Phenotype Study of Extended Spectrum β-Lactamase, AmpC and Carbapenemase Producing E.coli Obtained Clinical Samples/Babool/Iran

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Background & Objectives: Antibiotic resistant *E.coli* as the agents of nosocomial and acquired infections is an important therapeutic problem in the world. β-Lactam antibiotic group is used in treatment, commonly. *E.coli* can produce some kinds of Beta lactamase like ESBL, AmpC and carbapenemase against to these antibiotics. Usual lab tests aren't able to detect *E.coli* producing Beta lactamase, then, we decided to detect these bacteria by using of special phenotyping Methods.

Methods: 176 separated *E. coli* from clinical samples were transported to paramedical faculty microbiology lab. E.coli species was confirmed by API 20E strip test. Then, ceftazidime and cefotaxime disks (alone and with clavolanic acid), ceftazidime disk (alone and with 3-amino phenylboronic acid) and ceftazidime and 2-Mercaptopropionic acid disks were used for determination of *E. coli* producing ESBL, AmpC and Carbapenemase, respectively. Data was analyzed by SPSS.

Results: Among 176 detected *E.coli*, totally 141(80.2%) B-lactamase producing bacteria and 77 (43.8%), 50 (28.4%) and 14 (8%) bacteria produced ESBL, Carbapenemase and AmpC, respectively. Also, 40 (22.7%) bacteria produced ESBL and carbapenemase enzymes with each other. There was no bacterium that prouduced all kinds of these 3 enzymes.

Conclusion: Regardly to the results, the high percent of Beta-lactamase producing bacteria and bacteria producing two enzymes together are notable. Using of special phenotyping CLSI protocol for determination of these bacteria in the medical labs is suggested.

Keywords: *E. coli*; ESBL; AmpC; Carbapenemase