

Pattern of allergic rhinitis at a tertiary care hospital

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Introduction: When an allergen is exposed, IgE-mediated inflammation results, resulting in allergic rhinitis, an inflammatory condition of the nasal mucosa. Sneezing, rhinorrhea, nasal irritation, and nasal congestion are its four primary clinical signs. In India, allergic rhinitis affects 20–30% of the population. **Materials and Methodology:** The present study has been performed to study the sociodemographic profile of the patients with Allergic Rhinitis of either gender between the age of 18–60 years at a tertiary care teaching institution from November 1, 2020, to October 31, 2021. **Observation and Results:** The youngest was 18 years and the eldest was 60 years with 21–30 years as the most common affected age group with female preponderance. The pattern of presentation was perennial with monsoon and winter as the most affected seasons. The mean total scorer for allergic rhinitis was 5 ± 1.2 . **Conclusion:** Allergic rhinitis is the commonest immunologic disease and is the commonest chronic disease experienced by humans. It affects both the sexes and all the age groups.

KEY WORDS: Allergic rhinitis, Score for allergic rhinitis, Seasonal versus Perennial

INTRODUCTION

When an allergen is exposed, IgE-mediated inflammation results, resulting in allergic rhinitis, an inflammatory condition of the nasal mucosa. Sneezing, rhinorrhea, nasal irritation, and nasal congestion are its four primary clinical signs. Asthma, atopic dermatitis, and nasal polyps are a few other disorders that it may be linked to. In India, allergic rhinitis affects 20–30% of the population.^[1] It is a highly predominant disorder and a major source of discomfort to the patients. The clinical symptoms of patient suffering from allergic rhinitis can decrease patient routine work, sleep, school performance, and overall decrease quality of life. Allergic rhinitis is associated with inflammation in the nasal mucosa along with the epithelial accumulation of

effector cells that are basophils and mast cells. These effector cells are activated by antigen antibody reaction, thereby inducing the secretion of both newly generated and preformed mediators.^[2]

Allergic rhinitis was earlier subdivided, based on time of exposure, into seasonal, and perennial. This subdivision was not completely satisfactory. The recent classification of the allergic rhinitis disorder as proposed by allergic rhinitis and also its impact on asthma guidelines is on the foundation of: Duration as “intermittent” or “persistent” disease, severity of symptoms and also quality of life as “mild” or “moderate-severe.”

When a previously sensitized individual produces an adverse response to a foreign chemical or to physical condition that individual is said to have an allergy. Histamine is now recognized to alter chronic inflammation and to regulate a number of crucial events in the immune response, despite first being thought of as a mediator of acute inflammatory and rapid hypersensitivity reactions. Histamine has a role in a variety of processes, including cell division, differentiation, hematopoiesis, embryonic development, memory and cognition, sleep-wake cycles, gastric acid secretion, and energy and endocrine balance. Histamine

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causes the pathophysiological changes that underlie the symptoms, including vasodilatation, increased vascular permeability, hypotension, bronchoconstriction, and stimulation of airway vagal afferent nerves, through the H1 receptor. These pathophysiological changes include pruritus, pain, flushing, and dyspnea.

Management of the allergic rhinitis is lifelong and revolves around allergen avoidance, along with verity of drugs alone or in combination such as short-term decongestants and oral steroid, long-term intranasal corticosteroids, and topical or oral antihistamines.

MATERIALS AND METHODS

The present study has been performed to study the sociodemographic profile of the patients with Allergic Rhinitis of either gender between the ages of 18–60 years at a tertiary care teaching institution in western Uttar Pradesh for a period of 1 year from November 1, 2020, to October 31, 2021. An ethical clearance was obtained from the Institutional Ethical Committee before starting the study.

To conclude the prevalence of allergic rhinitis in our study population, the score for allergic rhinitis (SFAR) was used. The SFAR include eight components, which are as follows:^[3]

- (1) Nasal symptoms in the past 1 year, including runny nose, sneezing, and blocked nose
- (2) Nasal symptoms supplemented with itchy-watery eyes (rhinoconjunctivitis)
- (3) Month of the year in which the nasal symptoms have occur
- (4) Triggers for the nasal symptoms, including pollens and house dust
- (5) Apparent allergic status
- (6) Preceding medical diagnosis of allergy
- (7) Preceding positive tests of allergy; and
- (8) Familial history of allergy if any.

