BRIEF COMMUNICATION

Descriptive Study of 226 Patients with Allergic Rhinitis and Asthma

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ABSTRACT

The prevalence of allergic diseases such as asthma and allergic rhinitis is high in general population and aeroallergens are the most common allergens that cause air way inflammation.

The aim of this study was an evaluation of clinical and laboratory findings in allergic patients and identification of the most common aeroallergen in these patients.

A cross–sectional retrospective study was conducted on 226 allergic patients who were referred to allergic clinic of Karaj city, and skin prick test response to aeroallergens were studied.

The most common risk factors in these patients were total IgE more than 100 IU/ml and a positive family history of atopy.

Skin prick testing results showed that the most common aeroallergens were: herbacee II (62%), sycamore (57%), chenopodium (53%), tree mix (50%), herbacee III (47%), grass (43%), ash (40%), herbacee I (37%), cedar (27%), cockroach (25%), and mite D.P (19%), D.F (18%).

High prevalence of skin reactivity to weeds (chenopodium and herbacee) and sycamore indicates variation in the prevalence of aeroallergen reactivity in different regions with different climates.

Keywords: Allergy; Asthma; Prevalence; Rhinitis

INTRODUCTION

Asthma and rhinitis are the most common allergic conditions. Allergic conditions have increased since past decades, and posing a heavy burden on health care systems.[1]

Asthma is a major cause of chronic morbidity and mortality throughout the world that is characterized by paroxysmal spasmodic narrowing of the bronchial airway due to inflammation of the bronchial tree and contraction of the bronchial smooth muscle.[2]

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Common risk factors include exposure to allergen such as domestic dust mites, animals with fur, cockroach, pollens and molds, occupational irritants, respiratory infections, exercise, air pollution and tobacco smoke. Allergic rhinitis is an inflammatory condition of the nasal mucosa characterized by the symptoms of pruritus, sneeze, discharge and stuffiness induced by an IgE - mediated response.[1]

Aeroallergen with an origin from plants, animals, molds and mites are the most common allergens involved in allergic rhinitis. Allergic disorders are diagnosed by a proper history, physical examination and some paraclinical findings Serum total IgE, eosinophylic count, specific IgE, skin prick test, RAST test and respiratory function test. Asthma and

rhinitis are common comorbidities, suggesting the concept of one airway, one disease.[3]

This study was designed for evaluation of co existence of asthma and rhinitis, risk factors for allergy such as family history of atopy, IgE level and identification of the most common aeroallergen in Karaj city of Iran.

PATIENTS AND METHODS

A cross-sectional retrospective study was designed and 226 patients with diagnosis of allergic rhinitis or asthma based on the criteria of GINA[4] who had been referred to a private allergic clinic in Karaj city during years of 2002 – 2003 were selected.

Information chart of patients was reviewed which included data about sex, age, symptoms and signs of diseases (diagnosis of disease), pattern of allergic diseases (seasonal or perennial), family history of atopy, CBC results, level of IgE and response to aeroallergen such as trees (sycamore , Ash, Beech ,Cedar , Alder , Elder) ,grass, weeds (herbacee I, II, III, chenopodium), Cockroach, House dust and mite (D.P and D.F). Data was analyzed with Epi-Info version 6, program.

RESULTS

Among 226 patients with allergic rhinitis or asthma or both, male/female ratio was 1.5/ 1. Age of patients was between 2 to 59 years with a mean of age: 13.5 ± 10.5 yr.

In this study, 55% of patients had asthma. 56% allergic rhinitis and 24% had bronchial asthma together with allergic rhinitis.

Seasonal pattern was seen in 38% of patients, perennial pattern in 29% and 20% had perennial pattern with exacerbation in some seasons.

Positive family history of atopy was seen in 72% of patients, 28% had Eosinophil count more than 300/mm3 and 71% had total IgE more than 100IU/ml.

In skin prick test, 68% had positive SPT to at least one of the aeroallergens. Frequency of positive tests to individual allergen is depicted in table 1.

The most common aeroallergens were herbacee II (62%), sycamore (57%), chenopodium (53%), tree mix (50%), herhacece III (47%), grass (43%), ash (40%), herbacess I (37%), ceder (27%), cockroach (25%), D.P (19%), D.F (18%). Other pollens such as Beech, Birch, Alder, and Elder had little importance because positive SPT to these allergens were less than 5%.

Table 1. Frequency of most common positive skin prick test to the aeroallergens among 226 patients with allergic symptom in Karaj city.

Allergen	Number of subjects with positive SPT	% frequency of all positive cases
Herbacee II	140	62%
Sycamore	128	57%
Chenopodium	120	53%
Tree mix	113	50%
Herbacee III	106	47%
Grass	97	43%
Ash	90	40%
Herbacee I	83	37%
Cedar	61	27%
Cockroach	56	25%
D.P	43	19%
D.F	41	18%

DISCUSSION

Common pathophysiology in allergic rhinitis and asthma result to the important one airway , one disease.[3] Between 60 to 78% of patients who have asthma have coexisting allergic rhinitis that they are described better as a continuum of inflammation involving one common airway. In our study 24% had bronchial asthma together with allergic rhinitis.

Approximately, 20% of allergic rhinitis is strictly seasonal, 40% perennial and 40% mixed.[5] In this study, 38% patients had seasonal pattern and 29% perennial pattern and 20% mixed , so seasonal pattern was the most common pattern witch may be due to regional herbal geography.

The UK postal survey found a prevalence of perennial diseases of 21%.[6]

Serum IgE greater than 100 IU/ml and family history of atopy are risk factor for development of allergic diseases. 72% of patients had positive family history of atopy and 71% had IgE level more than 100 Iu/ml.

Aeroallergens are the prominent causes of allergic symptoms in patients with asthma or allergic rhinitis. In this study 68% of patients were sensitive to aeroallergen but 26% had negative skin prick test in

spite of classic clinical findings of allergic rhinitis or asthma, local generation of IgE provides an explanation for this group.[3]

Pollens were the most common aeroallergen in patients with allergic diseases in Karaj city. Among pollens, weeds such as herbacee and chenopodium had the highest rate of sensitization and trees such as sycamore ash and grass were next in importance.

Cockroach, dust and dust mite including D.P and DF had significant reaction.

In a similar study in Shiraz city, weeds and grasses were the most common aeroallergens in patients with allergic rhinitis.[8]

In United Arab Emirates, the most common reactions were: Mesquitec, Grass mix, Cotton wood, Bermuda grass, Kocki, Acacia, Alfalfa, Chenopodium, Date palm, Cockroach, House dust and Dust mite.[9]

Based on our knowledge about dry climate and regional herbal geography these results were expected.

In contrast , house dust mite were reported to have the highest rate of sensitization among Malaysian asthmatic patients [10] and patients with allergic rhinitis in Thailand,[11] Singapore[12] and Mexico city.[13]

This difference also was expected since mite tends to require high humidity and moderate temperature to thrive, whereas Karaj city had a dry climate.

Pollens such as weeds family and sycamore are the major aeroallergen in Karaj city and this high prevalence of skin reactivity to weeds and sycamore denote to variation in the prevalence of aeroallergens reactivity in different region with different climates.

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