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Enteric pathogens and potential risk factors for acute bloody diarrhea in Kisumu west and Kisumu Central sub counties

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Diarrhea is preventable and treatable by early recognition of dehydration and timely treatment. Despite the advances shigellosis is a major cause of diarrhoea-related morbidity and mortality. Kenya experienced a significant increase in acute bloody diarrhoea cases in Coast, Western, Nyanza and Nairobi regions in 2009 (48,272 cases) and 2010 (64,107 cases). Therefore, it was necessary to determine the epidemiological, clinical and laboratory characteristics of acute bloody diarrhoea cases occurring in the urban and rural populations in Kenya. The study enrolled 600 participants between the period of January and December 2016. The main presenting clinical features for bloody diarrhoea cases were: blood in stool (100%) abdominal pain (50%), mucous in stool (50%), loose stools (50%) and anorexia (50%). Pathogen isolation rate from stool was 32.5% with bacterial and protozoal pathogens accounting for 20% and 10%, respectively. The isolation rate among the rural population (Kisumu west) was 18% while among the urban population (Kisumu Central) it was 45%. Shigella was the most prevalent bacterial pathogen isolated in 25% of the cases while Entamoeba histolytica was the most prevalent protozoal pathogen isolated in 12% of the cases. High levels of multidrug resistance to three or more antimicrobial agents were observed 62.5% of all bacterial pathogens with resistance in Shigella being 50.9%. There was a positive correlation between bloody diarrhoea and long term mean rainfall both in rural (Pearson's r=0.55) and urban (Pearson's r=0.65) populations. There was also a positive correlation between bloody diarrhoea and long term mean minimum and maximum temp but the correlation with minimum temp was stronger in rural (Pearson's r=0.32) and urban (Pearson's r=0.56). Shigella dysenteriae type 1 which is an epidemic strain is not the cause of increase in cases of acute bloody diarrhoea in Kenya in both settings, high levels of antibiotic resistance as well as multidrug resistance.

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