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Candida colonization and species identification by two methods in NICU newborn

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Background: Colonization of skin and mucous membranes with Candida spp. is important factor in the pathogenesis of neonatal infection and invasive candidiasis. The aim of this study was to detect Candida colonization in NICU patients.

Methods: This cross-sectional study was conducted on 93 neonates in NICUs at Imam Khomeini and Children Medical Center Hospitals in Tehran. Cutaneous and mucous membrane samples obtained at first, third, and seventh days of patients' stay in NICUs. The samples were primarily cutured on CHROMagar Candida medium. The cultured media were incubated at 35°C for 48h and evaluated based on colony color produced on CHROMagar Candida. In addition, isolated colonies were cultured on Corn Meal Agar medium supplemented with tween 80 for identification of Candida spp. based on their morphology. Finally PCR-RFLP method was performed for definite identification of isolated species.

Results: Colonization by Candida spp. was occurred in 20.43% of neonates. Fifteen and four patients colonized with one and two different Candida spp., respectively. Using Fisher's exact test, the correlation between fungal colonization with low birth weight, low gestational age, and duration of hospital stay was found to be statistically significant (P=0.003).

Conclusion: The results of this study imply to the candida species colonization in neonates. Neonates in NICU are at the highest risk for severe infection with Candida para psilosis. Therefore, isolation of C. parapsilosis as the most common species (43.47%) in present study was noteworthy.

Keywords: candida, candida parapsilosis, colonization, neonatal intensive care units, polymerase chain reaction