The Common Aeroallergens in the Region of Makkah

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Abstract

Allergy to inhalant allergens (IA) in the region of Makkah is not known. Our article, a retrospective assessment of a specific IgE (sIgE) results to IA of 199 people with an assumed IA was shown. The article collection was nominated from all age groups referred for allergies with the doubt of IA to AL BORG in the region of Makkah in the period of October 2005 to July 2007. The top five IA in Makkah were American cockroach, dermatophagoides pteronyssinus, cat epithelium/hair, and desert palm pollens and dermatophagoides farina respectively. We conclude that the sensitization to common IA in the region of Makkah was well-matched with universal fiction except for American cockroach and the desert palm pollens, which are a surprising result that requests an additional assessment.

INTRODUCTION

Allergic problems have increased significantly disease during the previous 50 years [1]. Insipe of our clear informatins about the pathogenesis, risk factors and treatment, still allergies are increasing [2]. Allergen is a protein or glycoprotein which may push (sIgE) response [3].

Risk factors for IA sensitization are a significant issue to be considered. Genetic and environmental factors may influence the progress of precise sensitization in kids with symptoms in the respiratory system [4]. Moreover, geographical variations may give a different IA family. It’s important evidence to state that the geographical and climatic variation can give different IA [5].

IA sensitizations usually come in groups not a solitary one. Multiple sensitizations are common in kids in the school age [6]. Polysensitization for certain IA may be a risk factor for others in some cases. Combined contacts to house dust mites, cat, and dog allergen and pet in adults increased the sensitization to dust mites [7].

At least 10% of the general population are polysensitized. In molecular terms, clinical polysensitization can be divided into cross-reactivity and co-sensitization. Polysensitization develops over time and is a risk factor for respiratory allergy (being associated with disease severity) and therefore has clinical relevance for treatment decisions [8].

The type of allergic sensitization is of central importance in the diagnosis and treatment of respiratory allergic diseases. At least 50% of patients consulting for respiratory allergies are sensitized to inhalant allergens [8]. IgE sensitization to indoor IA is the maximum significant risk for asthma. The level of asthma severity rises amongst people who are atopics exposed to high amounts of IA sensitization [9]. Immunology profile of atopics is well known fact. People who are atopic seem to merge their initial Th-2 responses, and about the period of 6 years of age they display a cytokine profile alike to the adult shape. A prior lack in IFN-gamma manufacture may be one of the important issues defining the post-delivery continuation of Th-2 responses in people who are atopic [10].

Diagnosing the sensitization during infancy is a central area. Throughout the period of infancy the expectation of sensitization to IA should be manufactured on the medical history and allergy tests. The effect of a positive family history of allergies on the connection of the certain allergic symptoms with sensitization was maximally significant for eczema [11]. The in vitro tests increase the prognostic awareness [12].

Our aim is to clarify the prevalence of the sensitisation to the most common aeroallergens in Makkah region.

MATERIAL AND METHODS

The study collection was designated from all ages referred due to allergies with the doubt of IA to AL BORG in Makkah area between October 2005 and July 2007. S IgE to common IA of 199 patients were assessed retrospectively. IA panel as follow: american cockroach, sheep wool, feather mix, cat epithelium/hair, dermatophagoides pteronyssinus, dermatophagoides farina, alfalfa, mesquite, rye grass, desert palm pollens, white goosefoot, bermuda grass, alternaria alternate, timothy grass, mugwort-leaved, ambrosia, plantain and acacia.

RIDA® Allergy Screen of R-Biopharm is the machine which was used to measure the allergy levels after extracting the blood from the patients. This display is an effective and extremely commercial system for the diagnostic validation of allergies. It compromises test procedures for the antibody discovery by an immunoblot with four panels (panel 1 - 4) with 20 allergens.
RESULTS

SlgEinhalants of 199 citizens were considered retrospectively. Genders as follow: 51 (63.75%) female, 29 (36.25%) male. Others as follow: 48 (60.6 %) adult, 31 (39.4 %) pediatric patient. Age between 1 month of age and 75 years. SlgEinhalant test were considered as negative in 94 (47.2 %) see (Table 1). The positive inhalant results were 105 (52.8 %).

