Bacteriological profile of blood culture isolates in a cancer hospital with special reference to E. coli and its Antibiotic susceptibility pattern in patients with Haematological malignancies

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**Background:** Blood stream infections are an important cause of morbidity and mortality especially in febrile neutropenic patients. *Escherichia coli* (E. coli) is a pathogen of great concern in immunosuppressed patients. On time diagnosis and appropriate medication will be the best way to save the lives of the affected ones.

**Methods & Materials:** The objective of the study is to describe the pattern of bacterial isolates from Blood cultures with special reference to E. coli as an important pathogen and to determine the antibiotic susceptibility pattern of E. coli. This is a retrospective analysis of 1455 Blood cultures collected from clinically suspected cases of bacteremia between Jan 2014- Oct 2015 in a cancer hospital. The isolates were identified by standard biochemical tests and also by fully Automated BD phoenix instrument. Antimicrobial susceptibility was done by the Kirby bauer disk diffusion method following the standard CLSI guidelines.

**Results:** Positive cultures were obtained in 376 (25.84%) cases. Among culture positive isolates, Gram negative bacteria accounted for 51.59%, most common being *E. coli* (25.79%) followed by *Pseudomonas* species (7.71%). Out of 97 non- repetitive *E. coli* isolated 76.2% were sensitive to Amikacin, 79.38% were sensitive to Imipenem, 45.36% were sensitive to Piperacillin + Tazobactum & 46.39% were sensitive to Cefaperazone + Sulbactum. 87.63% of *E. coli* isolates were resistant to Levofloxacin and Cefepime & 74.23% were resistant to trimethoprim and sulphamethoxazole.

**Conclusion:** *E. coli* is a major pathogen in hematologic malignancy patients with neutropenia. As part of their treatment regimens, such patients are exposed to chemotherapy, radiation, and antimicrobials in a short time period. As a result, the equilibrium between the intestinal microbiota and mucosal epithelium is disrupted, causing large shifts in bacterial populations inhabiting the gut thus making the patient susceptible to bloodstream infections. Fluoroquinolones, are widely used to protect these patients against Gram-negative bacteremia. Increasing resistance to Fluoroquinolones is alarming. In future treating neutropenic patients with hematologic malignancies may deal with monitoring microbial gut diversity through treatment, whether monitoring these microbial shifts help us treat or prevent MDR *E.coli* bacteremia in these patients remains unanswered.

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