



CODEN [USA]: IAJPBB

ISSN : 2349-7750

**INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES**

SJIF Impact Factor: 7.187

<http://doi.org/10.5281/zenodo.4413783>Available online at: <http://www.iajps.com>

Research Article

**ALLERGEN TYPES AND SYMPTOMS AMONG PATIENTS
PRESENTING WITH ALLERGIC RHINITIS**¹Dr Wajeeha Noor, ²Dr Raheel Ghaffar Wattoo, ³Dr Faiza Zaheer¹Azra Naheed Medical College, Lahore²Azra Naheed Medical College, Lahore³King Edward Medical University Lahore**Article Received** November 2020**Accepted:** December 2020**Published:** January 2021**Abstract:**

Allergic rhinitis, despite its complex pathophysiology, is a global health problem with increasing incidence. The aim of this study is to determine the allergen types and symptoms among patients presented with allergic rhinitis.

Place and Duration: In the Department of ENT Unit-II of Mayo Hospital Lahore for one-year duration from June 2019 to June 2020.

Methods: The current study, which was conducted included 548 cases of allergic rhinitis diagnosed and thus treated. In the study, men and women were almost equally distributed, representing a 1: 0 ratio. 9. Among them, the patients aged 20–29 years (38.1%) were most often affected.

Results and Conclusion: In our study, the majority of patients were housewives (30.3%), and the most common etiological factors were house dust mites (76.3%). Sneezing was the main complaint in most patients (86.7%). Of the total number of respondents, 18.6% showed coexistence of allergic conjunctivitis, and 8.9% - sinusitis.

Key words: allergic rhinitis, house dust mite.

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Please cite this article in press Wajeeha Noor et al, *Allergen Types And Symptoms Among Patients Presenting With Allergic Rhinitis*, *Indo Am. J. P. Sci*, 2021; 08(01).

INTRODUCTION:

Allergic rhinitis (AR) is a very common disease, affecting 10-20% of the world's population. AR is the immune response of the nasal mucosa to IgE-mediated allergens and is characterized by sneezing, runny nasal discharge, nasal congestion and itchy nose. Two clinical types have been diagnosed, seasonal and perennial. Allergic rhinitis is a global health problem that is increasing in incidence. The pathophysiology of allergic rhinitis is complex and includes cells, mediators, cytokines, chemokines, and adhesion molecules that interact in a complex network to induce specific symptoms of allergic rhinitis and non-specific hyperactivity. The reaction can be considered in four phases: sensitization, subsequent early phase allergen reaction, late phase reaction and systemic activation. Allergens provoke the production of IgE antibodies in genetically predisposed people. These antibodies bind to mast cells or basophils at the Fc terminus. On subsequent exposure, the antigen binds to the IgE antibody. This reaction causes mast cell degranulation with the release of chemical mediators. The increased number of degranulating mast cells in the nasal epithelium causes significant vascular leakage and interstitial edema, resulting in sensory nerve irritation, nasal itching, runny nose, nasal congestion and sneezing. The late phase of the immune response occurring in approximately half of the exposed patients includes the ingress of eosinophils, basophils, mast cells, T cells, neutrophils and macrophages into local tissues, all of which contribute to the inflammatory response that manifests as nasal obstruction and hyperactivity. House dust mites are called house dust mites and are known triggers of respiratory allergies worldwide. Respiratory allergies are caused by inhaling dead or live mites, their feces or other by-products. House dust mites have 8 legs and are small and ranging in size from 0.2 to 0.4 mm. In their homes, they feed exclusively on human dandruff or dead skin that is shed by an adult. At home, dust in mattresses, carpets, room corners and the floor under the bed provide the most advantageous niches. Pollen from trees, grasses and weeds can be inhaled and cause allergic symptoms. Pollen can travel for miles with the wind. Therefore, trees, grasses and weeds in the area can cause allergy symptoms. Pollen allergies are often seasonal. Allergy symptoms occur when there is pollen in the air. The greatest amount of tree pollen occurs in spring. Grass pollen is usually highest in summer, but is present almost all year round, especially in some parts of the country. Weed pollen is usually greatest in summer. This may vary depending on weather conditions and where you live. Allergic rhinitis, an inflammation of the lining of the nose caused by allergens, is often associated with

comorbidities. Co-occurrence refers to the association between AR and other diseases such as allergic conjunctivitis, bronchial asthma, sinusitis, nasal polyps, chronic pharyngitis, exudative otitis media, and chronic purulent otitis media. The mucosa of the upper and lower respiratory tract is continuous and is subject to similar genetic, immunological and environmental factors, resulting in similar inflammatory and immune responses. These two conditions may manifest themselves together or sequentially. The algorithm for the management of allergic rhinitis depends on the identification of the etiological allergen and the severity of the symptoms. However, the types of allergens vary greatly depending on the location. An acute bout of allergic rhinitis can accelerate acute asthma attacks, as shown in East India⁵. Allergic rhinitis is a known risk factor for the later development of asthma and treatment of allergic rhinitis has been shown to improve asthma symptoms.

METHODS:

This is a prospective hospital study conducted at the Department of ENT Unit-II of Mayo Hospital Lahore for one-year duration from June 2019 to June 2020. All patients coming to the ENT clinic and seen by ENT surgeons clinically diagnosed as allergic rhinitis for examination, both genders were included regardless of age. The diagnosis was made on the basis of an interview and physical examination. A detailed history was taken of the symptoms of allergic rhinitis. The presence of pale or blue nasal mucosa as well as hypertrophied mucky turbinate's and watery nasal discharge were taken into account in the diagnosis of allergic rhinitis. Additional tests were performed for skin allergy, X-ray of the paranasal sinuses and CT of the paranasal sinuses. The information included demographic data such as age, gender, occupation and history of ENT disease, duration of complaints and physical examination was recorded. The allergy test was performed by a dermatologist consultant after ethical consideration and approval. Tests were performed according to standard methods using allergens, histamine positive and negative controls. The allergens used were dust mites, fungi, dust, pollen, epithelia, insects, and food. The diameter of the bubble due to the skin puncture reaction was at least 3 mm larger than that of the negative control. Patients who were already taking antihistamines and steroids were excluded from the study.