The total nasal symptom score (TNSS) was used to assess the allergic rhinitis. The TNSS involves five components, including the following:^[4]

1. Please rate how your nasal congestion has been over the past: Mild, moderate, and severe
2. Please rate how your runny nose has been over the past: Mild, moderate, and severe
3. Please rate how your nasal itching has been over the past: Mild, moderate, and severe
4. Please rate how your sneezing has been over the past: Mild, moderate, and severe
5. Please rate how difficult sleep has been with nasal symptoms: Mild, moderate, and severe

OBSERVATION AND RESULTS

Age Group Distribution

In our study, age of patients was in range from 18 to 60 years. The youngest was 18 years and the eldest was 60 years [Table 1].

Gender Distribution

In our study, out of 140 cases in 48.6% were male and 51.4% were female [Figure 1].

Income Distribution

Out of 140 cases, majority 62 (65.7%) patients belonged to low-income category followed by middle-income category 42 (30%) cases and with only 6 (4.3%) cases in high-income category [Figure 2].

Duration of Presentation

Out of 140 cases, maximum 66 (47.1%) of patients with allergic rhinitis were presenting them symptoms duration was 6 months to 1 months followed by 41.4% of <6 months and 11.4% in >1 year [Table 2].

Seasonal Versus Perennial

Table 1: Age group	
Age groups (years)	Allergic rhinitis, n (%)
≤20	29 (20.7)
21–30	52 (37.1)
31–40	26 (18.6)
41–50	15 (10.7)
51–60	18 (12.9)
Total	140

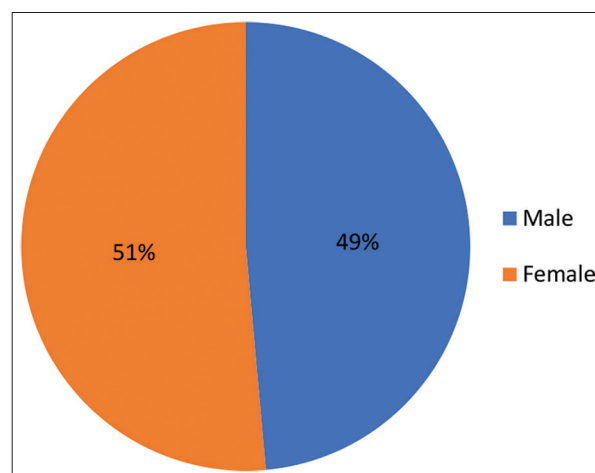


Figure 1: Gender distribution

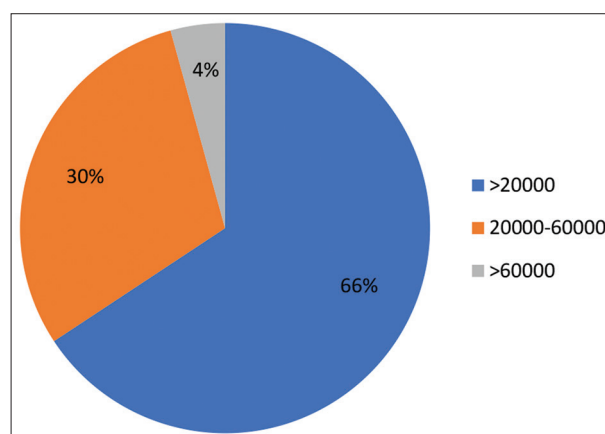


Figure 2: Income

Maximum cases were seasonal allergic rhinitis presentation with 115 (82.1%) and 25 (17.9%) with perennial allergic rhinitis [Table 3].

Season Wise Distribution

Out of 140 cases, maximum 56 (40%) of patients of seasonal allergic rhinitis presented during monsoon season, followed by winter with 54 (38.6%) cases and rest 30 (21.4%) cases in summers [Table 4].

Family History

A total of 33 (23.6%) patients had positive family history.

Mean Total SFAR

Mean total SFAR was 5.0 ± 1.2 in patients of allergic rhinitis [Table 5].

TNSS

In total nasal symptom score, sneezing has the highest score of 2.25 ± 0.5 , followed by runny nose with 2.0 ± 0.8 and difficulty in sleeping had the least score of 1.2 ± 0.8 [Table 6].

