

Molecular characterisation of rotavirus and adenovirus detected in diarrhoeal stool samples collected from individuals older than 5 years of age, Gauteng province

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Background: Globally, rotavirus and adenovirus are major global causes of diarrhoeal deaths across all age groups, contributing to over 15.2% of approximately 1.17 million diarrhoeal fatalities. While diarrhoeal disease is most common in children under five, increasing mortality has been reported in individuals older than five years, particularly the elderly. In South Africa, data on the prevalence and genetic diversity of these viruses in this age group remain limited. Therefore, this study investigated the prevalence and molecular characteristics of rotavirus and adenovirus strains circulating in individuals >5 years.

Methods: A total of 192 diarrhoeal stool samples were collected from January 2012 to December 2013 in Pretoria from individuals aged 6–87 years. Rotavirus and adenovirus were detected using the Allplex GI-Virus Assay on the CFX96 Real-Time PCR system. Rotavirus-positive samples underwent conventional RT-PCR for molecular characterisation, while conventional PCR was used for adenovirus characterisation.

Results: Adenovirus was detected in 41.88% (80/191) and rotavirus in 12.04% (23/191) of tested samples. The detected adenovirus had slightly higher cycle threshold (ct) value (38.81) than rotavirus (36.54). Adenovirus was more frequently identified in 2012 and among individuals aged 61–70 years, whereas rotavirus was more prevalent in 2013 and predominated in those aged 36–50 years. Detected rotavirus genotypes included G2P[4], G3P[4], G12P[6], untypeable G types (GntP[8], GntP[6], GntP[4]), and mixed infections (G2P[4]P[6], G3G2P[8]). However, adenovirus molecular characterisation was unsuccessful due to low viral load.

Conclusion: Rotavirus and adenovirus are prevalent amongst >5 years, with circulating rotavirus genotypes similar to those observed in <5 years. These findings provide baseline data to monitor post-vaccine trends and long-term circulation beyond the paediatric population in South Africa.