

Effectiveness of rotavirus vaccine against rotavirus-coded hospitalisations among Australian Aboriginal and non-Aboriginal children

Fathima, P¹ and Snelling, T^{2,3,4}¹Wesfarmers Centre of Vaccines and Infectious Diseases, Telethon Kids Institute²Telethon Kids Institute, University of Western Australia³Menzies School of Health Research, Charles Darwin University⁴Perth Children's Hospital

Introduction

Rotavirus vaccine, RV1 (Rotarix), was included in the immunisation programs in Western Australia (WA) and New South Wales from mid-2007. In WA, RV1 was replaced with RV5 (RotaTeq) in mid-2009. Marked declines in rotavirus-related hospitalisations in both Aboriginal and non-Aboriginal children have been demonstrated following the implementation of the program.

Objectives and Approach

We aimed to assess RV1 vaccine effectiveness (VE) against rotavirus-coded hospitalisations among Aboriginal and non-Aboriginal children aged (1-hazard ratio*100) were obtained from Cox proportional hazards models (adjusted for infant, maternal and demographic factors and stratified by state of birth) for Aboriginal and non-Aboriginal children.

Results

There were a total of 623 rotavirus-coded hospitalisations among the cohort children aged <2 years. Rotavirus hospitalisation rates were 143.0/100,000 child-years (95% confidence interval [CI]: 113.3-180.4) among Aboriginal children and 49.0/100,000 child-years (95% CI: 44.8-53.5) among non-Aboriginal children.

Compared to unvaccinated children, 1-dose VE among Aboriginal children against rotavirus-coded hospitalisations was 52.1% (95% CI: -0.02-77.1%) and 2-dose VE was 62.4% (95% CI: 26.9-80.7%) adjusting for birthweight, region of residence, socio-economic status, and year of birth. Among non-Aboriginal children, 1-dose VE was 39.0% (95% CI: 13.1-57.2%) and 2-dose VE was 53.4% (95% CI: 38.1-65.1%) adjusting for birth weight, mode of delivery and maternal age at birth and year of birth.

Conclusion/Implications

Burden of rotavirus gastroenteritis remains significant in Aboriginal children. Given the previously demonstrated declines in rotavirus-related hospitalisations in this population following vaccine introduction, our lower-than-expected VE estimates might represent bias introduced by differences in health-seeking behaviour between the vaccinated and unvaccinated, herd immunity and/or possible non-differential misclassification of the outcome.

