CAUSATION

Review: existing epidemiological evidence does not show an association between mumps, measles, and rubella vaccination and autism


Q (1) Are rates of autistic spectrum disorder (ASD) higher in children who have received the measles, mumps, and rubella (MMR) vaccine than in those who have not? (2) Have ASD rates increased as a result of MMR vaccination? (3) Is time of development of ASD associated with time of MMR vaccination? (4) Is a new variant form of ASD associated with MMR vaccination?

CONCLUSION

Existing epidemiological evidence shows that (1) rates of autistic spectrum disorder (ASD) are not higher in children who receive mumps, measles, and rubella (MMR) vaccination; (2) ASD rates have not increased in relation to increased MMR vaccination coverage; (3) time of development of ASD is not associated with MMR vaccination (ie, diagnosis of ASD does not generally occur soon after vaccination); and (4) variant ASD is probably not associated with MMR vaccination, although some of the studies examining this question had important limitations.

MAIN RESULTS

12 studies met the selection criteria. (1) Rates of ASD in children who did and did not have MMR vaccination: 1 cohort study of 537 303 children found no difference between vaccinated and unvaccinated children for ASD (adjusted relative risk [RR] 0.83, 95% CI 0.65 to 1.07). (2) Changes in ASD rates and changes in MMR vaccination coverage: 6 studies (4 time series, 1 case series, and 1 cross sectional study) found no association between increases in MMR vaccination coverage and ASD rates. (3) Associations between time of MMR vaccination and development of ASD: 3 studies (1 cohort study, 1 case series, 1 cross sectional study) found no differences in the mean age of ASD diagnosis (or parental concern) in vaccinated and unvaccinated children. 6 studies (2 cohort studies, 3 case series, and 1 cross sectional study) found no increase in ASD diagnosis or features suggestive of ASD after MMR vaccination. (4) Association of variant ASD and MMR vaccination: 4 studies (1 cohort study, 1 case series, 1 cross sectional study, and 1 time series) found no association between features of variant ASD and MMR vaccination.
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