A COMPARISON BETWEEN DIAGNOSTIC CLINICAL TESTS AND HERBAL GEOGRAPHY IN ALLERGIC PATIENTS IN TEHRAN AND KARAJ CITIES

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ABSTRACT

The prevalence of allergic diseases is high in the general population, and the high prevalence of these diseases not only leads to considerable mortality and morbidity, but also has economic importance. In this study 400 patients were evaluated in Tehran and Karaj cities during 1995-1998. Skin prick test with standard extracts was done in patients in comparison with controls. Selection of extracts was according to clinical data and regional herbal geography. 48.3% of patients were females and 51.7% were males. Mean age of patients was 19 years old. The most common problem was allergic rhinitis. The results of skin prick test were: weeds (51.5%), grasses (34%), trees (28%) and flowers (1.1%)

Keywords: *Allergy, Skin tests, Herbal geography.*

INTRODUCTION

The prevalence of allergic disease in the general population is as high as 20%-30%.[1,2,4] The high prevalence of these diseases leads to considerable absence from the workplace and high treatment costs. Suitable plans for prevention and management of patients necessitates a knowledge of the causes of these diseases.[1,4,8]

Reproductive particles of many plants and fungi, as well as certain algae, bacteria, actinomycetes, and protozoa, regularly undergo atmospheric transport.

The resulting natural aerosols (air spora), which include significant human allergens, vary locally with land use and regional cycles of plant growth. Familiarity with the most common anemophilous (wind-pollinated) plants is key to assessing their local distribution and flowering cycles (Phenology).[5] There is a correlation between allergic symptoms, the results of skin allergic tests and regional wind-pollinated plants.[2,4,8,11,12]

The objective of this study was to elucidate the correlation in the region of Tehran and Karaj cities.

MATERIAL AND METHODS

In this study 400 patients were evaluated in Tehran and Karaj cities during 1995-1997. All of these patients had allergic symptoms. After a history and physical examination of patients, skin prick tests with standard extracts were done in parallel with positive control (histamine) and negative controls; wheal and flare size were interpreted in comparison with control.

Selection of extracts for testing was according to clinical data of patients and regional herbal geography (including season of year, local distribution, and flowering cycles).

RESULTS

48.3% of patients were female and 51.7% were

Table I. Sex disteribution in 400 cases of allergic patients.

Sex	Frequency	Percent
Female	193	48.2%
Male	207	51.8%
Total	400	100%

Table II. Age distribution in 400 cases of allergic patients (mean age: 19 years).

Age group (year)	Frequency	Percent
0-5	58	14.5%
6-15	150	37.5%
16-25	65	16.3%
26-35	64	16%
36-45	45	11.3%
46-55	14	3.5%
>55	4	1%
Total	400	100%

Table III. Disease distribution among 400 allergic patients.

Disorder	Female	Male	Total
Allergic rhinitis	71	76	147
Asthma	40	77	117
Urticaria	37	14	51
Dermatitis	2	9	11
Chronic cough	7	3	10
Allergic rhinitis + sinusitis	3	2	5
Asthma+allergic rhinitis +sinusitis	30	24	54
Asthma+sinusitis	1	1	2
Asthma+eczema	2	1	3
Total	193	207	400

male (Table I). Mean age of patients was 19 years old (Table II). The most common problems of patients were: allergic rhinitis (50%), bronchial asthma (42%), allergic rhinitis plus bronchial asthma (13.5%), and urticaria (13%) (Table III). The most common problem in both males and females was allergic rhinitis. Asthma in males was more common than in females, while urticaria in females was more frequent than males.

The results of skin prick tests were: weeds and shrubs (57.5%), grasses (34%), trees (28%), and flowers (1.1%) (Fig. 1). The most frequent tree pollens were: *Platanus orientalis, Populus alba, Cypressus sempervirens* and *Betula alba.* The most frequent weed pollens were: *Chenopodium album, Kochia scoporia, Amarantus retroflexus and Plantago lanceolate.* The most frequent grass pollens were: *Lolium perune, Aveua fatua, Bromus sterilis, Cynodon dactylon* and *Sorghum halepeuse.*

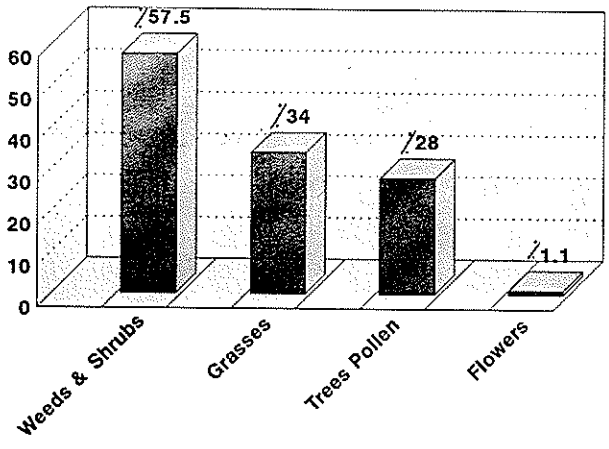

Fig. 1. Results of skin prick test in 400 allergic patients

DISCUSSION

The prevalence of allergic disease in the general population is as high as 20%-30%.[1,2,4] Suitable plans for prevention and management of these patients depend mainly on knowledge of the causes of these conditions. As clinical manifestations and exacerbation of symptoms are related to regional herbal geography, familiarity with the most common wind-pollinated plants is the key to assessing their local distribution and flowering cycles.[1,2,3,4,8] The objectives of this study were to elucidate correlations between clinical manifestations, diagnostic clinical tests, and regional herbal geography in allergic patients.

There are several methods for recognition of these airborne allergens. These allergens are protein antigens between 2-60 μ in size which can easily enter the eyes and upper airways. In this way, particles with sizes about 18-20 μ are trapped over the carina, but those with smaller than 5 μ enter the smaller airways and terminal bronchioles and deposit in these peripheral airways, which in atopic patients lead to allergic symptoms like asthma.[1,5,6,7,11,12]

In this study there was no difference between female and male concerning the prevalence of allergic disease, but the prevalence of asthma was higher in males, and urticaria was higher in females. Mean age of patients was 19 years old. The majority of patients were students, housewives and small children before school age. Time of exacerbation was in late summer and early fall. This was related to most allergenic wind-borne pollens in Tehran and Karaj, which were weeds and shrubs, especially *Chenopodium album, Amarantus retroflexus, Kochia scoporia, Plantago lanceolate* and *Rumex pulcher.*

The most common problem among the patients was allergic rhinitis which was accompanied by asthma in 13.5% of cases.

The most common allergenic air-borne trees pollen were *Plantanus orientalis* and *Cypressus sempervires.* The

most common allergenic grass pollens was from the *Graminae* family in the class liliopsida (*Monocotyledonae*), especially *Lolium pernne*.

Thus, the important keys to select the extracts for skin tests in allergic patients are knowledge of regional herbal geography and familiarity with the most common wind-pollinated pollen and their local distribution and flowering cycles in different seasons.

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