

A Comparison of Pathogenic Bacterial Spectrum and Antibiotic Susceptibility Pattern in Adult Cancer and Non-Cancer Patients Who Have Received Prior Antibiotic Therapy at Two Tertiary Care Institutions – Preliminary Findings

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Infectious diseases are an important cause of increased morbidity and mortality among patients of all age groups particularly in the immunosuppressed including those with malignancies. Objective of this study was to compare the spectrum of pathogenic bacteria causing respiratory infections, skin and soft tissue infections (SST) and complicated urinary tract infections (UTI) in adults with malignancies and without, and their antimicrobial sensitivity pattern. Patients with diagnosed malignancies and those without, who presented with lower respiratory tract infections, SST and complicated UTI were included. Those with malignancies were selected from Apeksha Hospital, Maharagama while those without malignancies were selected from Colombo South Teaching Hospital. Samples were collected from May 2018 to September 2018. Both patient groups were on antibiotic therapy at the time of specimen collection. All those with malignancies were also on immunosuppressive therapies. Pathogenic bacteria were isolated from sputum, pus, urine, wound swabs and broncho-alveolar lavage specimens. Samples obtained from 59 patients with malignancies and 68 patients without malignancies were analyzed. Lower respiratory tract infections were predominant (42% / n=25) among cancer patients whereas in non-cancer patients it was complicated UTIs (41% / n=28). In cancer patients, majority of the infections were caused by coliform bacteria (63%, 37) followed by *S. aureus* (17%, 10) and *Pseudomonas* spp. (10%, 6). Coliform bacteria were the predominant pathogen in non-cancer patients (72%, 49) followed by *Pseudomonas* spp. (13%, 9) and *S. aureus* (9%, 6). Of the *S. aureus* isolates obtained, 7/10 in cancer patients and 4/6 from non-cancer patients were methicillin resistant (MRSA). Inducible clindamycin resistance was observed in 2 *S. aureus* isolates from cancer patients while it was not detected among non-cancer patients. Multi drug resistant *Acinetobacter* species was isolated from 4 cancer patients and 1 non-cancer patient with respiratory infection. Imipenem/ meropenem resistance rate in coliform was 43.2% (16/37) among cancer patients and 16.3% (8/49) among non-cancer patients. Amikacin showed the highest sensitivity rate for coliform bacteria in both patient groups; 78.3% (29/37) in cancer patients and 85.7% (42/49) in non-cancer patients. All the *Pseudomonas* spp. isolates obtained from non-cancer patients were sensitive to imipenem and meropenem while in cancer patients the sensitivity was observed as 50% (3/6) to imipenem and 33.3% (2/6) to meropenem. Higher antibiotic resistant rates were observed in the patients with malignancies in comparison to those without malignancies which could be a major problem when selecting antibiotics for the treatment of infections in that patient population.

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