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Study of culture and antibiotic sensitivity of bacterial isolates in patients with urinary tract infection at OPD National Hospital Kandy

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Urinary tract infection (UTI) is a common medical problem. Knowledge on local antimicrobial susceptibility patterns among urinary isolates will guide clinicians to deliver effective treatment while avoiding unnecessary usage of broader spectrum antibiotics. The purpose of this study is to isolate and determine the antibiotic sensitivity patterns of bacterial isolates in patients with UTI attending outpatient department at National Hospital Kandy. In this study, 403 patients with symptoms of UTI were selected with the help of the medical officers. Urine samples were collected and inoculated on Cystine Lactose Electrolyte Deficient Agar (CLED). Pure growth concentrations of 10^4-10^5 CFU/ml were considered. Single-organism identification is done by using relevant biochemical tests. ABST was performed on all isolated bacteria by the Clinical and Laboratory Standards Institute (CLSI) disk diffusion method. SPSS version 21 was used to analyze the data with statistical significance at $p < 0.05$. From 403 UTI patients, 24.3% (98 out of 403) revealed significant bacterial growth. The majority of the bacteria isolated from the samples were coliforms (67%), followed by *Staphylococcus saprophyticus* (14%), *Streptococcus* spp. (6%), A*cinetobacter* spp. (4%), *Pseudomonas* spp. (4%), *Enterococcus* spp. (2%) and *Proteus* spp. (2%). In this study 10% of the identified coliforms exhibited multidrug resistance (MDR), with particular emphasis on the need for cautious antibiotic selection. Moreover, in this study coliforms exhibited significant resistance against ciprofloxacin (54.5%) and co-amoxiclav (46.9%). Furthermore, *Enterococcus* spp. and *Streptococcus* spp. showed 100% sensitivity to ampicillin and vancomycin and *Acinetobacter* spp. showed high levels of resistance to tetracycline (75%). On the other hand, the study revealed that nitrofurantoin as an effective treatment for *Staphylococcus saprophyticus*. Current study showed that coliforms are the predominant uropathogen and nitrofurantoin, amikacin and piperacillin-tazobactam are highly effective antibiotics for treating Gram-negative bacilli.

Keywords: UTI, Antibiotic sensitivity pattern, Bacterial isolates