We found that, 23 % of them were allergic to american cockroach, 18 % to dermatophagoides pteronyssinus. Cat epithelia/hair sensitivity was established at 15 %, dessert palm pollens hypersensitivity was 13 % and dermatophagoides farina hypersensitivity was 11.25 %. 10 % of patients were hypersensitive to timothy grass and 9 % to msequite. Rye Grass and ambrosia hypersensitivity was found at a rate of 8 % and alternaria alternata hypersensitivity was 7 % and grass and ambrosia hypersensitivity was found at a rate of 6 % and alfalfa, white goosefoot, plantain sensitivities was found at a rate of 5 %. 1 % of the patients were sensitive to sheep’s wool and zero % to feathers mix (Table 2).

DISCUSSION

We evaluated the prevalence of IA in Saudi citizens existing in and nearby the region of Makkah. In this study, the topmost five IA were american cockroach, dermatophagoides pteronyssinus, cat epithelia/hair, dessert palm pollens and dermatophagoides farina.

It’s clear now that IA is connected to allergic diseases. Indoor aeroallergens are considered as a danger aspect for mild-to-moderate asthma [13], while in infants who are wheezing, the early sensitization to pollens may predict subsequent asthma until adolescence. House dust mites allergy in people with allergy to food may expect an allergy in the respiratory system. However, high eosinophil levels in the sputum of food allergy can predict respiratory allergies [14].

The skin Prick test (SPT) which is done in vivo in sensitized subjects to pollens and mites show reactivity increases over time (after a 12-month interval) [15]. The main IA in the in SPT includes dermatophagoides pteronyssinus, dermatophagoides farinae, blomia tropicalis, mugwort and cat hair. The SPT positive rate increases with age. The SPT positive rate is highest in children with allergic rhinitis [16].

In in vitro testing’s for IA are crucial. Total IgE levels were too much raised with dermatophagoides farina in preschool children [17]. First-level panel IA for specific IgE in children may suggest their use as a first diagnostic approach and for screening issues [18]. Uni CAP Phadiatop was shown to be extremely sensitive and specific in distinguishing persons who are sensitized to IA from those who are not [19]. Even small amounts of specific IgE to the allergens which found inside homes may lead to allergic symptoms the thing which can be clarified by the simultaneous bronchial hyperresponsiveness and high blood eosinophil count [20].

There is a slight evidence for the clinical advantage of the solitary avoidance events to IA (eg, mattress envelops, vacuum cleaners, and air filters), however the complex interference in particular patients may be of advantage. Presently, the evidence don’t support giving instructions on the use of allergen avoidance for prevention of allergic diseases; however, it is famous that no single plan will be appropriate to all kids [9].

Another problem with the avoidance measures is the compliance issue. Great adherence was established for the anti-mite encasings, hypoallergenic formula, solid food delay, and air filters), however the complex interference in particular patients may be of advantage. Presently, the evidence don’t support giving instructions on the use of allergen avoidance for prevention of allergic diseases; however, it is famous that no single plan will be appropriate to all kids [9].

Allergy immunotherapy (AIT) is effective in inducing life long tolerance to some IA. Single-allergen grass pollen (AIT) is safe and effective, whereas multi-allergen AIT requires more supporting evidence. AIT may be more efficacious in moderate-to-severe disease and polysensitization could be an indication for this type of treatment. There is a need for an algorithm for choosing the allergens for AIT in polysensitized patients [8]. In addition, antigen-specific IgG4 is the only easily available and suitable parameter existing for immunotherapy follow-up [22].

In utero sensitization to IA can happen. Fetal age, as being a serious period during which the newborn’s allergic outcome may be defined. However, in utero antigen exposure indicates a fetal exposure to maternally derived allergen [23]. The transfer

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Table 1: % of positive RAST vs negative RAST results.

