Original Research Paper

Volume - 15 | Issue - 06 | June - 2025 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Ophthalmology

DEMOGRAPHIC PROFILE AND SOCIOECONOMIC IMPACT OF ALLERGIC RHINOCONJUNCTIVITIS IN PATIENTS REPORTING TO THE TERTIARY CARE CENTRE

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ABSTRACT This study focuses on identifying the prevalence, symptomatology, and impact of allergic rhinoconjunctivitis, especially pollen-induced, in patients presenting at a tertiary care hospital. **Methods:** A hospital-based cross-sectional study was conducted between January and June 2024, involving 140 participants from both urban and rural settings. Both quantitative and qualitative Data were collected using structured questionnaires assessing demographic variables, triggering allergens, clinical symptoms, and the impact of AR on quality of life, including mental health and daily functioning. **Results:** The majority of participants were aged 16–30 years (48.57%) and resided in urban areas (58.6%). Dust mites were the most common allergen (69.3%), followed by seasonal pollen (19.3%). Sneezing and eye itching were the predominant symptoms (34.3%). Significant proportions of patients reported reduced productivity (33.6%), decreased outdoor activity (52.85%), and behavioral changes like depression and irritability (61.42%). Allergic asthma and sinusitis were notable comorbidities. **Conclusion:** Allergic rhinitis and conjunctivitis significantly impair patients quality of life, particularly among young urban populations. Dust mite exposure remains the predominant trigger. Public awareness, early diagnosis, and integrated management strategies are essential to reduce the personal and societal burden of allergic rhinoconjunctivitis.

KEYWORDS :

INTRODUCTION

Allergic rhinitis also called as hay fever which occurs due to allergen causing hypersensitivity reaction (most common type 1 hypersensitivity reaction) induced nasal mucosal inflammation [1]. The most common allergen responsible are dust particles, animal dander or pollen. The allergic response can be divided into early and late reaction. In the early phase of allergic rhinitis there will be Ige E mediated response against the allergen and the response occurs within 15 minutes of the exposure [2]. This releases the variety of preformed and newly synthesized mediators including histamine which is one of the primary mediator of allergic rhinitis. These cytokines facilitates the infiltration of eosinophils, T lymphocytes and basophils into the nasal mucosa and produce nasal edema with resultant congestion [3]. The seasonal allergic rhinitis seems to be more common in the pediatric age group where as the chronic rhinitis is more prevalent in adults [4].

Allergic rhinitis is commonly accompanied with the others comorbidities like allergic conjunctivitis, allergic asthma or dermatitis. The allergic conjunctivitis patient commonly reported to the hospital with common complains of itchy eyes, redness watering and puffiness of eyes. Most of the patients with allergic symptoms are self recovered and only 10- 15% of patients presents to hospital for medical care [5]. The world allergy organisation (WAO) in its revised nomenclature for allergy for global use stated that hypersensitivity symptoms like itching, sneezing, increased secretion and blockage when mediated with IgE mediated allergic rhinitis.

MATERIAL AND METHODS

This hospital based cross sectional study was conducted in the government tertiary care centre in the otorhinolaryngology and ophthalmology department during the period of Jan 2024 to June 2024. It includes both the rural and urban population reported to the hospital. The qualitative and quantitative features of participants were evaluated. The quantitative data covers wide range of data regarding age group affected, gender, most common symptoms and the trigger identified. The qualitative aspects includes the measure the effect of allergic rhinoconjunctivitis on the quality of life of participants. It also study the impact over socio economic performances in workplace and school also gathered information in terms of the mental health of patients or participants.

The total 140 participants included in the study which reported to hospital over the period of 6 months for the medical help for their symptoms related to allergic rhinoconjunctivitis. Standardised questionnaire containing both open and close ended questions used to collect the data. The qualitative. The primary investigator or field assistant administered the questionnaire to the subjects and record the response. It is a hospital based cross sectional study and a convenient sampling method was used to select the sample size based on inclusion criteria. In the process of administration of questionnaire aim of study was explained to each participants and informed consent taken before include them into the study and the interview. The secrecy or privacy and anonymity were assured. In case of participants of pediatric age the consent was obtained from their guardian and responses were recorded with the help of them. At the time of interview the language of communication was in Hindi or in local language.

Inclusion Criteria

1. Patients having major symptoms like sneezing rhinorrhea,nasal congestion with allergic eye symptoms like eye rubbing, congestion, watering and puffiness of eyes.
2. Patients having nasal symptoms previously but subsided, later on recurrence occurs when they get exposed to same allergens.

Exclusion Criteria

1) Patient with allergic complaints for treatment but refused to give the consent to get included in the study.
2) Patients with allergic rhinoconjunctivitis but having difficulty in communication during the interview.

