

ALLERGENS IN ALLERGIC RHINITIS

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ABSTRACT

Allergic rhinitis disrupts the quality of life of a large segment of our population. Mostly it effects young individuals and can lead to considerable morbidity and complications.

There were two main objectives of the study. To find out the allergens responsible for causing allergic rhinitis in the Armed forces personnel and their families residing in Rawalpindi and Islamabad. To determine the rate of positivity of the skin prick test in these selected patients.

The study was carried on 200 cases in ENT department CMH Rawalpindi during March 2001 to March 2003. Patients were selected irrespective of sex, between the age brackets of 12-60 years. Patients presented with clinical features of allergic rhinitis were clinically examined and then skin prick test were carried out in AFIP Rawalpindi to find out the causative allergens.

Common allergens on skin prick test were found to be house dust (72.6%), house dust mites (64%), mixed pollens (59.5%), grass pollens (46%), paper mulberry (21.5%), cannabis (13.5%) and moulds (20%). The rate of positivity of skin prick test was found to be 88% among the selected patients of allergic rhinitis.

It is concluded that determination of causative allergens form the cornerstone in the management of allergic rhinitis. Based on these findings a patient can take preventive measures against the causative allergens and a physician can diagnose and treat the patients in a better way.

Keywords: Allergen, rhinitis, skin prick test

INTRODUCTION

Allergic rhinitis remains a frequent cause of morbidity, social embarrassment and impaired performance in the work place and in the schools [1]. It is an IgE mediated hypersensitivity disease of the mucous membrane of the nasal air passages. Depending upon the sensitivity of the subject to aeroallergens it can be intermittent or persistent.

History and clinical examination gives clues about the diagnosis of the disease but the identification of allergen(s) responsible for the patient's symptoms is important for establishing the diagnosis, institution of avoidance measures and treatment of the disease. Different tests are available to detect allergy and allergens causing

allergic rhinitis such as skin prick test, serum IgE detection by RAST and ELISA, nasal cytology and a recent technique of multiple chemiluminescent test system (MAST CLA) [2]. Among these tests skin prick tests are the more reliable, rapid and cost effective tests [3].

Identification of allergens responsible for the causation of the disease and patient's symptoms has an educational value for the patients to avoid themselves from the particular allergen.

The present study was conducted:-

1. To find out the allergens responsible for causing allergic rhinitis in the Armed forces personnel and their families residing in Rawalpindi and Islamabad.
2. To determine the rate of positivity of the skin prick test in these selected patients.

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MATERIALS AND METHODS

200 patients were selected from the ENT department of CMH Rawalpindi by convenience sampling during March 2001- March 2003. They were selected irrespective of sex and between the age brackets of 12-60 years. The selection criterion was the clinical features of the allergic rhinitis i.e. bouts of sneezing, watery nasal discharge, nasal obstruction and itching of nose and eyes and a detailed general physical and ENT examination. Patients with rhinitis due to other causes like infection, deviated nasal septum and nasal polyps were excluded from the study. Patients with extensive skin disease and dermatographism were also excluded from the study.

All selected 200 patients were subjected to skin prick test in the immunology department of AFIP. The allergen extracts were prepared in the institute from the local, commonly suspected allergens.

Allergen extracts of house dust, house dust mites, mixed pollens, grass pollens, paper ulberry, cannabis and moulds were tested on all the patients. Two control tests were part of the allergy skin test procedure. The first was a positive control test — usually histamine. The second was a negative control test — a solution without allergens. All the subjects were asked not to use any antihistamine for 2 days in case of common anti histamine and 6 weeks when they were using astemizol before skin prick test.

After the result of skin prick test, all patients were given a standardized questionnaire for collection of data.

RESULTS

Among the 200 cases majority of the cases were young, between 12-25 years (96). 70 patients belonged to age group of 25-45 years and 34 patients were between 45-60 years of age .120 cases were male and 80 were females.

176 cases were found to be skin prick test positive among which 104 cases were male and 72 were female 24 cases (12%) were found to be skin prick test negative. Among the 24 negative cases, 16 were male and 8 cases were female.

Majority of the patients had their close relatives suffering from allergic rhinitis. Family history was positive in 69% of the cases.

