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Distribution of *aatA*, *aap*, and *aggR* pathogenic genes among Uropathogenic *Echerichia coli* (UPEC) and their linkage with *StbA* gene

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Background: Urinary tract infection with *E.coli* (UPEC) is among common bacterial infections. In addition to the host predisposing factors, genes of pathogenic bacteria are also important factors in the occurrence of UTIs (Urinary tract infections). This study investigates the distribution of three pathogenic genes, *aggR*, *aap* and *aatA* and their linkage with the gene *stbA* (gene essential for maintaining Plasmid pAA) in UPEC infections.

Materials and Methods: *E.coli* samples from 244 patients with urinary tract infection were collected from clinical laboratories in West Tehran (Iran) on 2008-2009 years. *E.coli* isolation was performed according to standard laboratory methods. DNA was extracted from samples using Boiling, and the presence of pathogenic genes *aap*, *aggR*, *aatA* and *stbA* (gene essential for maintaining Plasmid pAA) was investigated by PCR method.

Results: Among 244 UPEC samples, 104 did not have any of the three pathogenic genes that among them 14 samples carried *stbA* gene. Among 140 UPEC samples with pathogenic genes, 94 carried (46.6%) *aap* gene, 52 samples (23%) *aggR* gene and 80 samples (35.4%) *aatA* gene as alone or in combination with each other. Among 140 UPEC samples, only 18 carried all the three genes *aggR*, *aap* *aatA* at the same time. Also the presence of *stbA* gene in 140 samples containing pathogenic gene or genes was not sustainable and only 44 samples showed this gene.

Conclusion: Our results showed that the pathogenic plasmid *aggR*, *aap* and *aatA* gene patterns in *E.coli* change in different clinical parts. Our studies also showed that these three genes from sites on plasmid exit and place in another location and greatly decrease linkage with pAA. However, this study showed that all three genes *aggR*, *aap* and *aatA* are not restricted to EAEC strains.

Keywords: Urinary Tract Infections, Uropathogenic *Echerichia coli*, Plasmid pAA

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