Epidemiological trends of rotavirus diarrhoea in infant and young children before and after introduction of rotavirus vaccine in rural Gambia

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Rotavirus (RV) is the leading etiology of moderate-to-severe diarrhoea (MSD) during the first two years of life. We present epidemiological trends of RV infection in children age <5 years old before and after introduction of RV vaccine (RVV) in rural Gambia using data from the Vaccine Impact on Diarrhoea in Africa (VIDA) study and the Global Enteric Multi-Centre Study (GEMS). GEMS (2008-2010) and VIDA (2015-2018) were 36-month, age-stratified matched case-control studies designed to assess the incidence, etiology and clinical consequences MSD among children aged <5 years. RVV was introduced in The Gambia in August 2013, before VIDA study.

MSD cases (children with diarrhoea [≥3 loose stools/24h], with at least one of the following: dysentery, sunken eyes, decreased skin turgor, IV rehydration, and hospitalization) were enrolled from sentinel health centres in 3 age-strata (0-11, 12-23 and 24-59 months). Diarrhoea-free, healthy controls matched for age, sex, time and community were enrolled from the community. Only MSD cases were included in the analysis of trend of RV infection. Enrolled cases provided a stool sample at the time of enrolment, which was tested for RV by enzyme-linked immunosorbent assay (EIA).

During the VIDA study, 1678 MSD cases were enrolled over 3 years. Among MSD cases, RV prevalence was lower in VIDA (11.0%) compared to GEMS (19.9%). The median age (interquartile range) of RV cases was higher in VIDA compared to GEMS (13 m, range: 8-21 m v. 12 m, range: 8-18 m). Most of the RV in MSD cases was isolated between December to June both in VIDA and GEMS (184/185, 99.5%% v. 203/205, 99.0%) and peaked between January to April (174/185, 94.1% v. 170/205, 82.9%). The prevalence of RV decreased in all age-strata in VIDA compared to GEMS (14.8% v. 25.0% in 0—11 m, 11.3% v. 17.6% in 12-23 m, and 6.7% vs 14.4% in 24-59 m).

After RVV introduction, RV prevalence in Gambian children with MSD has decreased. However, RV remains a major cause of MSD in The Gambia.