Intussusception Risk after Rotavirus Vaccination in U.S. Infants

Background

International postlicensure studies have identified an increased risk of intussusception after vaccination with the second-generation rotavirus vaccines RotaTeq (RV5, a pentavalent vaccine) and Rotarix (RV1, a monovalent vaccine). We studied this association among infants in the United States.

Methods

The study included data from infants 5.0 to 36.9 weeks of age who were enrolled in three U.S. health plans that participate in the Mini-Sentinel program sponsored by the Food and Drug Administration. Potential cases of intussusception and vaccine exposures from 2004 through mid-2011 were identified through procedural and diagnostic codes. Medical records were reviewed to confirm the occurrence of intussusception and the status with respect to rotavirus vaccination. The primary analysis used a self-controlled risk-interval design that included only vaccinated children. The secondary analysis used a cohort design that included exposed and unexposed person-time.

Results

The analyses included 507,874 first doses and 1,277,556 total doses of RV5 and 53,638 first doses and 103,098 total doses of RV1. The statistical power for the analysis of RV1 was lower than that for the analysis of RV5. The number of excess cases of intussusception per 100,000 recipients of the first dose of RV5 was significantly elevated, both in the primary analysis (attributable risk, 1.1 [95% confidence interval, 0.3 to 2.7] for the 7-day risk window and 1.5 [95% CI, 0.2 to 3.2] for the 21-day risk window) and in the secondary analysis (attributable risk, 1.2 [95% CI, 0.2 to 3.2] for the 21-day risk window). No significant increase in risk was seen after dose 2 or 3. The results with

respect to the primary analysis of RV1 were not significant, but the secondary analysis showed a significant risk after dose 2.

Conclusions

RV5 was associated with approximately 1.5 (95% CI, 0.2 to 3.2) excess cases of intussusception per 100,000 recipients of the first dose. The secondary analysis of RV1 suggested a potential risk, although the study of RV1 was underpowered. These risks must be considered in light of the demonstrated benefits of rotavirus vaccination. (Funded by the Food and Drug Administration.)

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