

Abstract

Aim: Determine the prevalence of enteric bacterial pathogens and their antimicrobial resistance among diarrheic children in Nairobi City, Kenya.

Background: Regardless of enteric bacterial pathogens being a major cause of gastroenteritis in children, their occurrence and antimicrobial resistance patterns reveals regional spatial and temporal variation.

Methods: In a cross-sectional study, a total of 374 children below five years presenting with diarrhea at Mbagathi County Hospital were recruited. Stool microbiology test was used to detect enteric bacterial infection. Antimicrobial resistance was determined using the disk diffusion method.

Results: Diarrheagenic *E. coli* (36.4%) was the leading species followed by *Shigella* (3.2%), *Salmonella* (2.4%), *Campylobacter* (1.6%), *Yersinia* (1.3%) and *Aeromonas* (1.1%) species. *Escherichia coli* pathotyping revealed that 20.9%, 4.0%, 10.2% and 0.5% of the study participants were infected with enteroaggregative *E. coli* (EAEC), enteropathogenic *E. coli* (EPEC), enterotoxigenic *E. coli* (ETEC) and enteroinvasive *E. coli* (EIEC) pure isolates while the prevalence of mixed pathotype infections was 0.3% for EAEC/EPEC/ETEC and 0.5% for EAEC/ETEC. *Shigella* serogrouping revealed that 0.5%, 0.3%, 1.9%, and 0.5% were infected with *Shigella boydii*, *Shigella dysenteriae*, *Shigella flexneri* and *Shigella sonnei* pure isolates. *Shigella* species and *E. coli* co-infection was detected in 2.4% of the children, specifically, 1.1% for EAEC/*Shigella boydii*, 0.5% for EAEC/*Shigella dysenteriae* and 0.3% in each case of EAEC/*Shigella sonnei*, EPEC/*Shigella flexneri* and ETEC/*Shigella flexneri* co-infections. Most of the isolates were resistant to commonly prescribed antibiotics.

Conclusion: There was a high prevalence of enteric bacterial pathogens and co-infection alters epidemiological dynamics of bacterial diarrhea in children. Continuous antibiotic resistance surveillance is justified because the pathogens were highly resistant to commonly prescribed antimicrobials.

Keywords: Epidemiology; antimicrobial resistance; bacterial diarrhea.