Original Research Article

Profile of allergic rhinitis patients in a tertiary care centre in Central Kerala

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ABSTRACT

Background: Allergic rhinitis (AR) is a major public health problem which has a significant impact on the quality of life. Around 20-30% of the Indian population suffers from AR. The objective was to study the clinical profile and find out the factors associated with severity.
Methods: This retrospective record-based study was conducted among 182 patients with AR who visited Department of otorhinolaryngology in a tertiary care hospital in central Kerala. Variables collected included age, gender, family history of allergy, duration of disease and details of symptoms. The visual analogue scale (VAS) was used in identifying the severity of symptoms.
Results: The mean age of participants was 39±19 years. Nearly 50% of them had positive family history and 77.5% were found to have severe symptoms. The mean total VAS score was 25±5.1. Sneezing and nasal block were the common symptoms reported. Among the participants who had family history, 77 (87.5%) of them reported severe symptoms (χ^2=9.81, p=0.002). Almost all participants belonged to higher age group reported high severity (χ^2=48.130, p<0.0001). More than 80% of the participants who reported a longer duration of disease had severe symptoms (χ^2=7.28, p=0.007).
Conclusions: The study identified a significant proportion of sneezers and blockers among the study population. Older age group, family history and longer duration of disease were the factors associated with severity. Generating community awareness will help in early diagnosis, effective control with improvement in quality of life of these patients.

Keywords: Allergic rhinitis, Kerala, Profile

INTRODUCTION

AR, also known as hay fever, is a type of inflammation in the nose which occurs when the immune system overreacts to allergens.[1] It is an IgE-mediated inflammatory disease of the nasal mucosa, triggered by exposure to airborne allergens. It is also referred to as seasonal allergies and is triggered by grass, pollen, dust and dirt in the air and at times because of smoke and perfumes. AR is not severe or fatal until accompanied by asthma or anaphylaxis, which can be significant.[1,2] This is a major public health problem worldwide, with over 300 million people worldwide affected. Prevalence of AR has been increasing over the last few decades and around 20-30% of the Indian population suffers from AR. AR constitutes nearly 50% of all allergies in India.[3-5] AR

patients are classified as either sneezers runners and blockers due to their distinct clinical profile. In patients who are predominantly sneezer and runner main symptoms are sneezing, anterior rhinorrhoea, itchy nose and eyes, on the other hand blockers have nasal congestion as predominant symptoms in nasal blockage and thick mucous can lead to postnasal discharge breathlessness. These symptoms can be mild moderate or severe cause significant impact on the quality of life of the individual.[2] Conditions such as asthma, sinusitis, otitis media, nasal polyposis, lower respiratory tract infection and dental malocclusion are also associated with this condition.[3] Since viral respiratory infections occur frequently in young children and produce similar symptoms, it is very difficult to diagnose AR in the first 2 or 3 years of life. The prevalence of AR peaks in the second to fourth decades of life and then gradually diminishes.[6] AR contributes to missed or unproductive time at work and school, sleep problems and among affected children, decreased involvement in outdoor activities.[7] Even though the condition is quite prevalent in India, the literature on the clinical profile of AR from south Indian population is scarce. Hence this study was carried out to study the clinical profile of the patients and find out the association between selected variables with severity of AR.

METHODS

This retrospective record-based study was conducted among 182 patients with AR who visited department of otorhinolaryngology, in a tertiary care hospital in central Kerala for 3 years between January 2016 to January 2019. The study protocol was approved by institutional ethics committee prior to the commencement of data collection.

Considering a 68% prevalence of symptoms among patients, 10% precision at 95% CI, our sample size was calculated to be 182. Hence 182 patients with complete information on the hospital information system and those who cooperated for a phone call survey were included in the study using convenient sampling. Most of the information was taken from records and some missing information on selected records was collected through phone interviews. Study tool included a questionnaire which collected information on sociodemographic variables like age, gender, family history of allergy, duration of symptoms and details of symptoms. The psychometric response scale, VAS was used in identifying the severity of each symptom reported. The VAS is a horizontal long line with descriptors at its ends expressing two extremes of a feeling. AR patients were asked about their symptoms in detail and also were to mark a point in the VAS scale that best corresponds to the severity of their symptoms during the first visit. The respondent's cross is then assigned a score from 0 to 10. A score ranging from 1-5 is considered as mild and score more than 5 is considered as severe for that particular symptom. All symptom scores are added up to get a final VAS scoring which ranges from 0 to 50. Total score ≤25 is considered as mild and >25 is considered as severe.[8] Statistical analysis was performed using Epi info software.

Details of VAS scoring for individual AR symptoms

The details of VAS scoring for individual AR symptoms are congestion: 0 (free breathing), 10 (complete obstruction at day and night); rhinorrhoea/watering of eyes: 0 (dry nose/eyes all day), 10 (continuous secretion); headache: 0 (no headache, 10 (severe headache); itching: 0 (no itching), 10 (persistent itching disrupting everyday activities); sneezing: 0 (no sneezing), 10 (persistent sneezing fits for the whole day and night that disrupt normal functioning).

RESULTS

A total of 182 patients with allergic rhinitis were included in the study. The mean age of the participants was 39±19 years.

Table 1: Distribution of the study population based on demography and profile.

S. no.	Variables	Categories	Number (%)
1	Age groups (in years)	<18	24 (13.2)
		18-39	74 (40.7)
		40-59	52 (28.6)
		≥60	32 (17.6)
2	Gender	Male	103 (56.6)
		Female	79 (43.4)
3	Duration of allergy (in years)	≤5	32 (17.5)
		>5	150 (82.5)
4	Family history of AR	Yes	88 (48.4)
		No	94 (51.6)

Table 2: Distribution of study population based on the severity of symptoms.

