Immediate-type Food Allergy in Korean Children: A multicenter retrospective case study

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Introduction

Previous reports on childhood food allergy (FA) in Korea are limited to relatively small-scale researches. We performed this study to identify causes and clinical symptoms of immediate-type FA by age in Korean children, through an extensive multicenter investigation.

Methods

A retrospective medical record review was performed on patients (0-18 years old) diagnosed with immediate-type FA between September 2014 and August 2015 in 14 tertiary hospitals in Korea.

Results

Table 1. Clinical characteristic of study subjects

<table>
<thead>
<tr>
<th>Total number of subjects</th>
<th>2374</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender, Male</td>
<td>1,281 (62.1)</td>
<td></td>
</tr>
</tbody>
</table>

Age at 1st symptom of FA (median age) 12.5 months

1-2 year: 1742 (73.4%), 3-6 year: 454 (19.1%), 7-12 year: 134 (5.6%), 13-18 year: 43 (1.8%)

Family history of allergic diseases 1,041 (50.5%)

Past history of allergic diseases

- Asthma 228 (11.1%)
- Allergic rhinitis 394 (19.1%)
- Atopic dermatitis 1,268 (61.5%)
- Allergic conjunctivitis 100 (4.8%)
- Chronic urticaria 37 (1.6%)
- Drug allergy 19 (0.9%)

Percentages calculated based on 2374 cases of immediate-type FA

Figure 1. Causes of immediate-type FA in Korean children

Table 2. Causes of immediate-type FA in Korean children by age groups

<table>
<thead>
<tr>
<th>Sample size</th>
<th>0-2 yrs</th>
<th>3-6 yrs</th>
<th>7-12 yrs</th>
<th>13-18 yrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>1743</td>
<td>454</td>
<td>134</td>
<td>43</td>
</tr>
</tbody>
</table>

1st
- Peanut milk (33.7%), Walnut (15.0%), Cow’s milk (13.4%), Hen’s egg (10.4%)
- Cow’s milk (11.7%), Hen’s egg (9.0%), Peanut milk (9.3%), Shrimp (6.2%)

2nd
- Hen’s egg (32.4%), Cow’s milk (15.4%), Hen’s egg (15.4%), Hen’s egg (10.4%)
- Cow’s milk (9.0%), Shrimp (8.6%), Peanut milk (7.0%)

3rd
- Wheat (7.1%), Cow’s milk (11.7%), Hen’s egg (9.0%), Crab (9.3%)
- Cow’s milk (11.7%), Hen’s egg (9.0%), Peanut milk (9.3%), Shrimp (8.6%)

4th
- Peanut milk (4.7%), Wheat (7.3%), Shrimp (6.3%), Fish (7.0%)

5th
- Peanut milk (4.7%), Cow’s milk (11.7%), Fish (6.3%), Hen’s egg (9.0%)

6th
- Soybean (0.4%), Shrimp (3.7%), Peanut milk (9.3%), Cow’s milk (11.7%)

7th
- Almond (1.1%), Buckwheat (3.5%)

8th
- Fine nut (1.0%), Almond, Kiwi (3.3%) each

Figure 2. Symptoms of immediate-type FA in Korean children by age groups

Table 3. Onset time of immediate-type FA in Korean children

<table>
<thead>
<tr>
<th>Onset time (years)</th>
<th>&lt; 1 y</th>
<th>1-2 y</th>
<th>3-6 y</th>
<th>7-12 y</th>
<th>13-18 y</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total N = 1,720</td>
<td>27%</td>
<td>17%</td>
<td>47%</td>
<td>6%</td>
<td>6%</td>
</tr>
</tbody>
</table>

Figure 3. Onset time of immediate-type FA in Korean children

Table 4. Major causes of food-induced anaphylaxis in Korean children

<table>
<thead>
<tr>
<th>Total N = 732</th>
</tr>
</thead>
</table>

Figure 4. Major causes of food-induced anaphylaxis in Korean children

Table 5. Proportion of anaphylaxis according to different causative foods

<table>
<thead>
<tr>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hen’s egg (32.4%), Peanut milk (15.4%), Cow’s milk (11.7%), Hen’s egg (9.0%)</td>
</tr>
</tbody>
</table>

Figure 5. Proportion of anaphylaxis according to different causative foods

Summary

Hen’s egg and cow’s milk accounted for more than half of immediate-type FA in Korean children. The distribution of causative foods was considerably distinctive according to different age groups, and the proportion of anaphylaxis was highest in buckwheat-induced FA.

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