Polymorphism of Escherichia coli isolated urinary tract infections containing beta-lactamase resistance gene CTX-M-1 group in Sanandaj

Arezo Omati*,Kambiz Davari, Shokrollahi,

are lactamases-β M-CTX producing Organisms :aims and Background چکیده انگلیسی emerging as a source of resistance to oxyiminocephalosporins such as ceftriaxone and ceftazidime. However, the laboratory detection of these strains is not well defined. The aim of this study was to determine the prevalence of CTX-M and CTX-M-1 group and determine the genetic relation in Escherichia coli in Sanandaj, Iran. Methods: In this study, 180 Escherichia coli strains Urinary tract infection were used. The pattern of antimicrobial resistance was determined by disk diffusion method. The ESBL production was determined by double disk diffusion method. CTX-M and CTX-M-1 group type of ESBL producing genes was detected by PCR. A possible clonal relationship among the strains was determined by repetitive extragenic palindromic sequence PCR. Results: Confirmatory phenotypic test showed that 49.44% of the strains were ESBL positive. PCR used for the detection of CTX-M gene, showed that 48(26.66%) out of 180 isolates contained such gene. In addition, 23 out of 48 strains contained CTX-M-1group genes. Base on rep-PCR, 48 genotypes among 48 CTX-M-positive samples were detected. Conclusion: Noticing the increasing rate of the ESBLs producing strains, using the appropriate treatment protocol based on the PCR pattern of the strains is highly recommended. The results of rep-PCR eliminates the clonal spread theory of an epidemic strain of E. coli, which means that all producing CTX-M gene not originated a strain and is spread among different strains. Therefore, hospitals and hospital staff should have more hygiene, proper disposal of hospital waste can help prevent the spread of ESBL.

Keywords : Keywords: CTX-M, CTX-M-1 group, Escherichia coli, Extended-Spectrum β-Lactamases, PCR, rep-PCR.