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PREVALENCE OF ALLERGY IN NAGPUR

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ABSTRACT

Efforts was made to study the prevalence and distribution of allergy symptoms at Nagpur in Maharashtra, India. A thorough survey was conducted using a standard questionnaire and collected detailed information on allergy patients & symptoms. Among the total 500 people surveyed, 69.74% were male and 30.27% were female. A clinical investigation was carried out to evaluate allergenic potency of antigen. Skin prick test was carried out to find out inhalants allergen. According to clinical data obtained during the investigation. It was observed that most of the people get allergy through inhalation of air which contains dust, fungal spores, pollen grains, plant parts & insects etc.

KEYWORDS: Aerobiology, Allergenic, Prevalence.

INTRODUCTION

Allergy is an altered response of an immune system to a second or subsequent encounter with the foreign substance to which the body has already been sensitized due to a previous exposure. Allergic reactions are initiated by certain types of antigens referred to as allergens. Allergens are harmless to general population. There are no specific criteria to predict the allegencity of a substance. However, these are usually proteins/ glycoproteins with molecular weight rainging between 15 to 40 KD. Their molecular complexity, concentration soalubility and stability in body fluids are other important determinants. The common allergens include pollen, fungal spores, house dust mites and house dust. Animal dander's insect emanataous drugs, foods etc. They have been classified according to the rates of exposure into the following types.

i) Inhalants (e.g. pollen & fungal spores)
ii) Ingestant (e.g. food articles and additives)

iii) Injectants (e.g. insect bites and stings injected medicines)
iv) Injectants (e.g. insect bites and stings infected medicines)
v) Contactans (e.g. consmetics etc.)

After a long gap[1] demonstrated the proteinaceas nature of the allergenic factor of pollen grains and treated the patients with serum ‘’pollintin’’ obtained by immunizing horses with pollen extracts. The chemical nature of pollen allergens were studied by various scientists and indentified with protienaceaes nature of active allergens.

In India study of aerobiology in relation to allergy was first carried out by[2,3] performed skin sensitizing tests of 44 pollen types of which 31 types showed positive skin reactions clinical investigations on pollen and fungal spores were extensively carried out by.[4-10] in Delhi area performed intradermal skin prick tests, bronchial provocation test, opthalmic tests and prausnitz kuestner (PK) tests.

MATERIAL AND METHOD

I) Allergy patients survey

The survey of people was conducted in the investigation area to study the occurrence of allergy following methods was used for the identification of allergy patients.

A. Questionnaire Method- It is a very easy but useful method of assessing the pollen & fungal allergy. The questionnaire included personal dates, job characteristics, data on exposure to chemicals, history of employment. Workplace hygienic and protective measures. Smoking and drinking habits similarly condition of the house. History of any allergy in the family member. There were also various questions like respiratory symptoms nose, eye, throat and skin irritation. Each subjects was asked whether a given symptom had occurred `frequently’ `rarely’ or `never’ within the previous twelve months.

In Patients with allergic disorders, family and personal history is very important[11] family studies indicate that environment generally influence the expression of allergic disease. In allergic patient following information was collected.

1. The age at which symptoms began
2. Type occurrence and frequency (seasonal or perennial)
3. Duration, severity of symptoms and diurnal variations
4. Pollutants and allergens exposure in home or work environment

5. Pasts and present medications and their response
6. Eczema, family history of Asthama, Rhinitis

II) Allergy testing

Clinical Method

It is the confirmatory method for the occurrence and identification of an allergy type and also responsible factor of the allergy. Skin prick test was used for the present study with the help of expertise Dr. Ashok Arbat.

Skin Prick test

The Test was first described by.[12] It was modified by.[13] It is the most commonly used skin test to detect IgE mediated type- I sensitivity to various allergens.

