

Association of Rotavirus Vaccines With Reduction in Rotavirus Gastroenteritis in Children Younger Than 5 Years

A Systematic Review and Meta-analysis of Randomized Clinical Trials and Observational Studies
Sun et al. *JAMA Pediatr.* 2021;175(7):e210347. doi:10.1001/jamapediatrics.2021.0347.

Background & Methods: 121 studies (57RCTs, 50 case-control studies, and 14 cohort studies) till July 2020 were analyzed.

- Studies reporting the efficacy, effectiveness, safety, or immunogenicity of rotavirus vaccine were included. Studies with fewer than 100 enrolled participants were excluded.
- The primary outcomes were rotavirus gastroenteritis (RVGE), severe RVGE, and RVGE hospitalization.
- Safety-associated outcomes included serious adverse events, intussusception, and mortality.

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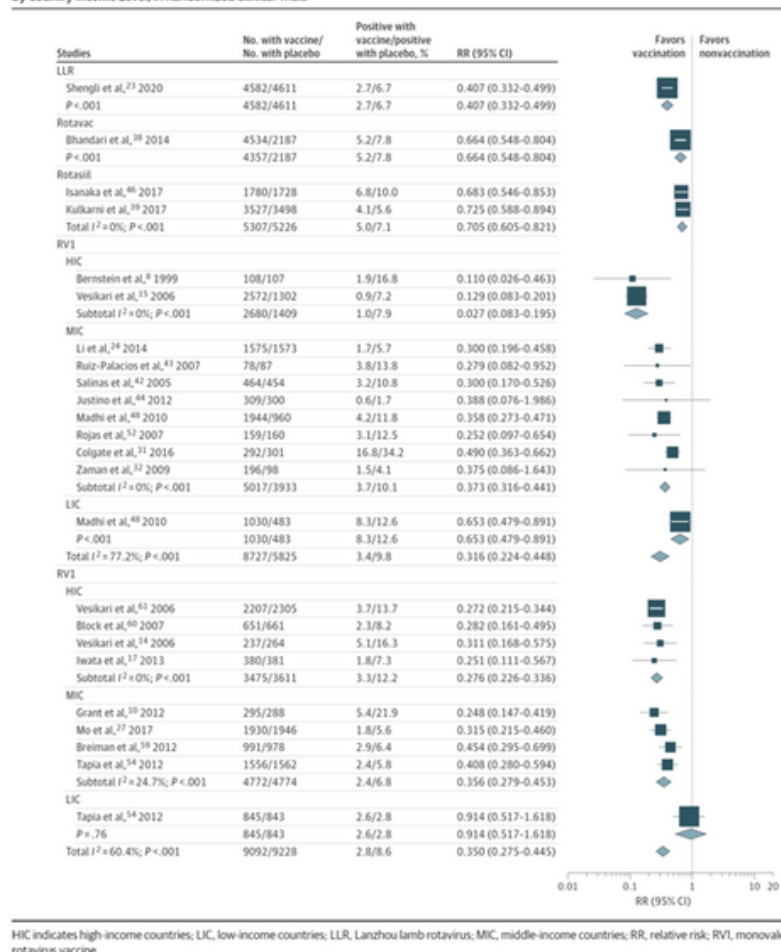
Pediatric Evidence And Research Learning Snippet



IS THERE A STRONG ASSOCIATION OF ROTAVIRUS VACCINES AND PREVENTING ROTAVIRUS GASTROENTERITIS (RVGE)?

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Figure 1. Random-Effects Model of Rotavirus Vaccine Protection Against Rotavirus Gastroenteritis (RVGE) and RVGE Hospitalization, by Country Income Level, in Randomized Clinical Trials



- Rotarix (RV1) significantly reduced RVGE (RR, 0.316 [95%CI, 0.224-0.345]) and RVGE hospitalization risk (OR, 0.347 [95%CI, 0.279-0.432]) among fully vaccinated children.
- RotaTeq (RV5) had similar outcomes (RVGE: RR, 0.350 [95%CI, 0.275-0.445]; RVGE hospitalization risk: OR, 0.272 [95%CI, 0.197-0.376]).
- Rotavirus vaccines also demonstrated higher protection against severe RVGE.
- Moderate associations were found between reduced RVGE risk and Rotavac (RR, 0.664 [95%CI, 0.548-0.804]).
- All rotavirus vaccines demonstrated no risk of serious adverse events.
- A positive correlation was also found between immunogenicity and vaccine protection.

Conclusions:

- There is high protection and low risk of serious adverse events for rotavirus vaccines in fully vaccinated children.
- This emphasizes the importance of worldwide introduction of rotavirus vaccination.
- Similar protection provided by Rotarix and RotaTeq decreases the pressure of vaccines selection.
- Rotavaq and Rosasiil, which are licensed only in India also showed similar results.

EXPERT COMMENT

- Rotavirus gastroenteritis contributes to 28% deaths due to diarrhea in children below 5 years age.
- Rotavirus vaccine is part of national immunization program in >100 countries. In India, Rotavirus vaccine is being introduced in phased manner.
- High effectiveness and good safety profile of all the licensed vaccines should encourage parents and health care authorities to promote Rotavirus vaccination.

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With warm regards,

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Reference

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