



A Systematic Review of Rotavirus Strain Prevalence and Genetic Diversity in Paediatric Severe Gastroenteritis in Blantyre, Malawi,

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Abstract

Rotavirus is a leading cause of severe, dehydrating gastroenteritis in children under five globally. Malawi introduced a monovalent rotavirus vaccine into its national immunisation programme to reduce this burden. Assessing the post-vaccination prevalence and genetic diversity of circulating strains in high-disease settings like Blantyre is necessary for evaluating vaccine impact and guiding policy. This systematic review synthesised evidence on the prevalence and genetic diversity of rotavirus strains causing severe gastroenteritis in children under five in Blantyre, Malawi, following vaccine introduction. A systematic search was conducted across multiple electronic databases for relevant studies. Included studies reported on laboratory-confirmed rotavirus infections in children under five hospitalised with severe gastroenteritis in Blantyre. Data on strain prevalence, genotypes, and temporal trends were extracted. Study quality was assessed using appropriate appraisal tools. The review identified a limited number of relevant studies. Available evidence indicates rotavirus remained a significant aetiological agent in paediatric severe gastroenteritis post-vaccination. The most prevalent genotype was G12P[8], accounting for a substantial proportion of characterised strains. Genetic diversity was observed, with evidence of multiple co-circulating strains. Despite vaccine introduction, rotavirus continues to contribute substantially to severe paediatric gastroenteritis in Blantyre. The observed genetic diversity, including the prominence of the G12P[8] genotype, indicates dynamic strain circulation and potential for genotype-specific vaccine effects. Enhanced and continuous rotavirus surveillance, incorporating full-genome sequencing, is recommended to monitor long-term trends and emerging strains. Further research is needed to assess vaccine effectiveness against specific genotypes and to explore factors driving strain diversity. rotavirus, gastroenteritis, genotype, prevalence, Malawi, vaccination, surveillance This review consolidates existing evidence on post-vaccination rotavirus strain dynamics in Blantyre, Malawi, providing a basis for strengthening local surveillance systems and informing regional immunisation strategies.

Keywords: rotavirus, gastroenteritis, strain prevalence, genetic diversity, paediatric, Malawi, Blantyre

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