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Allergy skin test results of an outpatient pulmonary clinic in Gaziantep

Gaziantep'te göğüs hastalıkları polikliniğinde tespit edilen alerji deri testi sonuçları

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Abstract
Environmental factors play an important role in allergic sensitization. The aim of this study was to determine the spectrum of aeroallergen sensitivity of patients. The skin prick test results of patients with symptoms compatible with allergic diseases between March 2002 and December 2004 were retrospectively evaluated in Gaziantep University Pulmonary outpatient clinic. Of 1627 patients in whom skin prick tests (Stallergenes, France) were performed, 528 (32.5%) patients had at least one positive result among 8 allergens. The mean age of patients who had positive allergic skin test was 33.03 ± 11.80 (16-69), and 335 (63.4%) of those were female. Two hundred twenty five (52%) patients had positive skin prick test for one allergen tested, while 253 (48%) patients had positive skin prick test for multiple allergens. *Phleum pratensis* was the most common allergen found to be positive in 221 (41.8%) patients. The prevalence of positive tests were as follows; cockroach (32.9%), *Dermatophagoides pteronyssinus* (32.7%), *Olea europea* (27%), cat dander (14.9%), *Parieteria officinalis* (11.7%), *Cladosporium* (9.8%) and *Alternaria* (8.9%).*Phleum pratensis* and cockroach were the most common allergens causing a sensitivity reaction detected in our clinic.
Keywords: Allergy skin test; atopic diseases; respiratory allergens

Özet
Çevresel etkenler alerjik sensitizasyonda önemli rol oynar. Bu çalışmanın amacı, bölgemizdeki olgularda duyarlanma oluşturan solunumsal alerjen spektrumunu belirlemekti. Gaziantep Üniversitesi Göğüs Hastalıkları polikliniğine Mart 2002-Aralık 2004 yılları arasında alerjik hastalıkla uyumlu şikayetlerle müracaat eden olguların deri prik test sonuçları retrospektif olarak değerlendirildi. Deri prik testi (Stallergenes, Fransa) uygulanan 1627 hastadan 528'i (%32.5) 8 alerjenden en az birine karşı duyarlanma gösteriyordu. Deri testi pozitif olan hastaların yaş ortalaması 33.03±11.80 (16-69) idi ve 335'i (%63.4) kadındı. Sadece 1 alerjene karşı duyarlanma gösteren hasta sayısı 225 (%52) iken 253 (%48) olguda çoklu alerjen duyarlılığı saptandı. En sık saptanan etken *Phleum pratensis*'di (221 olgu, %41.8). Diğer pozitif sonuçların prevalansı ise şöyleydi: Hamamböceği (%32.9), *Dermatophagoides pteronyssinus* (%32.7), *Olea europea* (%27), kedi tüyü (%14.9), *Parieteria officinalis* (%11.7), *Cladosporium* (%9.8) ve *Alternaria* (%8.9). Kliniğimizde en sık saptanan deri testi duyarlılığı ajanları *Phleum pratensis* ve hamamböceği idi.

Anahtar kelimeler: Allerji deri testi; atopik hastalıklar; solunumsal allerjenler

Introduction

Atopy can be defined as the tendency to develop IgE against environmental allergens in genetically susceptible subjects. Approximately half of allergic subjects express symptoms, most commonly manifest in respiratory system which can be attributed to allergic sensitization (1,2). Aeroallergens have been found to be responsible for the development and severity of asthma and allergic rhinitis (3). Aeroallergen distribution varies with factors such as heat, moisture, flora in Turkey, as well as the world. Some allergens cause more widespread sensitivity whereas seasonal variation may also contribute. The information on distribution, frequency and variation of allergens will facilitate personal avoidance and protective measures. Skin tests are the most rapid, economic and sensitive tests that show the presence of allergen specific IgE in mast cells of the subject. We aimed to define the profile of allergen sensitivity in subjects referred to the Allergy laboratory of Gaziantep University Chest Clinic.

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Material and methods

Subjects with sensitivity reaction to at least one allergen in the Allergy laboratory of Gaziantep University Chest Clinic from March 2002 to December 2004 were retrospectively evaluated. The study was approved by local ethics committee.

The subjects over 16 years of age were referred from Departments of Pulmonary Medicine, Ear Nose & Throat, Dermatology and Ophthalmology with suspicion of allergic sensitization. After review of medication history, specific allergen solutions were dropped on the volar surface of the forearm and applied epicutaneously as prick method with a lancet (Stallergenes, France) and reactions were evaluated after 20 minutes (4,5). If the edema was 3 mm larger than negative control, skin prick test (SPT) result was recorded as positive. When the edema area was twice the size of histamine response, SPT result was scored as "++++", reaction size as large as histamine was "+++", reaction half the size of histamine was "++", reaction between negative control and "++" was "+". The solutions that were tested consisted of histamine (positive control), temoin (negative control), *Dermatophagoides pteronyssinus* (house dust mite), *Blatella germanica* (cockroach), cat dander, *Alternaria*, *Cladosporium*, *Phleum pratense*

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(timothy), *Parietaria officinalis* (pellitory), *Olea europea* (olive tree).

Results

Five hundred and twenty eight (32.5%) of 1627 patients had positive reaction to at least one of eight allergens. The mean age of subjects with positive SPT was 33.03 ± 11.80 (16-69) and 335 of them were female (63.4%). The number of patients with one positive skin test reaction was 275 (52%), while 253 patients had two or more (48%) positive reactions. Table 1 shows demographic characteristics of the subjects with positive SPT reactivity. The most common sensitivity was detected against *Phleum pratensis* in 221 patients (41.8%). Other allergens with positive skin test results in decreasing order were *B. germanica* 174 (32.9%), *D. pteronyssinus* 173 (32.7%), *O. europea* 143 (27.0%), cat dander 79 (14.9%), *Parieteria* 62 (11.7%), *Cladosporium* 52 (9.8%) and *Alternaria* 47 (8.9%) (Figure 1).

