

A comparative study of persistent versus non-persistent candidemia among neonates

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Background: Candidemia is a rising problem in neonatal intensive care unit (NICU). Many risk factors have been identified which render this group of patients more prone to develop invasive candidiasis. However, it remains to be explained why the response to appropriate antifungal therapy (AAFT) results in different outcomes in neonates? This retrospective study was aimed to evaluate epidemiology and risk factors associated with persistent (PC) vs. non-persistent (NPC) candidemia in neonates despite receiving AAFT.

Patients & Methods: The study was performed by reviewing the files of the neonates with discharge diagnosis of candidemia during a period of 3 years (2013-2015). A case was defined as PC if *Candida* spp. was re-isolated from blood after ≥ 5 days of initiation of AAFT, while a NPC case tested negative for *Candida* on repeat blood cultures done within 5 days of therapy. The demographic features, potential risk factors and the outcome were recorded for each patient. All *Candida* isolates were characterized and antifungal therapy used in each case was recorded, which included amphotericin B alone or in combination with fluconazole and or caspofungin.

Results: A total of 118 neonatal candidemia cases were identified during the study period. Of these 74 (62.7%) and 44 (37.3%) had PC and NPC respectively. Analysis of data on demographic and neonatal characteristics revealed that the PC was more often diagnosed than NCP in neonates with gestational age (GA) of 24-28 weeks (81.1% vs. 38.6%), whereas NCP was more often seen than PC in babies with GA of 29-33 weeks (52.3% vs. 16.2%). Similar comparison was observed in neonates with birth weight (BW) of ≤ 1000 g having PC (78.4%) and NCP in 29.5% cases. On the other hand, patients with BW of 1000-1500 g had NPC (43%) more often than PC (12.2%). No difference was observed in the two groups, when risk factors such as central venous catheter, intubation, total parenteral nutrition and bacterial infection were compared. *C. parapsilosis* (38/118) was the most common species isolated from both PC (51.4%) and NPC (36.4%) groups whereas *C. albicans* was isolated from 13 cases. In NPC and PC groups, 31 (70.5%) and 17 (23%) neonates were treated with amphotericin B alone, respectively whereas different combinations of AAFT were more often used in the PC group. Mortality rate was 58.1% in PC as compared to 20.5% in the NPC group.

Conclusions: Although *C. parapsilosis* was found to be the most frequently isolated species among both PC and NCP cases, mortality rate was significantly higher in the former group despite receiving one or multiple AAFT.

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