After placing the patient in the comfortable position the skin of forearm was cleared with 70% alcohol with the help of cotton and allowed it to dry. Firstly the numbering was done nearly 2 cm form each other. Prick test at a distance of about 2cm or more avoid false positive reading[14]) Allergen extract in 50% Glycer is placed the skin and a prick lancet needle was passed through the drop penetrating the skin at 45 degree angle. Buffer Saline was used as negative control and histamine phosphate 1: 100 (Histamine 10mg/ml) as a positive control care was taken so as not to draw blood but only raised the skin the lancet needle was cleaned with before every pricking. Test reading was done after 15 minutes by cleaning the drop of antigen gently. According to the whole size observed reactivity was graded.

Table 1 : Percentage of Male, Female and age distribution in allergy patients.

Age Groups	Male	Female	Total Number of both sexes	Percentage
0-10 years	0	0	0	0
11-20 years	6	3	9	11.85
21- 30 years	20	9	29	38.16
31-40 years	13	6	19	25
41 - 50 years	10	3	13	17.11
51 above	4	2	6	7.89
Total	53	23	76	100
Percentage	69.74	30.27	100	--

Table 2 : Age groups and types of allergy in allergic patients.

Age group	Rhinitis	Bronchial Asthma	Bronchial Asthma Rhinitis	Total
0-10 years	1	0	0	1
11-20 years	1	2	6	9
21- 30 years	5	6	17	28
31-40 years	2	5	13	20
41 - 50 years	1	2	9	12
51 above	0	1	5	6
Total	10	16	50	76

Table 3 : Percentage of patients having seasonal allergy

Seasons	Throughout the year	Rainy Season (Jun-Sept)	Rainy Winter (Sept-Oct.)	Winter Season (Oct-Jan)	Winter Summer (Feb.-Mar)	Summer Season (Mar.-Jun)
No. Of Patients	14	10	12	28	7	5
Percentage	18.42	13.15	15.78	36.84	9.21	6.57

Table 4 : Result of Skin Prick test carried out in 76 allergic patients.

Sr. No.	Allergens	Number of patients showing positive junction						Total No. of (2+ to 4+)		Total Nos. (3+ to 4+)	
		1+	2+	3+	4+	Total	%	No.	%	No.	%
1.	*Azadirachta* indica	0	6	9	3	18	10.90	18	13.95	12	17.91
2.	*Brassica* nigra	1	3	4	0	8	4.84	4	3.10	4	5.97
3.	Cyperus *rotundus*	1	4	7	3	15	9.09	14	10.85	10	14.92
4.	*Xanthium strumarium*	3	4	10	3	20	12.12	17	13.17	13	19.40
5.	*Aspergillus fumigatus*	4	7	3	1	15	91.09	11	8.52	4	5.97
6.	*Aspergillus* niger	7	9	6	3	25	15.15	18	13.95	9	13.43
7.	Aspergillus *Flavus*	3	7	2	1	13	7.87	10	7.75	3	4.47
8.	*Aspergillus tamarii*	0	3	1	1	5	3.03	5	3.87	2	2.98
9.	*Alternaria alternata*	3	5	2	1	11	6.66	8	6.20	3	4.47
10.	*Curvularia lunata*	2	6	0	1	9	5.45	7	5.42	1	1.49
11.	*Cladosporium sp.*	1	8	2	0	11	6.66	10	7.75	2	2.98
12.	*Helminthosporium Sp.*	2	1	0	1	4	2.42	2	1.55	1	1.49
13.	*Penicillium sp.*	6	2	1	2	11	6.66	5	3.87	3	4.47
	Total					**165**		**129**		**67**	

