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Evaluation of Broth Microdilution Method for detection of Extended-Spectrum Beta-Lactamases (ESBLs) producing Bacteria isolated from Urine Samples

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Urinary tractinfectionsarethemost common diseases inhumansandmost casesare **causedbyEnterobacteriaceae**.ESBL production by intestinal bacteria is responsible for their resistance to beta-lactam antibiotics and this makes it difficult to treat them.In this study, Broth Microdilution method for detection of ESBL production in bacteria isolated from urinary tract infections was used.

Methods: This study was performed on 150 isolated bacteria from individuals with UTI who were admitted to Imam Khomeini Hospital. Detection of extended spectrum beta-lactamase-producing by Broth Microdilution method was conducted. This method consists of two stages of screening and phenotypic confirmatory test.

Results: The study included 99 women (66%) and 51 men (34%), respectively. Among the 150 bacteria tested, 71 were identified in the initial phase as ESBL producing and 61 cases of these bacteria were confirmed by phenotypic confirmatory test. In this 61 confirmed cases,Cefotaxime in 34 cases (84/54%) showed a MIC greater than 64. with ceftazidime MIC was 4 mg/ ml.More than 90% of bacteria in the antibiotics Cefotaxime and ceftazidime combined with clavulanic acid showed a MIC less than 0.25.

Discussion: Results show that Broth Microdilution method can identify ESBL-producing organisms and also to show the effective doses of each antibiotics.

Key words: ESBLs, Enterobacteriaceae,Broth Microdilution method