S. no.	Variables	Categories	Number (%)
1	Sneezing	No symptom	1 (0.5)
		Mild symptom	0
		Severe symptom	181 (99.5)
2	Nasal block	No symptom	0
		Mild symptom	2 (1.1)
		Severe symptom	180 (98.9)
3	Headache	No symptom	45 (24.7)
		Mild symptom	104 (57.1)
		Severe symptom	33 (18.1)
4	Itching	No symptom	31 (17)
		Mild symptom	87 (47.8)
		Severe symptom	64 (35.2)
5	Watering of eyes	No symptom	3 (1.6)
		Mild symptom	39 (21.4)
		Severe symptom	140 (76.9)

Table 3: Association of severity of AR with selected variables.

S. no.	Variables	Categories	Severity of AR			Chi square, p value
			Mild (%)	Severe (%)	Total	
1	Age groups (in years)	<18	13 (54.2)	11 (45.8)	24	χ^2=48.130 p<0.0001
		18-39	28 (37.8)	46 (62.2)	74	
		≥40	0	84 (100)	84	
2	Gender	Male	26 (25.2)	77 (74.8)	103	χ^2=1.002 p=0.317
		Female	15 (19)	64 (81)	79	
3	Duration of disease (in years)	≤5	13 (40.6)	19 (59.4)	32	χ^2=7.28 p=0.007
		>5	28 (18.7)	122 (81.3)	150	
4	Family history	Yes	11 (12.5)	77 (87.5)	88	χ^2=9.81 p=0.002
		No	30 (31.9)	64 (68.1)	94	

Clinical profile of patients and factors associated with severity of symptoms

Among the study participants 141 (77.5%) were found to have severe symptoms according to total VAS scoring (total score >25). The mean total VAS score was calculated to be 25±5.1. The common symptoms reported were sneezing and nasal block among the participants. Almost all of them reported to have high severity of these symptoms. The mean VAS scores were 8.7±0.8 and 7.7±0.8 for sneezing and nasal block respectively. Nearly 75% of the participants had severe watering of eyes (mean score=6.1±2.2). Headache and itching were relatively uncommon among study population and majority of them reported only mild symptoms. Details of symptoms in Table 2. The association between severity of symptoms and collected variables were done. Among the participants who reported to have family history of AR, 77 (87.5%) of them reported severe symptoms. Similarly, almost all participants belonged to higher age group reported high severity. Duration of the disease was another factor that was found to be associated with severity. More than 80% of the participants who reported

a longer duration of disease had severe symptoms. Even though females reported higher severity of symptoms compared to males, this association was not statistically significant, details in Table 3.

DISCUSSION

AR is a highly prevalent health condition which is often neglected in many developing countries including India.[9] It affects physical, mental and social aspects of life and can have significant impact on the quality of life of patients.[10] The present study explains the clinical profile of the patients with AR and factors associated with severity of the symptoms. Majority of the population were below 40 years with almost equal gender distribution. Results of this study is comparable to a similar study done in north India where majority of the patients belonged to younger age category. A similar study done in Kolkata showed that most of the patients with allergic rhinitis belonged to age group of 20-39 years. Also study done in Chhattisgarh revealed that majority of patients belonged to third decade of life.[3,11] It may be due to the decline in antibody levels and T cells associated with immunosuppression in old age.[3] Nasal

obstruction, sneezing, runny nose, nasal itching, postnasal drip are diagnostic symptoms of allergic rhinitis. The most common symptoms identified in this study were nasal block and sneezing. This study showed that the proportion of sneezers were comparable to the proportion of blockers. Results of the studies done in India and abroad showed variations in the proportion of sneezers/blockers depending on the study population and area.[3,9,11] Nearly three forth of the participants reported to have severe symptoms. Available literature also supports this finding. Probably due to the fact that patients most of the patients who come to hospital for consultation may have moderate to severe symptoms compared to others. The study also explored factors associated with severity of symptoms. We observed a slight female predominance among patients with severe symptoms in our study and is in is in consonance with other study findings. Another study done by Larson et al observed that women suffer from more severe rhinitis compared to men.[12] Gender differences may be due to differences in response to the same disease and severity level. It has been noticed that women are more emotionally distressed by the sheer presence of symptoms, while men do not react until their symptoms become severe and long-standing. Even though the disease condition is more common among younger age groups, severity of symptoms was found to be high among older people. Age related changes are known to worsen symptoms related to rhinitis. Longer duration of the disease was found to be significantly associated with severity of symptoms. Similar results were obtained in another study done in India where severity of the symptoms were directly proportional to the duration of the disease.[3] Nearly half of our study population had a positive family history of allergic rhinitis. We observed that the family history of allergic rhinitis was strongly associated with severity of the disease among patients. There is clear and strong evidence to support the influence of genetic predisposition in allergic rhinitis. The complex interaction of genetic and environmental factors play a pivotal role in the etiology of AR. Understanding these factors and sensitization will help in more effective measures of prevention and intervention.[13]

Limitation

As it was predominantly a record based study, comorbidities and other factors associated with severity of allergic rhinitis could not be included. Hospital based clinical profile and severity may not be a true representation of the situation in the community.

CONCLUSION

The study identified a significant proportion of sneezers and blockers among the study population. More than 75% of them had severe symptoms. Older age group, family history and longer duration of disease were the factors associated with high severity of symptoms. Generating community awareness regarding various aspects of the disease will help in early diagnosis, effective control and prevention of the disease with improvement in quality of life of these patients.

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