Food Diversity but not the Time of Solid Food Introduction Reduces Risk of Childhood Atopic Diseases: Birth Cohort from a Developing Asian Country

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Abstract

RATIONALE: Dietary habit in Asia differs from other world regions. Associations between atopic diseases and infant feeding practices in developing Asian countries remain unclear. We sought to determine relationships between the diversity of solid food introduction at age 6 months, age that allergenic food was introduced, and development of atopic diseases up to age 30 months.

METHODS: A longitudinal birth cohort study was conducted in Bangkok, Thailand. Solid food diversity (0-1, 2-3, 4-6, >6 foods) and allergenic food introduction were assessed at age 6 months. Timing of solid food introduction (<4, 4-6, >6 months) was assessed. Logistic regression was used for analysis.

RESULTS: Of 268 infants, cumulative incidence of atopic diseases at 30 months was 46.6% including atopic dermatitis (AD) 13.1%, food allergy (FA) 6.3%, wheeze (WZ) 24.6% and chronic rhinitis (CR) 20.1%. Increased allergenic food diversity also significantly reduced risk of atopic diseases (0.52(0.27-0.99)), 4-6 foods (0.65, 1-3 foods) and >7 foods (0.99, 4-6 foods) vs 3 foods) introduction were assessed at age 6 months.

Of these 268 infants, majority of them were introduced both complementary (92.9%) and allergenic food (88.8%) between age 4 and 6 months. Twelve infants (4.5%) were introduced to solid food before age 4 months and 10 (3.7%) infants were introduced to allergenic food before age 4 months.

Time to solid food introduction including allergenic food was not associated with atopic outcomes.

Table 2 Subgroup analysis of association between food diversity at 6 months of age and number of foods introduced.

<table>
<thead>
<tr>
<th>Number of foods (Total n = 183)</th>
<th>Three diseases* (n = 49), OR (95% CI)</th>
<th>Ever wheeze (n = 40), OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unadjusted</td>
<td>Adjusted</td>
<td>Unadjusted</td>
</tr>
<tr>
<td>0-1</td>
<td>0.33 (0.15-0.71)</td>
<td>0.30 (0.12-0.62)</td>
</tr>
<tr>
<td>2-3</td>
<td></td>
<td>0.01 (0.01-0.11)</td>
</tr>
<tr>
<td>4-6</td>
<td></td>
<td>0.11 (0.01-0.87)</td>
</tr>
<tr>
<td>7,&gt;7 foods</td>
<td></td>
<td>0.06 (0.01-0.46)</td>
</tr>
</tbody>
</table>

Table 2 Group analysis of association between food diversity at 6 months of age and number of foods introduced.

Exclusion: Participants who developed first atopic disease before food introduction

Of these 268 infants, majority of them were introduced both complementary (92.9%) and allergenic food (88.8%) between age 4 and 6 months. Twelve infants (4.5%) were introduced to solid food before age 4 months and 10 (3.7%) infants were introduced to allergenic food before age 4 months.

Time to solid food introduction including allergenic food was not associated with atopic outcomes.

Results

• Cumulative incidence of atopic diseases at 30 months was 46.6% including atopic dermatitis (AD) 13.1%, food allergy (FA) 6.3%, wheeze (WZ) 24.6% and chronic rhinitis (CR) 20.1%.

• Increased allergenic food diversity also significantly reduced risk of atopic diseases (0.52(0.27-0.99)), 4-6 foods (0.65, 1-3 foods) and >7 foods (0.99, 4-6 foods) vs 3 foods) introduction were assessed at age 6 months.

• However, we found the decreased risk of developing food allergy (0.13(0.02-0.83)), early onset food allergy, (FA) (0.26(0.08-0.83)) and 3 diseases (FA+AD+WZ) (0.20(0.04-0.8)) in children who had early introduction of wheat (4-6 months) compared to children whom wheat was introduced at age 4 months. The same association with other foods was not shown (Figure 3).

Methods

• A longitudinal birth cohort study was conducted in Bangkok, Thailand. Solid food introduction (0-3, 4-7, >7 foods) and allergenic food introduction (0-3, 4-7, >7 foods) were assessed. Logistic regression was used for analysis.

• Multivariate logistic regression was used for analysis.

Rationale

• Dietary habit in Asia differ from other world regions. Associations between atopic diseases and infant feeding practices in developing Asian countries remain unclear.

• To determine relationships between the diversity of solid food introduction at age 6 months, age that allergenic food was introduced, and development of atopic diseases up to age 30 months.

• Timing of solid food introduction (<4, 4-6, >6 months) was assessed. Logistic regression was used for analysis.

• However, we found the decreased risk of developing food allergy (0.13(0.02-0.83)), early onset food allergy, (FA) (0.26(0.08-0.83)) and 3 diseases (FA+AD+WZ) (0.20(0.04-0.8)) in children who had early introduction of wheat (4-6 months) compared to children whom wheat was introduced at age 4 months. The same association with other foods was not shown (Figure 3).

Diversity of solid food introduction including allergenic food was consistently associated with a reduction in childhood allergy, especially food allergy. Early or delayed introduction of allergenic food did not affect atopic diseases developing in our population.

Conclusions

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