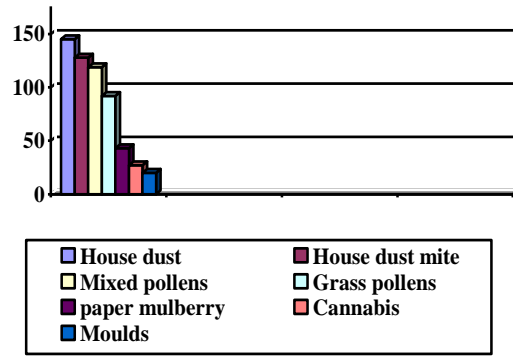


Fig. 1: Sensitivity to different allergens.

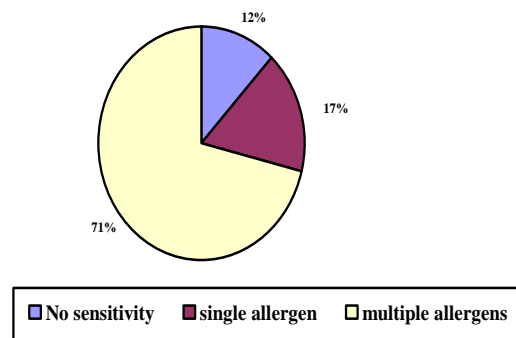


Fig. 2: Allergen sensitivity.

House dust was found to be the commonest allergen detected among the patients subjected to skin prick test 145 cases (72.6%) were allergic to house dust. The least common allergen was found to be moulds and only 20 cases (10%) were found to be skin prick test positive to moulds.

House dust mite (HDM) were the positive allergen in 128 cases (64%). 119 cases (59.6%) were allergic to mixed pollens. 92 cases (46%) were found skin prick test positive to grass pollens and 43 (21.5%) cases were found allergic to paper mulberry. Cannabis was found to be causing allergy in 27 cases (13.6%). Only 20 cases (10%) were found to be allergic to moulds (fig. 1).

176 cases out of 200 were found to be skin prik test positive. Thus the rate of positivity of skin prik test is 88% among the selected patients of allergic rhinitis.

142 of the positive cases were found to be allergic to 02 or more than 02 allergens causing allergic rhinitis which has un-favorable results to immunotherapy. Only 34 cases were positive to one single allergen. Patients suffering from single allergen allergy show promising response to immunotherapy (fig. 2).

DISCUSSION

In this study skin prick test were used as the method for identification of the allergens. Out of these 176 cases (88%) were found to be skin prick test positive for one or another allergen tested. This finding is consistent with a study conducted in Karachi [4] in which 75.33% cases were found to be suffering from allergy and 24.67% patients did not show allergy to any of the allergen tested. However this finding is contradictory to the findings of the study conducted by Anwar et al in Lahore [5] in which all the patients studied were found to be suffering from allergy and sensitive to one or another allergen tested.

It seems that the percentage of sensitivity to allergen commonly found in the environment differs from area to area and from country to country, therefore skin prick test should be performed against the locally suspected allergens.

It is a common phenomenon that most of the allergic individuals are sensitive to more than one allergen. Among the 176 positive cases 142 (71%) cases were sensitive to 2 or more than 2 allergens, rest 34 (17%) cases were allergic to single allergen only.

Most of the patients of allergic rhinitis complained of developing allergic symptoms after exposure to house dust and dust on the roads and streets, this fact is reflecting in the present study. Among the total sensitive individuals 72.6% showed sensitivity to house dust, which is the commonest causative allergen found in the present study. These findings are contradictory to the study conducted by Holopainen and co-workers [6] in which only 44% cases were seen to be sensitive to house dust. In this study house dust was again the main causative allergen.

House dust mites are another important cause of house dust allergy and its role has been well established. The commonest mite causing the allergic symptoms is *Dermatophygoide pteronyssinus* [7]. House dust contains parts of body of mites and their faeces. In the present study 64% of allergic rhinitis patients were sensitive to house dust mite.

After examining the results of the study it is recommended that skin prick test shall be carried out on all patients presenting with history and symptoms of allergic rhinitis. However the limitations of the skin pick test should be kept in mind.

CONCLUSION

- Common allergens on skin prick test are house dust (72.6%), house dust mites (64%), mixed pollens (59.5%), grass pollens (46%), paper mulberry (21.5%), cannabis (13.5%) and moulds (20%).
- The rate of positivity of skin prick test is 88% among the selected patients of allergic rhinitis.

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