A retrospective study to determine the bacterial causes of bloody diarrhea and their antimicrobial susceptibility patterns at Tabitha medical clinic in Kibera, Kenya

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A thesis submitted in partial fulfillment for the degree of Master of Science in Public Health in the Jomo Kenyatta University of Agriculture and Technology

2009

ABSTRACT

Bloody diarrhea causes substantial morbidity and mortality in Africa, but data on the epidemiology and antimicrobial susceptibility to the common causative pathogens is limited. Amongst the well-recognized bacterial agents of diarrheal diseases, S*higella* species*,* non-*typhi Salmonella*, C*ampylobacter* and *Enterohaemorrhagic E. Coli* are the important causes of morbidity in developing countries. Antibiotics are recommended for treating bloody diarrhea to shorten the duration of illness, decrease morbidity and mortality and reduce the duration of bacteria shedding. Resistance to commonly used antimicrobial agents has been reported worldwide. Treatment of dysentery with antibiotics to which the etiologic agent is resistant may prolong illness and increase the rate of transmission to other individuals. The main aim of this study was to determine the bacterial causes of bloody diarrhea in selected areas of Kibera and establish their antimicrobial susceptibility pattern. The study was conducted at Tabitha Medical Clinic, located within Kibera slums. Kibera, one of the largest slums in Africa lacks basic services like sanitation, sewage and adequate water supply. For these reasons diarrheal diseases pose a major threat to the health of people living in Kibera. This was a retrospective study whereby the clinic/ laborartory records of 189 patients who were treated for bloody/ mucoid diarrhea at Tabitha medical clinic within the period of October 2006 to January 2008 were evaluated. Data entry, cleaning, validation and analysis were undertaken using Statistical Package for Social Scientists (SPSS) version 12.0. The main outcome variables were the kind of bacteria grown on culture and the antimicrobial sensitivity pattern.

About half of the records (49%) were of adult patients and 51% were of patients in the pediatric age group (< 12 years). Of those in the pediatric age group, children under five years of age (38%) were most affected. The records showed that culture of stool specimens from 86 (45.5%)

patients yielded 88 bacterial pathogens: 74 *Shigella* (43 *S. flexneri,* 8 *S. dysenteriae* type non-1, 4 *S. boydii*, 9 *S. sonnei,* 10 unidentfied *Shigella* species), 7 *Campylobacter*, 5 non-typhoidal *Salmonella*, and 2 *Salmonella typhi*. No EHEC was isolated. Majority of the isolates came from samples that had been described as bloody (58.8%) or mucoid (32.6%) on laboratory physical examination. More than 90% of the isolates (excluding *Campylobacter*) were resistant to trimethoprim-sulfamethoxazole, streptomycin and sulfisoxazole; 82.5 % to tetracycline and 62.5% were resistant to ampicillin. No pathogen was resistant to ciprofloxacin and gentamycin. From this study, it can be concluded that *Shigella,* especially *S. Flexneri* was the predominant cause of bloody diarrhea in Kibera, with *Campylobacter* being mainly a disease of children under five years of age. There was significant resistance to the commonly used antibiotics. Ciprofloxacin was determined to be the drug of choice for treatment of bloody diarrhea in adults and nalidixic acid the drug of choice in children. Continuous surveillance for bloody diarrhea is needed in order to regularly advice on the most effective modes of therapy. Strategies to improve prescription practices that use surveillance data to rationally guide more judicious use of antibiotics should be considered.