<table>
<thead>
<tr>
<th>RAST inhalants</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive RAST results</td>
<td>105</td>
<td>52.8</td>
</tr>
<tr>
<td>Negative RAST results</td>
<td>94</td>
<td>47.2</td>
</tr>
<tr>
<td>Total RAST inhalant lab tests done</td>
<td>199</td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Results of sIgE to common aeroallergens in Makkah city.

<table>
<thead>
<tr>
<th></th>
<th>Number of positive RAST results to inhalants</th>
<th>% of positive RAST results/total RAST =199</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Cockroach</td>
<td>47</td>
<td>23%</td>
</tr>
<tr>
<td>Dermatophagoides pteronyssinus</td>
<td>36</td>
<td>18%</td>
</tr>
<tr>
<td>Cat epithelia/hair</td>
<td>30</td>
<td>15%</td>
</tr>
<tr>
<td>Dessert Palm Pollens</td>
<td>26</td>
<td>13%</td>
</tr>
<tr>
<td>Dermatophagoides farina</td>
<td>26</td>
<td>13%</td>
</tr>
<tr>
<td>Timothy grass</td>
<td>20</td>
<td>10%</td>
</tr>
<tr>
<td>Msequite</td>
<td>18</td>
<td>9%</td>
</tr>
<tr>
<td>Rye Grass</td>
<td>16</td>
<td>8%</td>
</tr>
<tr>
<td>Ambrosia</td>
<td>16</td>
<td>8%</td>
</tr>
<tr>
<td>Alternaria Alternata</td>
<td>14</td>
<td>7%</td>
</tr>
<tr>
<td>Acacia</td>
<td>12</td>
<td>6%</td>
</tr>
<tr>
<td>Mugwort-leaved</td>
<td>12</td>
<td>6%</td>
</tr>
<tr>
<td>Alfafa</td>
<td>11</td>
<td>5%</td>
</tr>
<tr>
<td>White Goosefoot</td>
<td>10</td>
<td>5%</td>
</tr>
<tr>
<td>Plantain</td>
<td>10</td>
<td>5%</td>
</tr>
<tr>
<td>Sheep’s wool</td>
<td>3</td>
<td>1%</td>
</tr>
<tr>
<td>Feather mix</td>
<td>ZERO</td>
<td>0%</td>
</tr>
</tbody>
</table>
of nutritious materials and IA from mother to fetus may happen [24].

Pre-school age is the prominent age for the process of sensitization to IA. Such a development has a likely influence on the progress of allergic illness in the developing kid. Initial sensitization to cat and danger for wheeze amongst kids who have atopic dermatitis might be related to an increased danger for sensitization in initial lifespan. Jointly, our findings claim for initial interference plans planned to alleviate skin [25]. The kind and amount of allergen sensitization’s and allergic signs altered from 3 to 6 years of age. Close follow-up of alterations in sensitization shapes could afford a well understanding of the pathogenesis of the allergic march [26].

The initial serologic indicator for hypersensitivity in infancy is the occurrence of IgE antibodies to egg and milk. The progress of sensitization to aeroallergens happens frequently next to infancy. Outdoor are double the indoor aeroallergens [27].

It’s vital to advice parents to avoid smoking both prenatal and postnatal to avoid IA allergies. Tobacco smoking has an adjuvant effect on the hypersensitivity throughout the chief three years of lifespan which appears to be limited to allergens to which offspring are mostly exposed, in addition with the greatest of the environmental tobacco smoke nearby the first birthdate [27].

We concluded that the highest five IA in Makkah were American cockroach, dermatophagoides pteronyssinus, cat epithelia/hair, dessert palm pollens and dermatophagoides farina respectively. Sensitization to common IA in Makkah was well-matched with universal nonfiction except for american cockroach which is a surprising discovery that desires additional assessment.

ACKNOWLEDGMENTS

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REFERENCES


