

Rapid reduction in rotavirus gastroenteritis in children under 5 years of age following the introduction of universal rotavirus vaccination with a monovalent vaccine in Palestine

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Background

Universal vaccination with a monovalent rotavirus vaccine (Rotarix GSK) was introduced in Palestine in May-2016. In November-2018 it was switched to the newly approved monovalent vaccine, Rotavac (Bharat Biotech). The study aims to examine the changes in rotavirus gastroenteritis hospitalizations following the introduction of universal rotavirus immunization among children aged 0-59 months.

Methods

An ongoing laboratory-based surveillance of RVGE was launched in January-2016 among children aged 0-59 months living in Bethlehem and Hebron regions. Stool samples were collected from children hospitalized for gastroenteritis and analyzed for rotavirus antigen by immunochromatography. Children with nosocomial infections were excluded. The year 2016 was considered as the reference period.

Results

Overall, 3341 hospitalizations for gastroenteritis occurred and tested for rotavirus during 2016-2018. The median age of the patients was 7 months. Males comprised 59.5% of the patients. Rotavirus tested positive in 709 (21.2%) samples. Rotavirus positivity was 389/1317 (29.5%), 149/889 (16.8%) and 129/917 (14.1%) in 2016, 2017 and 2018, respectively. The number of hospitalizations for all-cause gastroenteritis decreased by 32.5% and 30.4% in 2017 and 2018, respectively compared to 2016. The corresponding reduction ($p < 0.001$) in the percentage of rotavirus positive tests was 43.3% (95% CI 31.3, 54.8), and 52.4% (95% CI 40.9, 63.5). This reduction ($p < 0.001$) was of stronger magnitude in infants aged 0-11 months: 62.0% (95% CI 46.4, 76.9) in 2017 and 59.2% (95% CI 43.9, 74.0) in 2018. In toddlers aged 12-23 months the respective reduction ($p < 0.05$) was 22.9% (94% CI 1.9, 43.1) and 53.2% (95% CI 32.3, 72.1). In children aged 24-59 months, a small and non-significant reduction was documented: 28.5% (95% CI -1.3, 56.6) and 18.0% (95% CI -12.8, 47.4), in 2017 and 2018, respectively.

Conclusions

The introduction of universal immunization with a monovalent vaccine was followed by a rapid and significant reduction in rotavirus hospitalizations in children aged 0-59 months in Palestine.