



Antibiotic resistance pattern of Uropathogenic *Escherichia coli* isolates of suspected UTI patients

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Abstract

Introduction: *E. coli* is the organism responsible for many bacterial infections, such as, Urinary Tract Infection (UTI) (70- 90%) of all the diseases caused by the microorganism. About 40-50% of women, globally, suffer from UTI. Urinary tract infections (UTIs) remain the common infections in out-patients as well as in in-patients. The present study aimed to analyze antibiotic resistance pattern of Uropathogenic *Escherichia coli* isolates of suspected UTI patients

Materials and methods: The prospective cross-sectional, laboratory-based study, conducted in the clinical microbiology laboratory of the medicover hospital between august 2019 to march 2020. About 326 patients, including in-patient (IP) and out-patient (OP) of various age group and sex with clinically suspected symptoms for UTI. All samples were inoculated on Cysteine lactose electrolyte deficient agar (CLED), Orientation agar, blood agar. Organisms grown in pure culture were identified and confirmed using standard the microbiological method which included Gram staining, colonial morphology on media, and growth on selective media, lactose fermentation, and antibiotic susceptibility test was done by VITEK-2 susceptibility research (AST-N280) card.

Results: Out of a total 113 Isolated *E. coli* were 80, The highest level of resistance towards Ampicillin was shown by more number of *E. coli* isolate samples (77.5%), followed by Nalidixic Acid (76.25%), Ciprofloxacin (75%), Cefuroxime (69%), Cefuroxime Axetil (69%), and Ceftriaxone (68%). Moderate resistance observed towards Trimethoprim (46%), and Amoxicillin/ Clavulanic Acid (34%), Cefepime (29%). High sensitivities were shown in case of Tigecycline (100%) followed by Colistin (99%)

β -lactamase producing *E. coli* accounted to 62 number (77.5%) of the samples isolated. Similarly, susceptible *E. coli* accounted for only 18 (22.5%) of the samples isolated. Overall prevalence of ESBL



producing *E. coli* was 60 samples. Similarly, KPC producing *E. coli* was prevalent in 13 samples. The IP urine samples indicate higher amounts of CTX-M type of ESBLs demonstrating that it is multiresistant to many antibiotics available.

Conclusion: There were increasing incidence of MDR *E. coli* which showed resistance toward different groups of antimicrobial agents such as β -lactams, aminoglycosides and fluoroquinolones. The Uropathogenic *E. coli* isolated from in-patients generally showed higher resistance rate compared to those isolated from out-patients to tested antibiotics. The antibiotic resistance because of beta lactamase production was a serious problem in UTI narrowing down the choice of antibiotics for treatment. So, in future it is required to found regular screening for beta lactamase production for all Uropathogenic *Escherichia coli* causing urinary tract infection.

Keywords OPD, IPD, multidrug resistant, antibiotic susceptibility.

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Conflicts of interest: None declared

Ethical approval: The study was approved by research advisory committee of Career point University Kota, Rajasthan