CAUSATION

Routine childhood vaccinations did not increase the risk of incident type 1 diabetes in Danish children


Are routinely administered childhood vaccines associated with an increased incidence of type 1 diabetes mellitus in a cohort of Danish children?

METHODS

Design: a cohort study of children followed up from birth to a mean age of 6.4 years.

Setting: Denmark.

Participants: 739,694 children born in Denmark from January 1990 to December 2000.

Risk factors: vaccinations with any of 6 groups of vaccines including Haemophilus influenza type b, diphtheria, tetanus, and inactivated poliovirus; diphtheria, tetanus, and acellular pertussis, and inactivated poliovirus; whole cell pertussis; measles, mumps, and rubella; and oral poliovirus (data from vaccination reports of the National Board of Health). Sensitivity analyses considered the presence of a sibling with type 1 diabetes as a predisposing factor.

Outcomes: incidence of type 1 diabetes (from January 1990 to December 2001) (data from the Danish National Hospital Register).

MAIN RESULTS

The incidence of type 1 diabetes was 0.14 cases/1000 person-years among all children, and 6.2 cases/1000 person-years among those who had a sibling with type 1 diabetes. Routine childhood vaccinations were not associated with an increased incidence of type 1 diabetes mellitus among all children or among those who had a sibling with type 1 diabetes (table).

CONCLUSION

Routinely administered childhood vaccines were not associated with an increased incidence of type 1 diabetes mellitus in a cohort of Danish children.

Association between routinely administered childhood vaccines and incident type 1 diabetes mellitus in Danish children at a mean age of 6.4 years*

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Rate ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haemophilus influenza type b</td>
<td></td>
</tr>
<tr>
<td>Diphtheria, tetanus, and inactivated poliovirus</td>
<td>0.91 (0.74 to 1.12)</td>
</tr>
<tr>
<td>Diphtheria, tetanus, acellular pertussis, and inactivated poliovirus</td>
<td>1.02 (0.75 to 1.37)</td>
</tr>
<tr>
<td>Whole cell pertussis</td>
<td>0.96 (0.71 to 1.30)</td>
</tr>
<tr>
<td>Measles, mumps, and rubella</td>
<td>1.14 (0.90 to 1.45)</td>
</tr>
<tr>
<td>Oral poliovirus</td>
<td>1.14 (0.90 to 1.45)</td>
</tr>
</tbody>
</table>

*Rate ratios comparing rates in children vaccinated with ≥1 dose vs unvaccinated show that all associations are not significant; CI defined in glossary.
†Rate ratios adjusted for age, calendar period, and sex.
‡Rate ratios adjusted for age, sex, number of siblings.
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