DISCUSSION

The age of patients was in the range from 18 to 60 years. The youngest was 18 years and the eldest was 60 years. Maximum number of cases was in between 21 and 30 years 52 (37.1%) [Table 1].

The findings were in accordance with the study done by Van Adelsberg *et al.*,^[5] Ratner *et al.*,^[6] Torvi *et al.*,^[7] and Berger *et al.*^[4] The possible reason as to why this age group is most effected is the lifestyle and activity which increases the chances of bringing them into contact with a wide variety of allergens as compared to the older age group.

Ellis *et al.*^[8] found female preponderance with male 41% and female 59%, similar result was seen by the study done by Ratner *et al.*^[6] who found male affected with allergic rhinitis in 37.1% and female 62.9%. Allergic rhinitis does not differ in its presentation and clinical course between males and females. Hence, this difference in sex does not affect the comparison of groups, who were selected after randomization [Figure 1].

The present study found that majority 62 (65.7%) subjects belonged to low-income category followed by middle-income category 42 (30%) [Figure 2]. Our findings were found to be in accordance with the study done by LaForce *et al.*,^[1] Hore *et al.*,^[9] and Lee *et al.*^[10] Although the allergic rhinitis is seen more among high class group, in our study, it was found to affect low socioeconomic group, the probable reason could be that the present study center being a trust hospital caters more of patients of lower socioeconomic strata.

In our study, maximum 66 (47.1%) subjects presented between 6 months and 1 years of symptoms onset and all had seasonal presentation with 78.6% of subjects were symptomatic during monsoon and winter season [Tables 2-4]. Our findings were found to be in accordance with the study done by Torvi *et al.*,^[7] and Berger *et al.*,^[4] who also found increase in symptom of allergic rhinitis during winter and monsoon. In the present study, only 33 (23.6%) subjects had positive family history [Figure 3].

For the diagnosis of allergic rhinitis, SFAR score was used and, in our study mean, total SFAR was found to be 5.0 ± 1.2 . Study done by Elis *et al.*^[4] found a mean total score of 4.7 ± 1.35 in the patients of allergic rhinitis and was found to be effective in diagnosing the disease. Sneezing and runny nose were the most common symptoms [Tables 5 and 6].

Table 2: Duration of presentation

Duration	n (%)
<6 months	58 (41.4)
6 months–1 year	66 (47.1)
>1 year	16 (11.4)
Total	140

Table 3: Seasonal versus perennial

Type	n (%)
Seasonal	115 (82.1)
Perennial	25 (17.9)
Total	140

Table 4: Season wise distribution

Season	n (%)
Summer	30 (21.4)
Winter	54 (38.6)
Monsoon	56 (40.0)
Total	140 (100.0)

Table 5: Mean total score for allergic rhinitis

Mean total score	Mean±SD
Total SFAR	5.0±1.2

SFAR: Score for allergic rhinitis, SD: Standard deviation

Table 6: Total nasal symptom score

Symptoms	Score, mean±SD
Nasal congestion	1.35±0.6
Runny nose	2.0±0.8
Nasal itching	1.85±0.7
Sneezing	2.25±0.5
Difficulty sleep	1.2±0.8

SD: Standard deviation

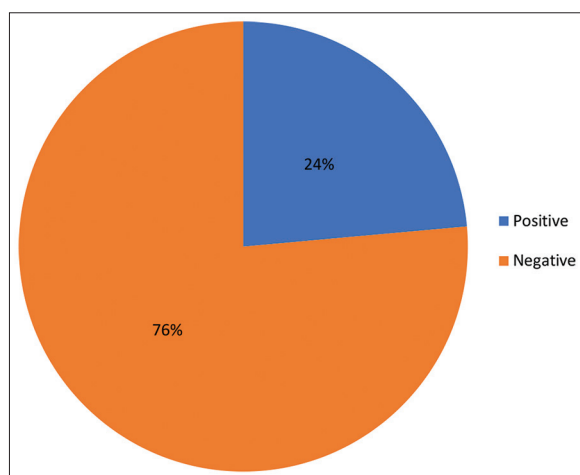


Figure 3: Number

CONCLUSION

Allergic rhinitis is the commonest immunologic disease and is the commonest chronic disease experienced by humans. It affects both the sexes and all the age groups with more presentation in the younger age group.

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