

## Bacteriological Spectrum and Resistance Patterns of Common Clinical Isolates from Infections in Cancer Patients

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**Abstract :** Introduction: Cancer patients are at increased risk of bacterial infections. This may due to the disease process itself, the effect of chemotherapeutic drugs or invasive procedures such as catheterization. A wide variety of bacteria including some emerging pathogens are increasingly being reported from these patients. The incidence of multidrug-resistant organisms particularly in the Gram negative group is also increasing, with higher resistance rates seen to cephalosporins,  $\beta$ -lactam/ $\beta$ -lactam inhibitor combinations, and the carbapenems. This study documents the bacteriological spectrum of infections and their resistance patterns in cancer patients. Methods: This study includes all bacterial isolates recovered from infections cancer patients over a period of 18 months. Samples included Blood cultures, Pus/wound swabs, urine, tissue biopsies, body fluids, catheter tips and respiratory specimens such as sputum and bronchoalveolar lavage (BAL). All samples were processed in the microbiology laboratory as per standard laboratory protocols. Organisms were identified to species level and antimicrobial susceptibility testing was performed manually by the disc diffusion technique or in the Vitek-2 (Biomereux, France) instrument. Interpretations were as per Clinical laboratory Standards Institute (CLSI) guidelines. Results: A total of 1150 bacterial isolates were cultured from 884 test samples during the study period. Of these 227 were Gram-positive and 923 were Gram-negative organisms. Staphylococcus aureus (99 isolates) was the commonest Gram-positive isolate followed by Enterococcus (79) and Gr A Streptococcus (30). Among the Gram negatives, E. coli (304), Pseudomonas aeruginosa (201) and Klebsiella pneumoniae (190) were the most common. Of the Staphylococcus aureus isolates 27.2% were methicillin resistant. Only 5.06% enterococci were vancomycin resistant. High rates of resistance to cefotaxime and ciprofloxacin were seen amongst E. coli (84.8% & 83.55%) and Klebsiella pneumoniae (71 & 62.1%) respectively. Resistance to carbapenems (meropenem) was high at 70% in Acinetobacter spp.; however all isolates were sensitive to colistin. Among the aminoglycosides, amikacin retained good efficacy against Escherichia coli (82.9%) and Pseudomonas aeruginosa (78.1%). Occasional isolates of emerging pathogens such as Chryseobacterium indologens, Roseomonas, and Achromobacter xyloxidans were also recovered. Conclusion: The common infections in cancer patients include respiratory, wound, tract infections and sepsis. The commonest isolates include Staphylococcus aureus, Enterococci, Escherichia coli, Klebsiella pneumoniae and Pseudomonas aeruginosa. There is a high level of resistance to the commonly used antibiotics among Gram-negative organisms.

**Keywords :** bacteria, resistance, infection, cancer

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