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Abstract:

Diarrhea is the second leading cause of death in under-fives in the world. EHEC 0157:H7 is an important etiologic agent of diarrhea with public health significance since exposure to low doses can lead to an infection and could cause an epidemic. EHEC 0157:H7 induces HUS, the leading cause of acute renal failure in children below five years. The global prevalence of EHEC 0157:H7 is about 2% while most isolates of this bacterium exhibit multi-drug resistance to most antibiotics in use. To clarify the role of 0157:H7 as an important etiologic agent of acute gastroenteritis in children below five years in Kenya, a descriptive cross-sectional study was conducted to establish the prevalence and antibiotic susceptibility patterns associated with EHEC 0157:H7 isolates from human sources. Diarrhea accounted for 7% of all illnesses causing out-patient morbidity and mortality in children below five years in the study area during the study period. Stool samples were obtained from 302 consenting children below five years in Embu District who were systematically selected between November 2009 and June 2010 and characterized as EHEC 0157:H7 using Cowan method as well as sero-typing. Confirmation was through analytical profile indexing as well as CerTest. Antibiotic susceptibility testing of the isolates was through Kirby Bauer disc diffusion method. 201 (66.7%) samples out of 302, had E. coli, 84 (27.8%) cases had parasites while 17 (5.63%) cases did not have any growth. Out of 201 stool samples with E. coli, 32 (10.6%) isolates were found to be positive for EHEC 0157:H7 on Sorbitol MacConkey agar, 2 (0.66 %) cases were confirmed to be positive for EHEC 0157:H7 by CerTest method, while 12 (4%) cases were confirmed positive EHEC 0157:H7 by slide agglutination. Based on sero-typing test results, the area under study was found to be having a prevalence of about 4% which is above the global prevalence. 58% of the 12 confirmed cases of E. coli were found to be resistant to Trimethoprim/sulfamethoxazole, 50% were resistant to Ampicillin while 33% of EHEC 0157:H7 isolates were resistant to Chloramphenicol, Tetracycline and cotrimoxazole. All EHEC 0157:H7 isolates were susceptible to Streptomycin, Kanamycin and Gentamicin. Z-test statistic was used to test for significance while a two-tailed chi-square test (χ^2) was used to test for associations between various demographic factors. The isolation of EHEC 0157:H7 in stool samples from children confirms the circulation of this bacterium in the immediate environment while the detection of multidrug resistance is a cause for concern. The research findings shall be used to inform policy on; the need for improvement on provision of clean, safe drinking water and general hygiene for the general public, the importance of making laboratory confirmations a routine undertaking in hospitals to ascertain the actual causes of diarrhea particularly in under-fives and state mandating of cases reporting. Introduction of faster presumptive diagnostic tools such as Rapid-Antigen testing is highly recommended.