Skin testing evaluation of aeroallergens in patients with Allergic Rhinitis

Anas A. Salih: Dept. of surgery- college of medicine- Tikrit University.
Moheeb Ahmed: dept. of medicine. college of medicine- Tikrit University.
Enas Abdul Majeed. Dept. of pathology. College of pharmacy. Tikrit University.

Abstract

Background; allergic rhinitis is common problem both in children and adults. Patients and methods; Retrospective study by which the skin test performed on (192) patients with allergic Rhinitis to determine the most common sensitizing allergen in our locality. Results; In (39.6%) of patients (76 patients) the test was positive to single allergen and in (60.4%) of patients (116 patients) it was positive to multiple allergens. Two allergens positive skin test form (23.9%), while the test was positive for three or above allergens (36.5%) of patients. **Conclusion;** House dust mite was the predominant allergen (19.1%) followed by mould 1 (17.5%).

Key words: allergic Rhinitis, skin test, Retrospective study

Introduction

Allergic Rhinitis is IgE mediated hyper-sensitivity disease of the mucous membrane of nasal air way characterized by sneezing, itching, watery discharge and sensation of nasal- obstruction(1), while Atopy mean tendency to develop exaggerated IgE antibody response and reflects by positive skin test; so allergy represent the clinical expression of atopic disease, atopy is genetically inherited(2).

Skin prick test is simple and reliable test for allergic Rhinitis(3), skin test inexpensive, accurate and rapid and can be undertaken with wide variety of allergens at single test were invalid in patient on antihistamine, rarely need for mild seasonal rhinitis, since the result was not obvious, and it is not appropriate for children younger than 3 years(4).

Management of patients with allergic Rhinitis symptoms should always include identification and, where possible, avoidance of causal factors, Although the concept of allergen avoidance seems straight forward and obvious, In practice it is often difficult to undertake. Immunotherapy, depending on skin test it represents a specific treatment for allergic disease and unlike, conventional pharmacological treatment. has at least the theoretical potential to alter the course of allergic disease, for example prevention of progression of allergic Rhinitis to asthma, the efficacy of immunotherapy has been confirmed in number of studies (1).

The aim of the study is to determine the most common sensitizing aeroallergen in the patients with allergic rhinitis in our locality.

Material and methods

Retrospective study to one hundred and ninety two patients attending allergy clinic in Tikrit Teaching Hospital, who had allergic rhinitis, with their age range from (9- 56) years were included in the study performed during the period from Jun. 2005 to the end of July 2007.

Skin prick test was regard as positive if the reaction more or equal to 3mm, skin test done by use of 100-000fold dilution from the stock allergen extract. Patient will asked to avoid taking some

antihistamine for about 6 weeks prior to the test and some other medicine for about (5-6) days like steroid (5).

The data were collected and arranged in suitable tables reflecting frequencies by using EXCEL.

Results

The result of skin test on 192 patients with allergic Rhinitis shown in table (1). In (39.6%) of the patients (76 patients) the test was positive to single allergens, and in (60.4), (116 patient), was positive to multiple allergen. Two allergen positive skin test form (23.9%) (46 patients), while test positive for three or above in (36.5%) (70 patients).

The frequency distribution of positive skin test according to allergen types is shown in table (2), (House Dust Mite) (19.1%) was the predominant allergen that gave positive skin test in allergic Rhinitis, followed by (mould 1), (17.5%) and (House Mite), (16.3%) and (Candida), (13.3%) respectively.

Single and multiple allergens that cause positive skin test in allergic Rhinitis patients, are shown in table (3), (4), (5).

(Grass) was the commonest (34.2%) single inhalant allergen that gave positive skin test followed by (House Dust Mite) (15.8%) and (Mould 1), (14.5%). While (House Dust Mite + Mould 1) (26.1%) were the common in two types of allergens that gave positive skin test followed by (House Dust Mite + House Mite) (21.8%). (House Dust Mite + House Dust + Candida) common multiple combined allergens (three and above) that gave positive skin test in allergic Rhinitis patients.

Discussion

Many investigators have shown temporal relationship between respiratory symptoms and exposure to allergen (6, 7). Sensitization to house dust mites was the commonest for both asthma and allergic rhinitis; sensitization to the mould was significant with asthma while grass to allergic rhinitis (8).

World wide, the commonest cause of perennial allergic rhinitis is allergy to house dust mite species including "Dermatophytes, pteronysinnus, Dermatophytes, Farinae and Dermatopytes, Eurgluphus". Other major perennial- allergen including domestic pets (cats, dogs, rabbits and horses)(9). House Dust Mite and other allergens have been shown to be capable of causing may of elements of allergy(10, 11). One study (Bajaj Y. et al): showed that the most common allergen was the house dust mite followed by grass then domestics pets (dogs and cats) (3).Sensitization to perennial allergic rhinitis mainly the rural area(12)...seasonal rhinitis in UK is most commonly due to allergy to grass pollen(13). (14).

This study showed that the most common inhalant allergen was (house dust mite). Followed by (mould), then (house mite), and this agreed with above studies.

Other study (Zamzil A. et al) demonstrated that sensitization to single allergen presented in (52%) of cases while sensitization to more than single allergen presented (48%) of cases (4). In this study Positive test to single allergens (39.5%) while to multiple allergen was (60.4%), and this disagreed with previous studies that performed in other countries rather than our locality.

Conclusion:

Epidemiological data support a very strong correlation between inhaled allergen and development of allergic rhinitis. The evidence is most complete regarding House Dust Mite allergens but this study indicated an increasing number of studies suggest that other allergens (fungi and pollen) are also important causes of allergic rhinitis.

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Table (1): Frequency distribution of positive skin test according to allergen numbers.

Numbers of allergen	No. of cases	%
Single	76	39.6
Two	46	23.9
Three and above	70	36.5
total	192	100%

Table (2) Frequency of positive skin test according to allergen type:

Allergen type	%
House dust mite	19.1
Mould 1	17.5
House mite	16.3
Candida	13.3
Mould 2	9.7
Grass	8.4
House dust	7.8
Mould 3	6.3
Dogs and sheep	0.95
chenopodium	0.65
Total	100%

Table (3) Frequency of single allergen that gave positive skin test in patients allergic rhinitis.

Allergen	Number	percent
Grass	26	34.2
House dust mite	12	15.8
Mould 1	11	14.5
House mite	11	14.5
Candida	8	10.5
Mould 2	4	5.3
Mould 3	2	2.6
Chenopodium	2	2.6
Total	76	100%

Table (4): Frequency of two allergens that gave positive skin test in allergic rhinitis.

Allergen	Number	Percent
HDM + M_1	12	26.1
HDM + HM	10	2.8
HM + candida	6	13
HM + M_3	5	10.8
Candida + M_2	4	8.7
HDM + HD	4	8.7
Dogs + sheep	3	6.5
M_3 + M_4	2	4.4
Total	46	100%

Table (5) Frequency of three and above allergen that gave positive skin test in allergic rhinitis.

Allergen	Number	Percent
HDM + Candida+ HD	18	25.8
HM + M_1 + Candida	16	22.8
HM + M_1 + M_2	15	21.5
HM + M_4 + Candida	10	14.3
M_1 + M_2 + M_3	8	11.4
HDM + M_1 + M_2 + M_3	2	2.9
HDM + HD +M_1 + Candida	1	1.3
Total	70	100%