Antimicrobial Resistance to Ceftazidime and Ceftriaxone, and Detection of TEM Gene in Esherchia Coli

Abstract

Background and Objective: In the past, most strains of E. coli were susceptible to a wide range of antimicrobial agents, but this situation is now changed by indiscriminate use of antibiotics. Ceftriaxone and Ceftazidime are the most current antibiotics used for Enterobacteriaceae infections in hospitals. The aim of this study was to determine antimicrobial resistance of Esherichia coli strains isolated from patients.

Material and Methods: During a 12-month period, 200 clinical samples taken from patients referred to Zahedan hospitals were assessed to isolate Esherichia coli. Antibiotic susceptibility was determined by disk diffusion method and micro-broth dilution; and Bla TEM resistance genes were detected by PCR.

Results: Following phenotype verification testing, 112 isolates (56%) were produced Extended Spectrum Beta Lactamase (ESBLs) and 130 isolates were potential producers of beta-lactamase (ESBL). Using PCR, 72 isolates (38.55%) have TEM gene.

Conclusion: The rate of antibiotic resistance of Esherichia coli isolates to ceftriaxone and ceftazidime is high; therefore, it seems reasonable to do antibiogram before treatment.

Keywords: Extended-Spectrum-Beta-Lactamase, Esherichia coli, Disc Diffusion, Micro-Broth Dilution