Table 1. Demographic characteristics of the skin prick test positive subjects.

Age (year)	33.01±11.83
Female (n=335)	33.16±12.16
Male (n=193)	32.8±11.15
Monosensitization (n)	275
Polysensitization (n)	253

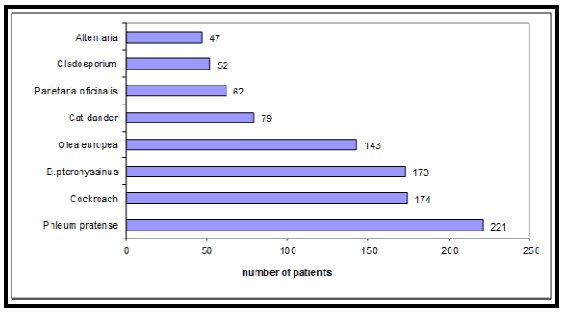

Figure 1. The distribution of allergen sensitivity in subjects with positive skin test.

Discussion

We detected the most common sensitivity (41.8%) to *Phleum pratensis* in our study population. Grass pollens are the most allergic pollens in many areas around the world. *Phleum pratensis* or timothy frequently causes allergic response among grass pollens (6). Cross reactivity is present between many grass pollens. The pollens of nonflowering green plants are carried widely by the wind. Atmospheric quantity of pollens depends on weather conditions and time of day. The pollens in the atmosphere descend to the ground and decrease on moist and rainy weather while increase on dry and sunny days. The high frequency of *Phleum pratensis* sensitivity meets expectations as Gaziantep is located in a dry and warm area in southeast part of Turkey.

Cockroach and mite sensitivity was found in 174 (32.9%) and 173 (32.7%) patients; respectively. Cockroach sensitivity is more common in warm and moist areas and in communities with lower socioeconomic status. Studies reveal that sensitivity to mites and cockroach are commonly found together, as in 60 (35%) of our cases (7). In different studies from Turkey, sensitivities to house bugs were 5.3% and 9.2% among patients with respiratory complaints (8,9). These rates increased to 35%-52% in atopic asthmatics in our country (7,10,11). Dikensoy, a colleague from Gaziantep University Chest Clinic, formerly reported that the highest sensitivity was against *D. pteronyssinus* (55.1%) among atopic asthmatic patients of whom 71.6% were urban dwellers (11). Although mite sensitivity is more common among asthmatic patients, grass pollen allergy is the leading condition in the current study population which includes wider spectrum of allergic patients.

Tree pollen sensitivities vary with relation to regional flora. Olive tree pollen sensitivity is common to the Mediterranean region. The reported frequency of olive tree pollen is 1.1% in Sweden and increases to 37.2% in Greece (12). There is considerable olive production in Nizip and Kilis provinces around Gaziantep and sensitivity to olive pollen was fourth leading cause (27%). Pistachio nuts are grown widely around Gaziantep however standard allergen solutions were unavailable. Ceylan et al. (13) from neighboring town of Şanlıurfa reported 51.6% pistachio sensitivity and 33.3% *Olea europeae* sensitivity among 92 asthmatic patients with tree pollen sensitivities.

Household pet ownership is not as common as Europe and North America in Turkey. However the rate of cat allergen sensitivity was 14.9% in our population. Cat and dog allergens are carried around as airborne small particles and are widely distributed through owners clothing. Bollinger and Custovic have shown cat allergens in 27.5% and 30% of houses without a cat (14,15). Cat sensitivity was detected as 15% in Istanbul, 17.3% in Ankara, 44.7% in Izmir among adults and children having respiratory allergic diseases (16-18).

Parietaria officinalis is an important wild grass worldwide and causes asthma and allergic rhinitis especially in countries bordering the Mediterrenaen. *Parietaria* sensitivity among patients with asthma or allergic rhinitis has been shown to be 52% with skin tests and 81% with specific IgE in Izmir, an Aegean town (19). The rate of *Parietaria* sensitivity in Eskişehir where climate conditions are similar to Gaziantep has been shown to be 9% and this rate is similar to our rates as 11.7% (20).

Indoor molds as *Penicillium* and *Aspergillus* and outdoor molds as *Alternaria* and *Cladosporium* are responsible for respiratory tract allergies. Outdoor mold spores are present all the year round suspended in air, but they increase during summer (21). *Cladosporium* and *Alternaria* sensitivity is reported around 10% in the literature which is compatible with our data. Allergic rhinitis is common in subjects sensitive to molds (21,22). Dikensoy et al. (11) had found sensitivity rates for *Alternaria* and *Cladosporium* as 48.9% and 41.8% respectively in asthmatic patients from Gaziantep. It has

been suggested that the course of asthma is more severe in subjects sensitized with molds (23). *Alternaria* sensitivity was demonstrated in 10 of 11 young asthmatics who had experienced respiratory arrest (24).

Detection of allergen susceptibilities is important for the management of allergic diseases. Allergens sensitivities such as mite and cockroach are more common in asthmatic patients whereas others like pollens are more frequent in subjects with allergic rhinitis. Studies have pointed out that some specific sensitizations may be related to disease severity. It should be kept in mind that skin test positivity with compatible clinical history is necessary and knowledge of atopic pattern may influence management of the diseases and preventive measures.

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