Short Communication

Prevalence of CTX-M-15 type of beta-lactamase gene in Escherichia coli strains using PCR method

Ahanjan M (Ph.D)¹, Morsal-Jahan Z (B.Sc)²
Hashemi B (B.Sc)*³, Nazar E (B.Sc)⁴, Ghorbani S (M.Sc)⁵

¹Associate Professor, Department Microbiology, Faculty of Medicine, Mazandaran University of Medical Sciences, Sari, Iran. ²M.Sc Student in Immunology, Student Research Committee, Mazandaran University of Medical Sciences, Sari, Iran. ³M.Sc Student in Microbiology, Student Research Committee, Mazandaran University of Medical Sciences, Sari, Iran. ⁴M.Sc Student in Biostatistics, Faculty of Health, Mazandaran University of Medical Sciences, Sari, Iran. ⁵Ph.D Candidate in Virulogy, Faculty of Health, Tehran University of Medical Sciences, Tehran, Iran.

Abstract

Background and Objective: Beta-lactamase enzymes are the most important resistance factors among Gram-negative bacteria to the beta-lactam group of antibiotics. This study was conducted to determine the prevalence of extended-spectrum beta-lactamases (ESBL) in Escherichia coli isolates using PCR method.

Methods: This descriptive – analytic study was conducted on 120 Escherichia coli samples isolated in hospitals in Sari in northern Iran during 2013. Antibiogram was conducted using combined disk method to determine the sample resistance. The presence of β- lactamase gene of CTX-M-15 in ESBL was assessed using PCR method.

Results: Out of 120 Escherichia coli, 98 (81.6%), 15 (12.5%) and 7 (5.8%) bacteria isolated from urinary tract, blood and wound, respectively. Multiple drug resistance were seen in 98% of urine samples, 12.7% of blood samples and 3.6% of wound samples (P<0.05). 18.3% of multiple drug resistance samples were positive for CTX-M-15 β-lactamases resistance gene. The probable presence of CTX-M-15 were detected in blood sample (20%), urine sample and wounds (14.3%) (P<0.05).

Conclusion: Beta-lactamase enzymes were detected in high percent of Escherichia coli isolated from urine samples.

Keywords: Spectrum β-lactamases, Escherichia coli, CTX-M-15, Urinary tract

* Corresponding Author: Hashemi B (B.Sc), E-mail: behnam.hashemi02@gmail.com

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