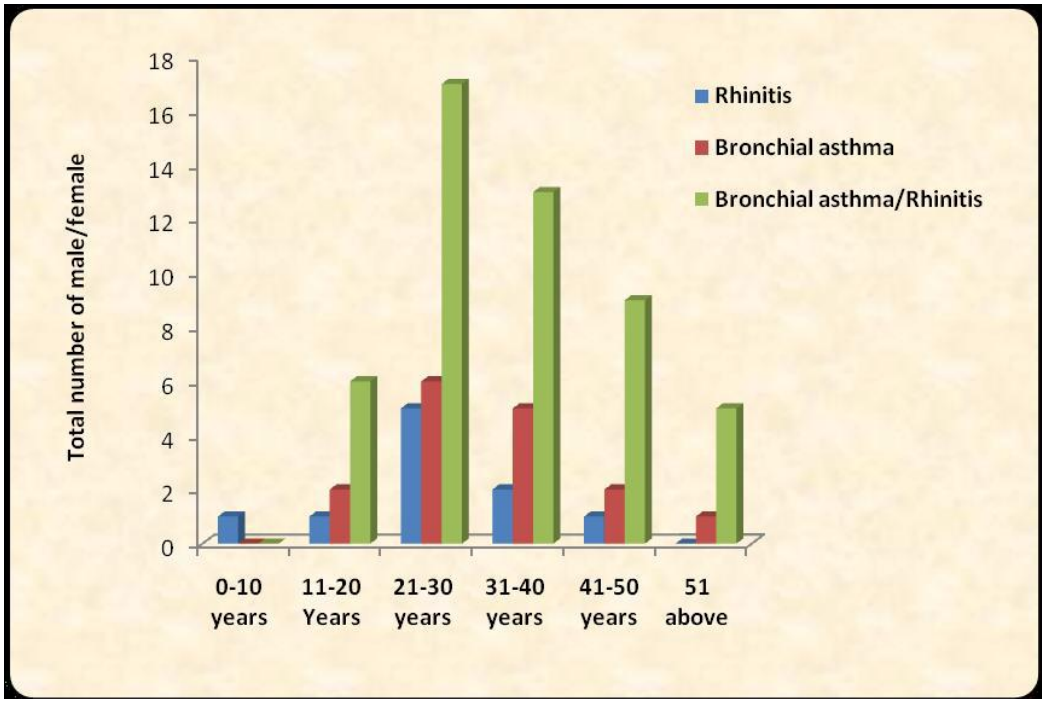

Fig. 1: Occurrence of different types of allergy in allergic patients

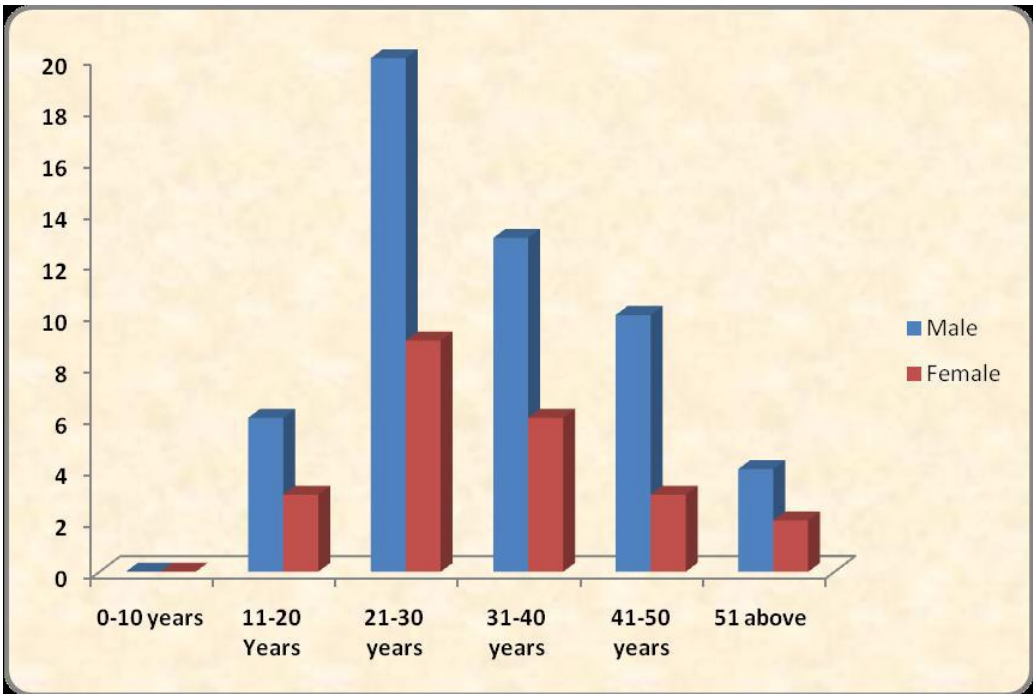

Fig. 2: Occurrence of allergy patients of different age groups.

