

Antibiogram of Carbapenem-resistant Gram Negative Bacteria Causing Urinary Tract Infections

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Urinary tract infections (UTI) caused by carbapenem-resistant (CR) Gram-negative bacteria (GNB), is a serious problem in clinical settings. Previous studies were conducted on the antibiogram of antibiotic-resistant bacteria. However, a recent update on CR-GNB in Sri Lanka is unavailable. Organisms were identified by biochemical tests and antibiotic susceptibility patterns. A total of 99 meropenem and/or imipenem-resistant isolates by disc diffusion method were collected from January to December 2023 at the University Hospital, Kotelawala Defence University and Apeksha Hospital. The majority were CR Enterobacteriaceae (CRE) (57.6%) followed by CR *Pseudomonas* spp. (CRP) (19.2%), CR *Acinetobacter* spp. (CRA) (15.2%) and other CR-GNB (8.1%). Beta-lactam sensitivity among organism groups was <20%. Among CRE, sensitivity to at least one of the aminoglycosides, quinolones, nitrofurans, and sulfonamides was 21.49%, 9.89%, 18.06% and 12.83%. respectively. CRP were sensitive to aminoglycosides (20.02%), quinolones (9.72%), and sulfonamides (3.34%). All CRA were 100.00% resistant to quinolones, nitrofurans, and sulfonamides while 15.00% sensitive to aminoglycosides. Cefoperazone-sulbactam sensitivity was 3.34% and 12.83% in CRP and CRE while 0.00% in other CR-GNB and CRA. The sensitivity of other CR-GNB to aminoglycosides, quinolones, nitrofurans, and sulfonamides were 41.66%, 44.45%, 0.00% and 0.00% respectively. CRE, CRP, and CRA showed 100% sensitivity to colistin and polymyxin-B except for CR-GNB which showed 100% resistance. Antibiotic sensitivities didn't differ statistically among different organism groups ($p>0.05$). High antibiotic resistance rates were observed among CR-GNB, resulting in limited antibiotic options. Robust infection control measures and prudent use of last-resort antibiotics should be implemented to combat CR-GNB threat in Sri Lanka.

Keywords: *antibiotic resistance, carbapenem resistance, Gram negative bacteria, Sri Lanka, urinary tract infections*