Shiga Toxigenic *Escherichia* coli in Diarrhetic Pediatric Patients; Virulence factors and Antimicrobial Resistance

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ABSTRACT

Objective: *Escherichia coli* is considered one of the prevalent causes of diarrhea in pediatrics. The current study aimed to assess the diarrhetic and non-diarrhetic *E. coli* virulence markers and antibiotic resistance distribution in pediatrics.

Materials and Methods: Two hundred and sixty stool specimens of diarrhetic and non-diarrhetic pediatrics were collected. The microbial culture was used for *E. coli* isolation and identification. Disk diffusion was applied to assess the *E. coli* isolates antibiotic resistance. PCR appraised the virulence factors distribution.

Results: The mean age of the examined diarrhetic and non-diarrhetic pediatrics were 1.1±0.3 and 1.0±0.4 years, with a 71/49 and 75/65 male to female ratio, respectively. Diarrhea (100%), fever (91.66%), and nausea (66.66%) were frequent symptoms in diarrheal patients. Bloody diarrhea was found in 16.566% of pediatrics. *E. coli* prevalence amongst the diarrhetic and non-diarrhetic pediatric patients was 35% and 7.14%, respectively ($P < 0.05$). The maximum resistance rate was obtained for gentamicin (82.69%), tetracycline (82.69%), ampicillin (80.76%), and penicillin (75%). *E. coli* isolates of pediatric patients presented a higher resistance rate toward all examined antibiotic agents ($P < 0.05$). *Stx1* (44.23%) and *eaeA* (40.38%) were more frequent amongst isolates. *E. coli* isolates of non-diarrhetic pediatric patients only harbored *stx1* (10%), *eaeA* (10%), and *ehlyA* (10%) genes. In total, 3.84% of *E. coli* strains of diarrhetic pediatric patients simultaneously harbored *stx1*, *eaeA*, and *ehlyA* virulence genes. *E. coli* isolates of diarrhetic pediatric patients harboured the highest distribution of all examined virulence genes ($P < 0.05$).

Conclusion and Recommendation: The simultaneous virulence factors and antibiotic resistance distribution in E. coli isolates showed high pathogenicity. Imipenem and cefixime prescription showed effective results against *E. coli* bacteria.

Keywords: Shiga toxigenic *Escherichia coli*, Diarrhea, Pediatrics, Antibiotic resistance, Virulence genes

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