Aeroallergens - Fungal spores and pollen grains formed the two major groups of the airspora data of the allergenic patients in the clinical record shows that maximum cases people get allergy through inhalant of air which contains pollen grains, fungal spores, insect parts and

dust. Pollen and spores causing allergic sensitization were identified by skin prick tests (SPTs) among respiratory allergic subjects.[15]

The clinical data showed that most common allergen among the pollen grains were *Azadirachta indica, Brassica nigra, cyperus rotundus, xanthium strumarium*.

Many of the pollen and fungal spores recorded in the present study were earlier listed as potential allergens.[16-21] Detailed analysis of the distribution of patients with in the city and the aerobiological characterization of each area suggested that they may be related. A Strong correlation was observed between the highest total pollen count and also the lower percentage of allergy suffers.

RESULT AND DISCUSSION

The results suggested that there is a relationship between the distribution of allergenic patients in a city and pollen types trapped from local study sites.

For allergy patient Survey questionnaire was distributed among 500 people and people with allergic symptoms were subjected to skin prick test at allergy clinic & skin prick test was performed on of 76 patients with 13 known fungal antigens.

Result of skin reacting on 76 patients have been analysed out of 76 patients 53 were male and 23 female of the different age groups males were found more allergenic than female. This was due to the nature of work that male performed. Skin prick tests showed that maximum number of patients had onset of symptoms. Between 21 to 30 years of age, of the total 76 cases, 10 were of allergic rhinitis (13.15%), 16 had bronchial asthama (21.05%) and 50 were bronchial asthma with Rhinitis (65.78%),[22-23] observed bronchial asthama with rhinitis (62.30%)&, bronchial asthma (25.61%) and allergic rhinitis (12.07%) the allergy was found to be common in 21-30 years age group (37.25%) followed by 31-40 years (24.51%) and 41-50 years (16.67%),[24-25] have proved 21-30 years age group as most susceptible age groups,[26] reported that out of 400 patients with nasobronchial allergy in Kanpur, 24% , had allergic rhinitis 21.5% had bronchial asthama and 54.59% had bronchial asthma and rhinitis, of these 47% reacted positively (1+to 4+) to fungal antigens.[27] also reported, that 26% of the patients gave positive reaction of *Aspergillus, Altanaria candida* sp. and *mucor* sp.more number of bronchial asthma patients was observed by,[28] as well as [29-30] an aerobiological

survey of Bomaby city with special reference to its reference in respiratory allergy The selected 11 fungal type for the study of allergencity.

Maximum allergy cases were reported in winter season (October-January) followed by rainy-winter (September- October) in both the years of study. The Dominance of fungal spores was also reported in these months thus it is coincided with the occurrence of allergy. few cases were recorded in summer season.

Survey of allergy patients in the investigation areas showed that inhalation of air along with bio-componants was found to be responsible in maximum cases. The testing of patients with the antigenic extracts of *Azadirachta indica, Brassica niger, Cyperus, rotundus, Xanthium, strumarium, Aspergilles fumigatus, A niger, A flaves, A. tamari Alternaria alternata, Curvularia lunata, Cladosporium, Helminthosporium Sp.Penicillum* Sp.were recorded as aero aeroallergensn at Nagpur (Table-1-4) nearly similar results were observed by,[31-34] recorded *Cladosporium, Alternaria and Curvularia* as allgenic fungi at Nagpur.

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CONCLUSION

In the study of aerospora survey allergy patients’ survey by questionnaire and clinical method was also performed for detecting the pollen/ fungal allergy cases maximum patients were suffered from bronchial asthma with rhinitis 50(65.78%) followed by bronchial asthma 16(21.05%) and rhinitis 10 (13.50%) patients. The knowledge of pollen / fungal occurrence and its seasonal variation seems to be essential to diagnose and treat allergy cases properly.

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