

Enteropathogenic Viruses Associated with Acute Gastroenteritis among Under 5-Years Children in Africa: A Systematic Review and Meta-Analysis

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Abstract : Gastroenteritis viruses are the leading etiologic agents of diarrhea in children worldwide. We present data from thirty-three (33) eligible studies published between 2003 and 2023 from African countries bearing the brunt of the virus-associated diarrheal mortality. Random effects meta-analysis with proportion, subgroups, and meta-regression analyses were employed. Overall, rotavirus with estimated pooled prevalence of 31.0% (95% CI 24.0-39.0) predominated in all primary care visits and hospitalizations, followed by norovirus, adenovirus, sapovirus, astrovirus, and aichivirus with pooled prevalence estimated at 15.0% (95% CI 12.0-20.0), 10% (95% CI 6-15), 4.0% (95% CI 2.0-6.0), 4% (95% CI 3-6), and 2.3% (95% CI 1-3), respectively. Predominant rotavirus genotype was G1P[8] (38%), followed by G3P[8] (11.7%), G9P[8] (8.7%), and G2P[4] (7.1%); although, unusual genotypes were also observed, including G3P[6] (2.7%), G8P[6] (1.7%), G1P[6] (1.5%), G10P[8] (0.9%), G8P[4] (0.5%), and G4P[8] (0.4%). The genogroup II norovirus predominated over the genogroup I-associated infections (84.6%, 613/725 vs 14.9%, 108/725), with the GII.4 (79.3%) being the most prevalent circulating genotype. In conclusion, this review showed that rotavirus remains the leading driver of viral diarrhea requiring health care visits and hospitalization among under-five years children in Africa. Thus, improved rotavirus vaccination in the region and surveillance to determine the residual burden of rotavirus and the evolving trend of other enteric viruses are needed for effective control and management of cases.

Keywords : enteric viruses, rotavirus, norovirus, adenovirus, astrovirus, gastroenteritis

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