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Original Research Article

Prevalence and impact of allergic rhinitis in school going children

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ABSTRACT

Background: Allergic rhinitis (AR) is a chronic inflammatory disorder affecting the nasal mucosa. There is negative impact of AR on several aspects of day to day living and quality of life (QoL), which include: daily functioning, sleep, absenteeism, school productivity and academic performance. Almost 40% of children are being affected by AR.
Method: An observational study was conducted on randomly selected 100 parents of school going children aging 2 to 15 years, attending OPD in community health center, Chenani, district Udhampur, J and K, for a period of one year from June 2018 to Nov 2018. Children having frequent episodes of allergic rhinitis were enquired about their history of sneezing, runner itchy nose and eyes, thick mucus, nasal blockage or breathless with associated symptoms were selected.
Results: 81% of subjects had a worse problem during specific months of the year; and 67% had itchy-watery eyes. In 15% of subjects, AR impacted daily activities. A prevalence of 28% for nasal symptoms and 14% for allergic rhino-conjunctivitis was found. Study also showed significantly higher proportion of blockers (61%) than sneeze runners (39%). 56% children had one or more co morbidity, whereas 44% had 'nil' co-morbidities. The most common allergens were: pollens (grass, trees and weeds), house dust mites, pets, molds, fungi and food.
Conclusions: AR adversely affects quality of life of patients and furthermore studies should be conducted for more clarity on the subject, besides a timely medical intervention and treatment could possibly avoid the rising morbidity associated with the disease.

Keywords: Allergic rhinitis, Sneeze runners, Blockers, Quality of life, Nasal symptoms, Rhino-conjunctivitis

INTRODUCTION

Allergic rhinitis (AR) is an IgE-mediated, chronic inflammatory disorder affecting the nasal mucosa. Special characteristics of AR are: repeated sneezing, rhinorrhea and nasal congestion; very often accompanied by itching of eyes, nose and palate.[1] Further, health related quality of life (HR-QoL), however being a complex and multidimensional concept, is now used as a marker of disease impact. It is now often being used to record subjective perceptions as well as objective assessment of a patient's well-being and health status.[2] Bliass et al highlighted the negative impact of AR on several aspects of day to day living and QoL, which include: daily functioning, sleep, absenteeism, school productivity and academic performance.[3] There is sufficient data to suggest AR to be the most common chronic disorder in the pediatric population. Almost 40% of children are being affected. Parental assessment of the impact of AR on the day to day lives of children with AR indicates that AR makes their child unhappy, upset, angry and embarrassed.[4] The international study for asthma and allergies in childhood (ISAAC) phase 3 found that global average of current rhino conjunctivitis symptoms in 13-14-year age group was 14.6% and the average prevalence of rhino conjunctivitis symptoms in 6-7-year age group was 8.5%.[5]

With this background the current study was designed to study the impact of allergic rhinitis in school going children and the aim of the study was to find out the prevalence of AR, contribution of symptoms in AR and its related co-morbid conditions.

METHODS

The present cross-sectional observational study was conducted on randomly selected 100 parents of school going children attending OPD in community health center, Chenani for a period of one year from June 2018 to Nov 2018. The study was conducted after taking approval from ethical committee. Participants were aged 21 years or above, currently residing in Udhampur district and parent/guardian of at-least one child aging 2 to 15 years, having frequent episodes of allergic rhinitis. Patients were included by enquiring about their history of sneezing, runner itchy nose and eyes, thick mucus, nasal blockage or breathless with associated symptoms; while age above 15 years or any pathology associated rhinitis were excluded from the study.

A questionnaire was prepared to analyze the symptoms and history of rhinitis among children, which followed the standard sequence and method developed by ISAAC Steering Committee about cough and the medical care of asthma, rhinitis and eczema.[6] This questionnaire, as given in Table 1 below, was put before 236 parents and study population was decided from the first 100 parents who responded in positive to the question no: 1 of the questionnaires.

RESULTS

81% of subjects responded that the child's nose problem was worse during specific months of the year; and 67% said that the problem is accompanied by itchy–watery eyes. 46 patients found this eye-nose problem with a source of allergy. 15% of subjects agreed to this problem impacting daily activities and hence QoL (Table 1).

