Prevalence and Epidemiology of Enteric Viruses in Children Attending Lwak Mission Hospital in Asembo, Western Kenya

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ABSTRACT

Enteric viruses have been recognized as the most important etiologic agents of gastroenteritis worldwide in young children. The major enteropathogenic viruses include: rotavirus, norovirus, adenovirus, astrovirus and sapovirus. Worldwide, rotavirus is considered to cause a greater proportion of diarrhoea in children. Studies have investigated the prevalence and epidemiology of these viruses in many countries, however, mostly in hospitalized children. There is limited data available of viruses causing diarrhea amongst outpatient cases including the circulating aetiologies, prevalence and seasonality. The aim of this study was therefore to determinethe prevalence of these five most important diarrhoeal viruses among children below14 years of age who visited the outpatient clinic atLwakMissionHospitalin Asembo with mild to severe symptoms of diarrhoea.This was a sub-study within a major Morbidity study SSC No. 932: Active Population-based Study of Infectious Disease Syndromes in Western Kenya and Nairobi. A total of 206 stool specimens collected from children below the age of fourteen years who visited the outpatient clinic in Asembo with diarrhoea, between January 2007 and June 2010 were screened for rotaviruses, noroviruses, adenoviruses, astroviruses and sapoviruses. Enzyme immunoassay technique was used to test for the presence of rotavirus and adenovirus, while reverse transcriptase multiplex polymerase chain reaction (RT-PCR) assay was used for norovirus, astrovirus and sapovirus detection. At least one viral agent was detected in 26.7% (55/206) of the children. Rotavirus was the most prevalent with 13.6% (28/206), whereas norovirus was detected in 6.3% (13/206), adenovirus in 4.9% (10/206), astrovirus in 2.9% (6/206) and sapovirus in 1.5% (3/206). Mixed infection (co-infection of viruses) was found in 9.1% (5/55) of the positive samples, with the majority of co-infections attributable to rotavirus dual infections.In most cases the viruses were detected in children aged 13-24 months (≤ 2 years) as the average age of children infected with these agents was less than five years. Vomiting and fever were the most common clinical features detected in these children especially amongst those who had rotavirus and norovirus infections. These findings suggest that at least five enteric viruses are potentially important agents of diarrhoeain this rural site in western Kenya. Defining clinical and epidemiologic characteristics predictive of viral etiology may have implications for the management of diarrhea in children in Kenya and similar settings.