

High Proportion of Mucosal Barrier Injury - Laboratory Confirmed Bloodstream Infection in the Paediatric Oncology Unit: Four years' Experience from a Cancer Center in Eastern India

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High Proportion of Mucosal Barrier Injury - Laboratory Confirmed Bloodstream Infection in the Paediatric Oncology Unit: Four years' Experience from a Cancer Center in Eastern India

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Introduction: Blood Stream Infections are associated with increased morbidity, mortality, health care costs and healthcare resource utilization. Children with malignancy have a high risk for infections due to neutropenia, immunosuppressive therapy, individual immune and nutritional status, chemotherapy infusion, radiotherapy, impaired mucosal barrier, and presence of different types of indwelling catheters. The primary objective was to assess the burden of MBI-LCBI-1 in the paediatric unit of a tertiary oncology hospital in eastern India for four years.

Methodology: A retrospective analysis of all BSI-s in the paediatric unit of a tertiary oncology hospital in eastern India for four years (2021-2024) was performed. MBI-LCBI-1 and DUR were determined using the standard CDC/NHSN criteria. The CDC/NHSN bloodstream infection case report form included microbiological profile and clinical information. Blood cultures were done using the BACT-ALERT system and antibiotic susceptibility testing performed using VITEK2 system.

Results: A total of 83 positive blood cultures were obtained from 82 patients during the study period. Forty-five cases of MBI-LCBI-1 from 44 patients. Total Patient days and central line days were 25,321 and 23,362 respectively. The device utilization ratio of the central line was 0.92. 94% were Gram negative bacilli, 3% Gram positive cocci and 3% Candida species.

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Klebsiella pneumoniae was the commonest gram-negative bacilli. Amongst the multidrug resistant organisms (MDROs) associated with MBI-LCBI-1, carbapenem-resistant enterobacterales was detected in 35%, carbapenem-resistant *Acinetobacter baumannii* complex in 3%, carbapenem-resistant *Pseudomonas aeruginosa* in 5%. Eight out of 44 patients with MBI-LCBI-1 died within 30 days of BSI (all-cause mortality). There were no isolates of Methicillin-resistant *Staphylococcus aureus* and vancomycin resistant enterococci.

Conclusion: All patients who died had MDRO isolates. Strict adherence to standard and contact precautions, with a high level of awareness is necessary for lowering the incidence of BSI.