RESULTS:

548 patients participated in this study, 279 men (50.9%) and 269 women (49.1%), the ratio of men and women was 1: 0.9, mean age 30.9 years (SD-

12.4) ranging from 5 to 81 years. The age distribution of the study population is presented in Table 1.

Table-I
Age distribution (n=548)

Age (Year)	No of patient	Percentage %
1-9	3	0.5%
10-19	78	14.2%
20-29	209	38.1%
30-39	140	25.5%
>40	118	21.5%

In our study population, allergic rhinitis was most common among housewives (30.3%), students (23.0%), servants (17.9%), and the least common among carpenters (0.9%).

Table-II
Distribution of profession (n=548)

Name of profession	No of patient	Percentage %
Housewives	166	30.3%
Students	126	23.0%
Service holder	98	17.9%
Farmer	51	9.3%
Businessman	34	6.2%
Teacher	27	4.9%
Jobless	24	4.4%
Driver	17	3.1%
Carpenter	5	0.9%

House dust mites (76.3%) were the most common etiological factors responsible for allergic rhinitis, followed by the remaining group (66.2%), food (19.2%) and pollen (8.2%).

Table-III
Etiology (n=548)

Etiology	No of patient	Percentage %
House dust mite	418	76.3%
Other	363	66.2%
Food	105	19.2%
Pollen	45	8.2%

Most of the patients in our study complained of sneezing (86.7%), rhinorrhea (69.9%), itchy nose (58.0%), and nasal congestion (53.8%).

Table-IV
Distribution of clinical features (n=548)

Clinical Features	No of patient	Percentage %
Sneezing	475	86.7%
Rhinorrhoea	383	69.9%
Itching Nose	318	58.0%
Nasal obstruction	295	53.8%

Patients with AR in the study population had comorbidities such as allergic conjunctivitis (18.6%) is the most common after asthma (9.7%), other conditions are sinusitis (8.9%), chronic pharyngitis (3, 8%) and OME (1.5%).

Table-V
Distribution of co-morbidities

Name of disease	No of patient	Percentage
Allergic Conjunctivitis	102	18.6
Asthma	53	9.7
Sinusitis	49	8.9
Chronic pharyngitis	21	3.8
OME (otitis media with effusion)	8	1.5

The performed tests were aimed at establishing the diagnosis, the following tests were performed: allergic test (75.4%), X-ray of the paranasal sinuses, occipital-mental view (68.6%) and computed tomography of the axial and frontal paranasal sinuses (18.8%). study population.

Table-VI
Investigations

Name of investigation	No of patient	Percentage %
Allergic test	413	75.4%
X-Ray PNS	376	68.6%
CT-PNS	103	18.8%

DISCUSSION:

Allergic rhinitis is a common nasal problem. It requires proper identification and appropriate treatment. Allergic rhinitis is a common disease that is estimated to affect approximately 20% of the adult population in the United States and up to 40% of children, and is responsible for 3.8 million days lost from work and school each year in the United States. Our study covers all age groups from 5 to 80 years old. The main symptoms were sneezing, runny nose, itchy nose and nasal congestion. The incidence of allergic rhinitis in the age group less than 9 years was less than 1% and in the age group 20-29 years (38.1%), which is similar in other studies. It most often affects housewives (30.3%), while students are second (23.0%). A similar study in Bangladesh found that students were most affected (38%), followed by housewives (30%). House dust mites (76.3%) are the

most common etiological factor of allergic rhinitis. The study showed that house dust mites are the most common cause of AR. The remaining allergens are food (19.2%), especially egg yolk, cool red, black pepper, pollen (8.2%) and others (66.2%). Other allergens include fungi, animal dander and mold. Most of the patients in our study complained of sneezing (86.7%), rhinorrhea (69.9%), itchy nose (58.0%), and nasal congestion (53.8%). Allergic rhinitis may be associated with a number of comorbidities, including asthma. We saw that allergic conjunctivitis (18.6%) is a common comorbid condition, similar to another study that found allergic conjunctivitis (13%), and sinusitis (8.9%) ranks second by percentage. Allergic rhinitis is a known risk factor for the later development of asthma and treatment of allergic rhinitis has been shown to improve asthma symptoms. The series reported that

asthma symptoms were observed in 58.8% of patients with AR. Other studies in Turkey reported an asthma incidence of 7.5% to 14.7%, while our study reveals that asthma patients only accounted for 9.7%, which is not in the same correlation with the other series. but in the results of a study conducted in Turkey. We make our diagnosis based on history, clinical trials and investigations. The lowest number of allergy and CT-PNS tests was performed due to costs. All government hospitals do not have an allergy test. IgE evaluation, allergy tests are expensive and are only performed in some private centers. Most of our patients cannot afford these expensive tests. In addition, people are reluctant to get lab tests for allergic diseases, except in severe cases. We performed an allergy test, X-ray of the paranasal sinuses and CT of the paranasal sinuses.

CONCLUSION:

Early diagnosis and proper treatment of allergic rhinitis can help reduce school or work absenteeism, morbidity and complications. Being aware of the underlying medical conditions is also important in the investigation and complete treatment of allergic rhinitis. Allergy testing plays a key role in allergen identification, which is a viable alternative to medical treatment by avoiding the allergen.

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