RESULTS

Total of 140 patients included in the studies attended the ENT and ophthalmology OPD during the period of Jan 2024 to June 2024. These patients being interviewed with the define structured set of questionnaires by the principle investigator/ author / investigating assistant in the local language or in Hindi.

Table 1

Variable		No. Of participants	Percentage
Sex	Male	86	61.4%
	Female	54	38.5%
Age	0-15 years	35	25.0%
	16-30 years	68	48.57%
	31-45 years	27	19.28%
	>45 years	10	7.14%
Place of residence	Urban	82	58.6%
	Rural	58	41.42%

In table 1 there were 61.4% male and 38.5% female included in the study. The majority of the cases (4857%) were between the age group of 16 to 30 years. In the study we observed that majority of participants belongs to urban population (58.6%).

Table 2

	Types of trigger	No. Of participants	Percentage

1.	Dust mites	97	69.3%
2.	Seasonal pollen induced	27	19.3%
3.	Animal danders	5	3.6%
4.	Other unknown	11	7.9%

The most common trigger factor for the allergic reactions recorded was the dust mite (69.3%). The seasonal pollen induced allergy was only in 19.3% of the patient. There was the least common trigger factor for the allergic reaction was animal danders (3.6%).

Table-3

	Presenting symptoms/complains	No. Of participants	Percentage
1.	Sneezing reflex with eye itching	48	34.3%
2.	Runny nose with watering	32	22.9%
3.	Nasal and ocular congestion	21	15.0%
4.	Sore throat	12	8.6%
5.	Headache and ocular pain	6	4.3%
6.	Others	21	15%

Most of the common complain patients reported was sneezing and itching in the eye (34.3%) followed by runny nose and watering (22.9%) and nasal and ocular congestion (15.0%).The least common complaint observed in the study was headache and ocular pain (4.3%). There were a high number of patients who reported in the OPD with other associated allergic complaints like cough, halitosis and allergic skin reactions.

Table-4

	Variables		No. Of participants	Percentage
1.	Reduced performance at work, home or school	Yes	47	33.6%
		No	25	17.6%
		Not sure	68	48.6%
2.	Reduce attendance at work, school and office	Yes	41	29.28%
		No	65	46.42%
		Not sure	34	24.28
3.	Reduced outdoor activity and sports	Yes	74	52.85
		No	26	18.57
		Not sure	40	28.57
4.	Poor focus during work and study	Yes	44	31.42
		No	28	20.0
		Not sure	68	48.57
5.	Behavioural change due to depression and irritability	Yes	86	61.42
		No	20	14.28
		Not sure	34	24.28

Patience studied with allergic rhino conjunctivitis also had some comorbitities. The most common condition which was associated with the allergic rhinitis was allergic asthma (22.9%). 24 patients (17.14%) were having associated sinusitis and least number of patients (3.6%) developed the nasal polyp. The majority of patients (45.0%) having none of the associated comorbidity.

In the study we recorded that there was significant decline in the work performance on the workplace in 33.6% and there was absence from the work and school in 29.28 % patients due to allergic symptoms. In the 74 patients (52.85%) there was reduced outdoor activity and the sports activity, 31.42% give history of poor focus during the work and study. Majority of the patients in the study (61.42%) develops the behavioural change due to depression and irritability.

DISCUSSION

Allergens most commonly attack and affect the nose and eyes because these organs are most commonly exposed and allergic rhinitis is the most common presentation of the allergic reaction in human body. The allergic reactions usually mild and requires no medical treatment initially but repeated exposure to allergens and with the time the allergic responses got severe and need the medical help [6]. In the study by Singh et al the prevalence of allergic conjunctivitis was 30% of the total OPD in ophthalmology in North India. Study by gradman et al in Denmark reported 42% of allergic conjunctivitis to be associated with rhinitis, while 30% had eczema and 24% had asthma [7]. Globally it's prevalence was 20% in 2018, however in 2021 it was 10 to 30 % in adults and 40% in children [8]. Allergic rhinitis prevalence in United States of America and Europe ranges between 10-20% [9]. Study by wade et al reported that females were more in number than the names with allergic responses but in our studies we reported that there was non significant difference between male and female [10]. Our results are in the line with the study conducted in Nigeria by Adeghiji et al in which patients belongs to urban areas are 57.9% and patients belongs to rural areas are 42.1% of all the respondents [11]. The reason for that may be due to there is geographical variation in the types and potential of the allergen in the urban areas compared to the rural areas [9,11]. Maximum number of patients having allergic responses are in the young age group i.e. 19 to 35 years of age and least recorded in in the age group above the 50 years.Our study the most common allergen observed is dust mite (69.3%) which have the similar results with the study done by the Varshney et al in 2015 [12]. The most common symptoms reported in the study was sneezing similar to the study by Kalpaklioglu et al [13]. We observed that there was fall of productivity in work at workplace in 33.6% of patients.

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