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The type of sensitization to allergens in allergic patients in Ankara, Turkey

Türkiye'de Ankara ilinde alerji hastalarında allerjen duyarlılığının tipi

Caner Şahin[1], Müge Özcan[1], Ayşe İriz[1], Kürşat Murat Özcan[1], Adın Selçuk[1], Işıl Olcay[2], Adnan Ünal[1]

[1]*Department of Otorhinolaryngology, Ankara Numune Training and Research Hospital, Ankara, Turkey*
[2]*Department of Chest Diseases, Ankara Numune Training and Research Hospital, Ankara, Turkey*

Abstract

Objective: To present our prick test results that would reflect allergens prevalent in the Central Anatolia.

Methods: Prick tests of the 1618 patients diagnosed with allergic rhinitis, atopic dermatitis, allergic conjunctivitis between January 2003 and May 2005 were included in the study. In epidermal skin prick test, sensitization to 21 allergens including trees, grasses, weeds, fungus, epithelium-hair, house dust and mites, latex, and food were evaluated.

Results: Positive prick test results were obtained in 565 (34.9%) of 1618 patient. Sensitivity to prick tests were as follows: 373 (66%) were positive for grass pollens, 242 (43%) were positive for house dust and mites, 265 (47%) were positive for trees, 71 (6%) were positive for epithelium-hair, 96 (17%) were positive for lens, 37 (6.7%) were positive for foods, 24 (%) were positive for fungus, 26 (4%) were positive for latex allergens.

Conclusion: In our study, we found that the most common allergens in Ankara are pollens, trees and house dust and mites.

Keywords: Prick test, atopy, allergic rhinitis, allergic conjunctivitis.

Özet

Amaç: Bu çalışmada iç Anadolu Bölgesi'nde sıkça gözlenen alerjenleri yansıtan prick test sonuçlarının değerlendirilmesi amaçlanmıştır.

Yöntem: Alerjik rinit, atopik dermatit, alerjik konjuktivit tanısı konan hastaların prick test sonuçları çalışmaya dahil edildi. Hastalara ağaçlar, otlar, yabani otlar, epitel-tüy, ev tozu akarı, lateks ve gıdaları içeren ile deri uygulandı.

Bulgular: Çalışmaya dahil edilen 1618 hastanın 565'inde (%34.9) tanesinde prick testi pozitif idi. Alerjenlerin 373'ünde (%66) ot, 242'sinde (%43) ev tozu akarı, 265'inde (%47) ağaç, 71'inde (%12.6) epitel-tüy, 96'sında (%17), 37'sinde (%6.7) gıda, 24'ünde (%4.3) mantar, 26'sında (%4.7) lateks alerjenleri saptandı.

Sonuç: Çalışma sonuçlarına göre Ankara'da en sık rastlanan alerjenler ot polenleri, ağaç polenleri ve ev tozu akarları idi.

Anahtar sözcükler: Prick test, atopi, alerjik rinit, alerjik konjuktivit.

Allergic diseases belong to a group of diseases seen with higher frequency whose pathogenesis, genetic mechanisms, epidemiology and risk factors have been investigated many times.[1] The prevalence of the disease varies between countries and regions. Allergic diseases genetically manifest in atopic individuals under the impact of environmental allergens. One of the reasons of epidemiological differences among regions might be environmental factors.[1,2]

In our study, we applied prick test in patients consulted to our allergy polyclinics in order to evaluate the allergens we have searched for. Prick test is applied using antigens which might cause allergic reactions in atopic individuals with allergic rhinitis, conjunctivitis, atopic dermatitis, food allergies and urticaria.[1,3]

Herein, we aimed to present our prick test results that would reflect allergens prevalent in the Central Anatolia in

Correspondence: Caner Şahin, MD. Akat Sokak, No: 3/7 Cebeci, Ankara, Turkey.
e-mail: drcaner2001@gmail.com

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patients with allergic rhinitis, atopic dermatitis, and allergic conjunctivitis.

Materials and Methods

Study group consisted of patients who consulted our allergy polyclinics with complaints of watery eyes, eye redness, running nose, nasal stuffiness, sneezing, itching, coughing, and asthmatic episodes. In the study, prick test results of 1618 patients were evaluated. Twenty-one kinds of allergens including wood, grass, weed pollens, epithelium and hairs, house dust and mites, latex and food allergens were used in the prick test. Besides, physiological saline and histamine were used as positive and negative controls, respectively. Allergens were epidermally applied on the inner side of the forearm. Evaluations were made 20 minutes later. Allergens were determined as positive or negative in comparison with erythema and induration induced by positive and negative controls on the skin.

Results

Ages of the patients ranged between 12 and 77 (median: 35) years. Study population (n=1618) consisted of 1132 (70% female and 485 (30%) male patients. Acco[illegible] prick t[illegible] results, positive reaction [illegible]ed [illegible] 34.9% patients.

When [illegible]sult[illegible]ere [illegible]ated, se[illegible]tiviti[illegible]o allergens including [illegible]len[illegible]372 66%), meadow grass, rye, wheat, bar[illegible] ho[illegible] d[illegible] and mites (n=242; 43%), tree pollens (n=[illegible]; 47%) [allergies against poplar tree (10%), olive tree (19%), mixture of tree pollens (9%) and hazel wood (9%) in indicated percentages of patients], epithelium-hair (n=71; 12.6%), weed *(Artemisia vulgaris)* (n=96; 17%), food (n=37; 6.7%), fungus (n=24; 4.3%) and latex (n=26; 4.7%) were detected (Table 1).

