Extended spectrum beta lactamase producing *Escherichia coli* from urinary tract infection in northern Iran

Mana baziboroun¹; Masomeh Bayani*¹; Zahra poormontaseri²; Zohreh Eslamdoost³; Seyyed Mojtaba Mehdipour⁴

1. Infectious Diseases and Tropical Medicine Research Center, Health Research Institute, Babol University of Medical Sciences, Babol, I.R. Iran.
2. Department of infectious disease, Fasa University of Medical Science, Fars, Iran.
3. Shahid Yahyanejad Hospital, Babol Medical University, Babol, IR Iran

**ARTICLE INFO**

**ABSTRACT**

**Keywords:**
Extended spectrum beta lactamase
*Escherichia coli*
Urinary Tract Infection

**Introduction:** The incidence of urinary tract infections (UTIs) due to extended-spectrum beta-lactamase (ESBL) producing *Escherichia coli* (*E. coli*) isolates, has increased worldwide and is considered a great problem in treatment of infections. The purpose of this study was to determine the prevalence and antibiotic susceptibility pattern of ESBL producing *E. coli* isolates in patients with UTI in Babol, North of Iran.

**Materials and Methods:** This cross-sectional study was done in shahid Yahyanejad Hospital, Babol, Iran from August 2016 to August 2017. A total 4957 urine samples were evaluated for bacterial culture using conventional methods. Antibiotic susceptibility test was done by disc diffusion method and prevalence of ESBL producing *E. coli* was assessed by Double-Disk method.

**Results:** A total of 352 samples showed growth of pathogens. Among 127 *E. coli* isolated from hospitalized patients, 40/94% were ESBL producers and among 84 *E. coli* from outpatients, the rate of ESBL production was 29/76%. In ESBL producers, the highest percent susceptibility was seen to piperacillin-tazobactam (95.6%), meropenem (93.3%), amikacin (93.8%) and nitrofurantoin (91/4%). While high percent of resistance was found against cefotaxime (95.8%), ceftriaxone (91/7%) and ceftazidime (73/3%) and ciprofloxacin (70/4%).

**Conclusion:** With regard to high percentage of ESBL producing *E. coli* and their susceptibility pattern in our study, Among the oral drugs, nitrofurantoin can be used in outpatients with UTI and between parenteral drugs piperacillin-tazobactam, meropenem and amikacin can be the alternative choice for inpatients.