The potential mechanisms of Immunoglobulin E (IgE) mediated hypersensitivity in otitis media with effusion and Eustachian tube dysfunction (ETD) in children have been well described.1,2 The prevalence of IgE-mediated hypersensitivity in USA is known to be about 17%.3 However, regarding the chronic otitis media (COM) in adult, IgE-mediated hypersensitivity has not been evaluated well. Considering that Eustachian tube is the important factor in regulating middle ear physiology and allergy is a contributor of ETD, the role of allergy in the pathogenesis of COM needs to be determined in adult. The aim of our study is to determine the relationship between COM and IgE mediated hypersensitivity in adult.

Materials and Methods

Prospective comparative study was conducted for 117 patients who underwent tympanomastoidectomy due to COM from July 2005 to April 2007. All subjects had allergy test which includes total IgE, Multiple radioallergosorbent chemiluminescence assay (MAST-CLA ; Hitachi Chemical Diagnostics Inc.), rhinologic examination and questionnaire which includes history and symptoms of COM and allergic rhinitis.

Allergic rhinitis was diagnosed when MAST-CLA was Dermatophagoides farinae (n=18, 69.2%), Dermatophagoides pteronyssinus (n=17, 65.4%), cockroach (n=4, 15.4%), and cat (n=3, 11.5%).

3) The prevalence of allergic rhinitis in our series was 7.7% (9/117), which is higher than that of 3.93% in 71,120 Korean general population.5

In comparison analysis, retraction/cholesteatoma group has higher prevalence of IgE mediated hypersensitivity than perforation group (p=0.007, χ²-test).

There were no significant differences in age and sex distribution among patients in each subgroup (Table 1).

Table 1. Age and sex distribution of subjects grouped by three different characteristics.

<table>
<thead>
<tr>
<th>Subgroup</th>
<th>Number</th>
<th>Age (Mean ± SD)</th>
<th>Sex (M : F)</th>
<th>p-value (M,F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>70</td>
<td>48.9±11.8</td>
<td>33:37</td>
<td>0.158 0.184</td>
</tr>
<tr>
<td>Recurrent</td>
<td>47</td>
<td>45.8±10.8</td>
<td>22:25</td>
<td></td>
</tr>
<tr>
<td>Retraction/chole</td>
<td>53</td>
<td>45.9±11.3</td>
<td>26:27</td>
<td>0.129 0.189</td>
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<tr>
<td>Perforation</td>
<td>64</td>
<td>49.1±11.5</td>
<td>23:41</td>
<td></td>
</tr>
<tr>
<td>Unilateral</td>
<td>89</td>
<td>47.0±11.0</td>
<td>35:54</td>
<td></td>
</tr>
<tr>
<td>Bilateral</td>
<td>28</td>
<td>49.8±13.0</td>
<td>14:14</td>
<td></td>
</tr>
</tbody>
</table>

Statistical analysis was performed using SPSS 13.0 version (SPSS, Inc, Chicago). χ²-test was used to compare the prevalence of IgE mediated hypersensitivity in each groups. Independent t-test was used compare serum total IgE concentration in each group. Statistical significance was defined as p values less than .05.

Results

1. Serum total IgE

Average serum total IgE was 157.2 (range 3 to 1838) IU/mL and there were no significant differences between subgroups in all three kinds of Analysis (Figure 1).

2. Results of MAST-CLA

1) 26 (22.2%) had a positive MAST-CLA indicating sensitivity to one or more inhalant allergens.

2) Positive allergens reported in MAST-CLA was Dermatophagoides farinae (n=18, 69.2%), Dermatophagoides pteronyssinus (n=17, 65.4%), cockroach (n=4, 15.4%), and cat (n=3, 11.5%).

3) The prevalence of allergic rhinitis in our series was 7.7% (9/117), which is higher than that of 3.93% in 71,120 Korean general population.5

In comparison analysis, retraction/cholesteatoma group has higher prevalence of IgE mediated hypersensitivity than perforation group(p=0.007, χ²–test).

However, other subgroups failed to show a different positive rate in MAST-CLA (Figure 2).

1. The prevalence of IgE mediated hypersensitivity and allergic rhinitis in adult with COM was appeared to be higher than in general population.

2. Allergy could be a contributor to COM with retraction pocket or cholesteatoma.

3. More research on specific mechanism by which the immune system play in the pathogenesis of COM in adult is required to explain our observations.

Bibliography