

Characterization of Phenotypic Virulence Factors in of *Escherichia Coli* Strain Isolated From Urinary Tract Infections (UTIs)

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Background & Objectives: Because *E.coli* is a versatile species containing both highly virulent and commensal strains, it is of importance to identify factors that are responsible for pathogenicity. *E.coli* is one of the microorganisms most frequently involved in urinary tract infections (UTIs). Uropathogenic *E.coli* (UPEC) show different virulence factors, such as adhesins, invasins, toxins, siderophores and genes required for capsular biosynthesis. Investigation at some phenotypical characterization of virulence factors in UPECs.

Methods: In this study one hundred thirty eight (138) *E.coli* strains were used. Strains were isolated from cases of UTI. The presence of the virulence factors; hemolysin, hemagglutination and cell surface hydrophobicity was analyzed by standard methods. In hemolysin test, strains were cultured on blood agar media. If the *E.coli* had hemolysin, the hemolytic zone around each colony was determined after overnight incubation. In hemagglutination test, if the bacteria have P fimbria, RBC (blood group A) is hemagglutinated. Any strain showing positive hemagglutination was tested again after 30 min incubation with 1% D mannose. The strain has type P fimbria, are resistant to mannose, otherwise they have type 1 fimbria. In cell surface hydrophobicity test, bacterial suspension was clotted by $Al_2(SO_4)_3$.

Results: From 138 UPEC, 45(32.4%) strains were positive hemagglutination; 29(64.5%) and 16(35.5%) strains had resistance mannose pili (P pili) and sensitive mannose pili respectively. Also 116(84%) strains were positive hemolysin and results of cell surface hydrophobicity test were 45(32.6%) strains positive. In finally 13(9.4%) strains had all of 3 virulence factors.

Conclusion: Results of this study show high prevalence at phenotypical virulence factors in UPECs isolated and therefore, it is essential to understand their pathogenesis and virulence factors, in order to develop a vaccine or to identify new targets for antimicrobial drugs.

Keywords: Virulence Factors; *Escherichia coli*; Urinary Tract Infection