Role of Fluconazole prophylaxis in decreasing Candida colonization among neutropenic children with Hematological Malignancies.


Abstract:

Invasive fungal infection is a leading cause of infection related mortality among patients with hematological malignancies, associated with prolonged and severe neutropenia. So, antifungal prophylaxis may be a good approach for neutropenic patients undergoing intensive myelosuppressive chemotherapy. Aim of the study: to study the prevalence and types of Candida colonization among neutropenic pediatric patients with hematological malignancies, to study the role of antifungal prophylaxis in decreasing Candida colonization and infection and in prevention of invasive Candida infection among severe and prolonged neutropenic children with hematological malignancies. Methods: the study included 64 children patients with severe and prolonged neutropenia associated with hematological malignancies. Group I: 32 patients received Fluconazole prophylaxis and Group II: 32 patients received placebo. Candida colonization and types was identified using phenotypic methods (Sabouraud's Dextrose agar, Hichrome Candida Differential agar, Cezpek Dox Agar with Tween 80, Germ tube test and Sugar assimilation test) and genotypic methods using PCR to detect type and species of Candida; for different samples [oral, rectal, blood, and urine] at base line and end of the study. Antifungal susceptibility test using agar disc diffusion method was used to test isolated strains. IgM for Candida albicans was done for all patients. Results: Pediatric patients (N = 64) with age 1.5 – 16 years old, 45 males and 19 females, with hematological malignancies and severe prolonged neutropenia. Colonization by Candida species was found in 54 samples (42%) in group I at base line against 47 samples (37%) in group II (P = 0.08), most of them from oral and rectal samples. These isolates were C. albicans (33), C. glabrata (6), and C. tropicalis (3) in group I, against 31, 7, and 2 isolates respectively in group II at base line (P= 0.295). For all types of samples; C. albicans was the most sensitive isolate to fluconazole followed by C.glabrata and C. tropicalis. There was reduction of overall colonization in group I from 42% to 38% while increase in colonization from 37% to 56% in group II (P = 0.08). IgM for C. albicans was statistically significant (P= 0.02) with the subgroups of hematological malignancies.Conclusion:Candida species colonization is a common problem in children with hematological malignancies and severe neutropenia. C. albicans is the most common species encountered in isolated samples. It's also the most sensitive to fluconazole. Fluconazole plays a major role in reduction of colonization, so it's recommended to use it in such cases.

Keywords:

Candida, fluconazole, haematological malignancies

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