

Aetiology and pathogen specific risk factors for diarrhoea among children under the age of 5 years

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Introduction

Diarrhoeal diseases remain an important public health problem with an estimated 1.34 million diarrhoeal cases and an estimated 752 000 deaths in children < 5 years of age in 2008. Rotavirus was shown to be responsible for a third of all acute diarrhoea cases in children in South Africa. In 2009, the RotaRix® vaccine was introduced in South Africa.

Methods

The secondary data was obtained from the Rotavirus Sentinel Surveillance Programme located at the National Institute for Communicable Diseases. The sentinel sites included Chris Hani Baragwanath Hospital, Matikwana and Mapulaneng hospitals, Edendale Hospital, Red Cross Children's Hospital, Kimberley Hospital, Polokwane Hospital, Pelonomi Hospital, Dora Nginza Hospital, and Klerksdorp Hospital. Stool specimens submitted to NICD were screened using a custom Taqman array card assay. A sample of 778 diarrhoea cases, 52.44% males (n=408) and 47.6% females (n=370) was used for the analysis from January 2015 to December 2016. Majority of the participants were below the age of 2 years (95,2%). Descriptive analysis and pathogen frequencies were performed using STATA version 15. Multivariate analysis is still underway.

Results

The most prominent pathogens included adenovirus (48.44%; n=338), enteroaggregative Escherichia coli (EAEC; 28.46%; n=222), Shigella/enteroinvasive E.coli (EIEC; 25.19%; n=196), rotavirus (23.26%; n=181), and enteroviruses, (20.44%; n=181). Other notable pathogens included Campylobacter spp. (15.6%), enteropathogenic E.coli (EPEC; 14.17%), Cryptosporidium spp. (13.68%), and Norovirus genogroup II (10.26%). Most mixed pathogen infections included rotavirus and other enteric pathogens; the highest being rotavirus and adenovirus (8.48%), and rotavirus and EAEC (aggR target; 7.46%).

Discussion and Conclusion

Rotavirus was still a leading cause of diarrhoea in 2015 and 2016, although adenovirus, EAEC, and Shigella/EIEC were also prominent causes. The effect of mixed infections and the number of rotavirus vaccine doses received by the patients is still to be investigated.