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Pathogenic Escherichia Coli Strains and Their Antibiotic Susceptibility Profiles in Cases of Child Diarrhea at Addis Ababa University, College of Health Sciences, Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia

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Abstract : Background: The prevalence and antibiogram of pathogenic E. coli strains, which cause diarrhea vary from region to region, and even within countries in the same geographical area. In Ethiopia, diagnostic approaches to E. coli induced diarrhea in children less than five years of age are not standardized. The aim of this study was to determine the involvement of pathogenic E. coli strains in child diarrhea and determine the antibiograms of the isolates in children less than 5 years of age with diarrhea at Addis Ababa University College of Health Sciences TikurAnbessa Specialized Hospital, Addis Ababa, Ethiopia. Methods: A purposive study that included 98 diarrheic children less than five years of age was conducted at Addis Ababa University College of Health Sciences, TikurAnbessa Specialized Hospital, Addis Ababa, Ethiopia to detect pathogenic E. coli biotypes. Stool culture was used to identify presumptive E. coliisolates. Presumptive isolates were confirmed by biochemical tests, and antimicrobial susceptibility tests were performed on confirmed E. coli isolates by the disk diffusion method. DNA was extracted from confirmed isolates by a heating method and subjected to Polymerase Chain Reaction or the presence of virulence genes. Amplified PCR products were analyzed by agarose gel electrophoresis. Data were collected on child demographics and clinical conditions using administered questionnaires. The prevalence of E. coli strains from the total diarrheic children, and the prevalence of pathogenic strains from total E. coli isolates along with their susceptibility profiles; the distribution of pathogenic E.coli biotypes among different age groups and between the sexes were determined by using descriptive statistics. Result: Out of 98 stool specimens collected from diarrheic children less than 5 years of age, 75 presumptive E. coli isolates were identified by culture; further confirmation by biochemical tests showed that only 56 of the isolates were E. coli; 29 of the isolates were found in male children and 27 of them in female children. Out of the 58 isolates of E. coli, 25 pathotypes belonging to different classes of pathogenic strains: STEC, EPEC, EHEC, EAEC were detected by using the PCR technique. Pathogenic E. coli exhibited high rates of antibiotic resistance to many of the antibiotics tested. Moreover, they exhibited multiple drug resistance. Conclusion: This study found that the isolation rate of E. coli and the involvement of antibiotic-resistant pathogenic E. coli in diarrheic children is prominent, and hence focus should be given on the diagnosis and antimicrobial sensitivity testing of pathogenic E. coli at Addis Ababa University College of Health Sciences TikurAnbessa Specialized Hospital. Among antibiotics tested, Cefotitan could be a drug of choice to treat E. coli.

Keywords : antibiotic susceptibility profile, children, diarrhea, E. coli, pathogenic
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