Short Communication

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

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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 ß-lactamases, *Escherichia coli*, CTX-M-15, Urinary tract

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Received 21 Jun 2015 **Revised** 5 Dec 2015 **Accepted** 5 Jan 2016

Cite this article as: Ahanjan M, Morsal-Jahan Z, Hashemi B, Nazar E, Ghorbani S. [Prevalence of CTX-M-15 type of beta-lactamase gene in *Escherichia coli* strains using PCR method]. J Gorgan Uni Med Sci. Winter 2017; 18(4): 109-112. [Article in Persian]