Majority of the patients (n=377; 67.5%) demonstrated sensitivities to a single group of allergens, while 121 (21.5%) patients were allergic to two different groups of allergens at the same time. Finally 64 (11%) patients were simultaneously sensitive to ≥3 different groups of allergens.

Among animal epithelium allergens, sensitivities of the patients to cockroach (n=35; 6.3%), dog (n=50; 9%), cat (n=26; 4.7%) and poultry animals (n=9; 1.7%) were observed.

Among food allergens, sensitivities of the patients to peach (n=12; 2.3%), egg white (n=4; 0.7%), banana (n=5; 1%), cocoa (n=2; 0.3%), egg yolk (4; 0.7%), fish (n=2; 0.3%), cow's milk (n=4; 0.7%) an[illegible]n=4; 0.7%) were observed.

Dis[illegible]sion

Alle[illegible] diseases ge[illegible]ically [illegible]anifest themselves in atopic div[illegible]er the impact of environmental allergens. [illegible]rgens taken in through skin, mouth and inhalation from the environment trigger development of allergic diseases in atopic patients. One of the reasons of epidemiological differences among regions might be environmental factors. Detection of potential allergens with prick test, can provide the individual, information about protection from allergens and the nature of the allergic disease.

Table 1. Active allergens found in prick test and their rates.

Allergen	Number of sensitive patients (%)	Allergen	Number of sensitive patients (%)
Poplar tree	56 (10%)	Cockroach	35 (6.3%)
Olive tree	109 (19%)	House dust and mite	242 (43%)
Hazel tree	50 (9%)	Latex	26 (4.7%)
Mixture of various tree pollens	50 (9%)	Peach	12 (2.3%)
Meadow grass	372 (66%)	Egg white	4 (0.7%)
Rye	372 (66%)	Egg yolk	4 (0.7%)
Wheat	372 (66%)	Banana	5 (1%)
Barley	372 (66%)	Cocoa	2 (0.3%)
Weed	96 (17%)	Fish	2 (0.3%)
Poultry	9 (1.7%)	Cow's milk	4 (0.7%)
Cat hair	26 (4.7%)	Orange	4 (0.7%)
Dog hair	50 (9%)		

In our study, the incidence of prick test positivity was 34.9 percent. In studies performed in our country, Çalışkaner et al. and Öğretmen et al. detected prick test positivity in 27.4 and 44.3% of their patients, respectively.[1,2]

Allergic diseases related to pollens develop as a result of mucosal contact with wind-borne grass, weed and tree pollens. Geographic characteristics effect the type of allergens. In a study performed in İzmir and Eskişehir, sensitivities to olive tree pollens were detected in 30 and 7% of the patients, respectively.[3,4] In our study, in the population with prick test positivity, sensitivities to pollens of poplar tree (10%), olive tree (19%) and mixture of trees (9%) and hazel tree (9%) were detected as indicated in parentheses.

Generally speaking, allergens of grass and cereal grass are the most frequent causes of allergies. Grass is probably the most prevalent plant in the world and grass pollen allergy is the most frequently encountered allergy with a single allergen. In macro-planning, climate and in micro-planning local differences determine types of grass allergens. In Anatolia where agriculture is the means of livelihood, cereal grass gains importance. In our study, in 66% of the prick test positive population, sensitivity to cere grass including the meadow grass, rye, w y gra was detected, while in 17% o atie ivity weeds was obse ed.

Hous st a m se alle sym ms all year long and p e u r an verage temperature of 20-30°C and -80 hu ity. These pathogens fed on human skin bris and become allergenic with their feces and body proteins. They survive within carpets, beds, quilts and cushions which can be get in contact all day long. These allergens are frequently encountered in warm and humid climates.[5] In our study, in 43% of the prick test positive population, house dust and mites were detected.

Allergens of the animal origin are formed with dander, saliva and feces of cats, dogs, cockroach, and poultry animals. In our study, in 12.6% of the prick test positive population sensitivity to animal dander (cockroach 6.3%, poultry animals 1.7%, cats, 9% and dogs 9%) were detected. In higher socioeconomic conditions, the habit of keeping pet animals at home, raising poultry in the country side and in poor socioeconomic and living conditions the incidence of cockroach and animal allergy might increase.[6] In our study, 6.3% of the prick test positive population was sensitive to cockroach allergens. These perennial allergens can survive especially in kitchens and bathrooms at an ambient temperature of 20-25°C and 50-70% humidity, and trigger asthmatic symptoms.[7,8]

In our study, in the 4.7% of the prick test positive population, sensitivity to latex was detected. Şenel et al. reported latex sensitivity in 9.2% of the operating room personnel.[9] Some factors such as as working environment, as is seen in latex allergy, may effect allergen profile.

A study performed in Ankara found the incidence of food allergy as 14 percent.[10] In our study, in the population with prick test positivity, the incidence of food allergy was found to be 6.7% (sensitivities to different foods were as follows: banana 1%, egg white 0.7%, egg yolk 0.7%, fish 0.3%, orange 0.7%, cocoa 0.3%, peach 2.3% and cow's milk 0.7%). Lower degree of sensitivities to food allergens may be correlated with the study group consisting wholly of adults. As reported in the literature, with age, incidence of inhalant allergy decreases, contrary to decrease in food allergies.[11]

In conclusion, most f dy ount allergens in Ankara we , gr and ou dust mites. In this y, the m freq uy enco allergens in the tral Anatol ere p in order to contribute to th llergy map ur country.

Conflict of Interest: No conflicts declared.

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