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IDENTIFICATION OF ALLERGENS BY SKIN PRICK TEST IN PATIENTS OF POKHARA SUFFERING FROM ALLERGIC RHINITIS

Objective:

To evaluate the occurrence of etiological allergens by skin prick test in patients suffering from allergic rhinitis in Pokhara.

Material and methods:

Allergic rhinitis was diagnosed by consultant Otolaryngologist in Gandaki Medical College-Charak Hospital and Research Centre (GMC-CHRC) and Allergy test was done by skin prick method by the consultant Dermatologist at Padma Nursing Home, Pokhara.

Results:

Total number of patients involved in the study was 67. The commonest allergen was house dust mite (*D. farina* 64%, *D. pteronyssinus* 61%, *Blomia* sp. 46%). Other allergens were dust (wheat 56%, silk 53%, cotton 50%, rice 49%, hay 47%), pollen (*Mangifera indica* 37%, *Argemone mexicana* 34%), insects (House fly 35%, moth 34%, red ant 32%), fungus (*Candida albicans* 31%, *Fusarium solanii* 28%). Majority of the patients had multiple allergens.

Conclusion:

House dust mite was the most common allergen which was detected in 64% of the patients suffering from allergic rhinitis. Precautions to protect oneself from exposure to this house dust mites must be explained to all the patients suffering from allergic rhinitis.

Key words: allergic rhinitis, allergen, skin prick test

INTRODUCTION:

Allergic rhinitis is best defined as that adverse pathophysiological response of the nose and adjacent organs, those results from the interaction of allergen with antibody in a host sensitized by previous exposure to that allergen.¹ Allergic rhinitis has characteristic symptoms of watery nasal discharge, sneezing, itchy nose, and stuffy nose. It is due to allergic reaction to aeroallergens including dust mites, pollens, animal dander and moulds.

Allergic rhinitis (AR) is a very common disease, affecting 10–25% of the population world-wide.² One fourth of all the patients visiting our OPD has the features of allergic rhinitis. The management algorithm of allergic rhinitis is dependent on the identification of the etiologic allergen and symptom severity. The types of allergens, however, differ widely depending on localities.^{3, 4}

There are no data about the possible pattern of causative offending allergens of our locality giving rise to allergic rhinitis. The present study therefore aimed at identifying the allergens that give rise to allergic rhinitis in Pokhara.

MATERIAL AND METHODS:

Ethical clearance was taken from the ethical clearance committee of GMC-CHRC. Sixty seven (67) patients with symptomatic allergic rhinitis attending the OPD, Dept. of ENT, GMC-CHRC, Pokhara were included in the study. Diagnosis was made on the basis of history and physical examination. A detailed history was taken with reference to sneezing, itching, nasal discharge, nasal obstruction which are generally the chief symptoms of allergic rhinitis. Presence of pale or blue nasal mucosa and hypertrophied boggy turbinates with watery nasal discharge was considered in diagnosing the allergic rhinitis. These patients were subjected to the skin prick allergy testing. Patients not willing to take part in study or unwilling to undergo allergy testing, taking steroids or antihistaminics for any disorders, and with active skin disorder were excluded from the study.

The tests were performed according to standard methods with allergens, histamine-positive and histamine-negative controls purchased from ALK-Abello (Denmark). The allergens used were mites, fungi, dusts, pollens, epithelia, insects and foods. The skin prick reaction was read at 15 minutes and considered positive when the reaction wheal diameter was at least 3 mm larger than the negative control. Data were collected and entered into MicrosoftTM ExcelTM 2007 and

descriptive analysis was done with the help of SPSSTM 17.

RESULTS:

Seventy eight patients diagnosed as allergic rhinitis were recruited for skin prick test. Of those, eleven patients were excluded as per criteria. Skin prick test was done in sixty-seven patients. The results are presented in Table-1.

Table 1. Distribution of most common allergens by SPT in patients with allergic rhinitis.

S.N.	Allergen	Types	Negetive	Positive	Total	Positive(%)
1	D. farinae	mites	24	43	67	64.17
2	D. pteronyssinus	mites	26	41	67	61.19
3	House Dust	dust	29	38	67	56.71
4	Grain Dust(Wheat)	dust	29	38	67	56.71
5	Silk Dust (Raw)	dust	31	36	67	53.73
6	CottonDust	dust	33	34	67	50.74
7	Grain Dust(Rice)	dust	34	33	67	49.25
8	Hay Dust	dust	35	32	67	47.76
9	Spider web dust	dust	35	32	67	47.76
10	Blomia sp.	mites	36	31	67	46.26
11	Mangifera indica	pollen	42	25	67	37.31
12	House fly	insect	43	24	67	35.82
13	Argemone mexicana	pollen	44	23	67	34.32
14	Moth	insect	44	23	67	34.32
15	Ant (Red)	insect	45	22	67	32.83
16	Candida albicans	fungus	46	21	67	31.34
17	Fusarium solanii	fungus	48	19	67	28.35
18	Ischaemum indicum	pollen	48	19	67	28.35
19	Wheat Dust	dust	49	18	67	26.86
20	Amaranthus spinosus	pollen	49	18	67	26.86
21	Azadirachta indica	pollen	49	18	67	26.86
22	Dog Epithelia	epithelia	49	18	67	26.86
23	House fly	insect	49	18	67	26.86
24	Chenopodium mural	epollen	50	17	67	25.37

25	Grass Hopper	insect	50	17	67	25.37
26	Chenopodium album	pollen	51	16	67	23.88
27	Barley	food	51	16	67	23.88
28	Aspergillusversicolor	fungus	52	15	67	22.38
29	Brassica nigra	pollen	52	15	67	22.38
30	Prosopisjuliflora	pollen	52	15	67	22.38

DISCUSSION:

House dust mites were the most common allergen detected by skin prick test. Allergy to *D. farinae* was found in 64%, *D. pteronyssinus* in 61%, *Blomia sp.* in 46%. Dust was the second common allergen. wheat dust was positive in 56%, silk dust in 53%, cotton dust in 50%, rice dust in 49%, hay dust in 47%, Spider web dust in 47%, wheat dust in 26%. Pollen was the next common allergens. Pollens of *Mangifera indica* were 37%, *Argemone mexicana* were 34%. Others allergen were insects (House fly 35%, moth 34%, red ant 32%) and fungus (*Candida albicans* 31%, *Fusarium solanii* 28%). Majority of the patients had multiple allergens. *D. farinae* and *D. pteronyssinus* were the most common mites found in our study. This finding was similar to a study done in Massachusetts, USA.⁵ Similarly in North Iran, the hypersensitivity to house dust mites is very common.⁶ Similar was the result in South India too.⁷ Nepal is an agricultural country. Most of the people are exposed to pollens of agricultural products. Mango (*Mangifera indica*) was the most common pollen which was found in the test. As majority of the patients suffering from allergic rhinitis were reactive to house dust mite allergen, they should be advised for the general prevention from exposure to the house dust. In the mean time, avoidance to other allergens and use of medicine should also be practiced to alleviate the symptoms.

CONCLUSION:

House dust mite allergy was found in two-thirds of the patients suffering from allergic rhinitis. All the patients suffering from this disease should be advised for the general prevention from exposure to the house dust in addition to avoidance of other possible allergens and use of medicine to relieve the symptoms.

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