

Sustained impact of rotavirus vaccine on rotavirus hospitalisations in Zambia, 2009-2018

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Background

Monovalent rotavirus vaccine (RV1) was introduced in Lusaka in February 2012 and rolled out countrywide in November 2013 in the routine Expanded Programme on Immunisation and administered at 6 and 10 weeks with no catch up dose. Reported here is a review of rotavirus acute gastroenteritis hospitalizations (AGE) at the University Teaching Hospital, Lusaka, Zambia as part of efforts to document the impact of rotavirus vaccine.

Methods

Children <5 years hospitalised for AGE from January 2009 to December 2018 were recruited to the rotavirus disease burden active surveillance and had their stools tested for rotavirus by enzyme immunoassay. We compared rotavirus-associated AGE hospitalisations between the pre- and post-rotavirus vaccine introduction periods, 2009-2011 and 2013-2018 respectively.

Results

With the increase in RV1 coverage in Lusaka, rotavirus AGE declined significantly from 40% of diarrhoea hospitalisations in the pre-vaccine era to 28% of diarrhoea hospitalisations in the post-vaccine era ($p < 0.001$) in children <5 years. After a decreasing trend in rotavirus positivity from 2013 through 2015, an increase in rotavirus positivity was observed in 2016 but the total number of children enrolled and the number of rotavirus positive children remained below the baseline. A further steady decline was observed in 2017-2018 period.

Conclusion

A sustained and significant decline in rotavirus AGE hospitalisations has been demonstrated in children <5 years since the introduction of RV1 in Lusaka, Zambia. The reason for the increase in rotavirus positivity in 2016 is unknown but could be due to an accumulation of susceptible children and the shifting of disease to older age groups. This finding underscores the need for continued monitoring of rotavirus vaccine impact. The gains of rotavirus impact have been substantial in Zambia.