-1 μg/ml and posaconazole 0.05-0.1 μg/ml.

Conclusion: Trichosporon spp are an opportunistic pathogen causing fungemia in immunocompromised patients. Most of the patients in our study were immunocompromised except for one out-patient presentation. BDG helps in the diagnosis of this infection. The study highlights the need to accurately diagnose Trichosporon infections and perform antifungal susceptibility testing for guiding appropriate management and reducing mortality.

Table 1. Prevalence of risk factors

| Prevalence |
|----------------|
| Usage of broad-spectrum antibiotics | 100% (7/7) |
| Presence of central venous catheter | 77.8% (7/9) |
| Surgical intervention/USG guided aspiration | 100% (13/13) |
| Intensive care unit (ICU) admission | 35.7% (5/14) |

Conclusion: Role of Candida species in the pathogenesis of adventitious cases of case of pan-candidiasis has been suggested in the past. The study is well-designed and appropriately powered to clearly answer the question of interest. The results of Scoring for Candida spp should be carried out in these patients in view of starting antifungal treatment at the earliest possible so that proper diagnosis and management can be undertaken.

Possible Candida infection of pancreatic tissue was considered when Candida spp were isolated from:
1. Abdominal drain effluent (at least two samples in postoperative patients, or
2. Candida spp grown in only in blood culture.

Relevant patient information was obtained from hospital information system. Data were analyzed by SPSS 20 statistical software and MS Excel.

Results: A total of 14 cases were identified amongst which 6/14 (42.8%) had true Candida infection whereas possible Candida infection was seen in 8/14 (57.1%) patients. Out of these, 6 (42.8%) were the predischarge species seen in 8/14 (57.1%) whereas C. albicans was seen in 4/14 (28.6%). One isolate of C. auris was identified. Patients with C. tropicalis infection showed higher mortality (69%, 66.6%) as compared with patients with other Candida species, in whom 20% (15) mortality was noted. Acknowledging limitations inherent to retrospective data extraction, we delineated some of the possible risk factors predisposing to Candida infection, given in Table 1.