This study showed a prevalence of 28% for nasal symptoms and 14% for allergic rhino-conjunctivitis respectively (Figure 1).

Distribution of symptoms showed that blockers constituted as much as 61% of the total study group (Figure 2).

Moderate to severe persistent allergic rhinitis, as classified as per ARIA guidelines, was most common type of allergic rhinitis with as many as 36% of patients studied (Figure 3).

Minimum 56% of subjects had one or more co-morbidity (mainly bronchial asthma 53%), whereas 20% children had 2 or more co-morbidities. The prevalence of different co-morbidities is shown in Figure 4.

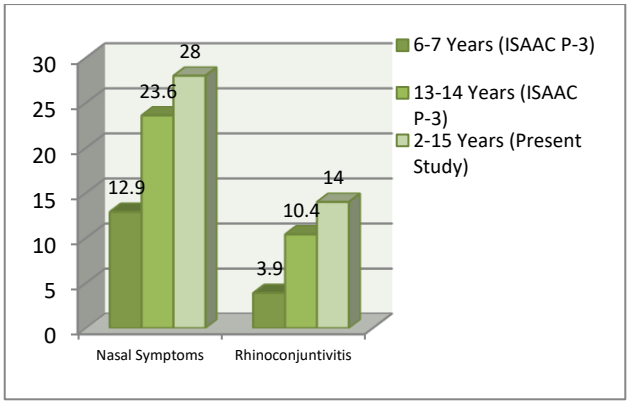

Figure 1: Comparative prevalence.

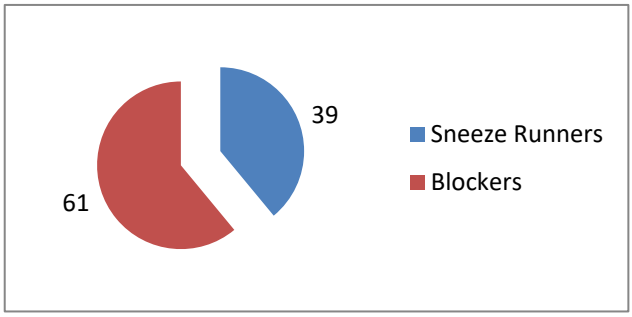

Figure 2: Symptom distribution.

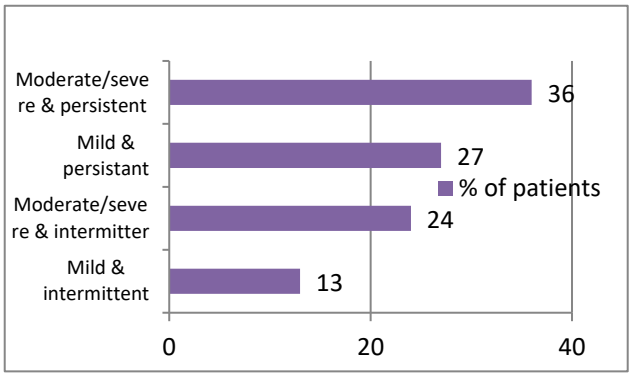

Figure 3: Severity of symptoms among the patients studied.

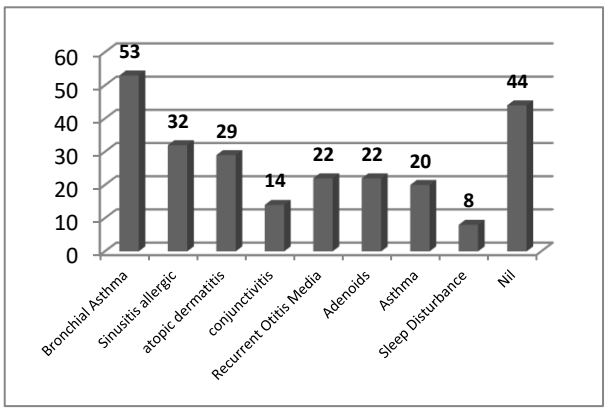

Figure 4: Co-morbid conditions of allergic rhinitis.

Table 1: Rhinitis-specific questionnaire items.

Q. no.	Questions	Response rate	Percent (%)	Remarks
1	In the past 12 months, has your child ever had a problem with sneezing, or a runny or blocked nose when he/she did not have cold or flu? (If your answer is NO, please skip questions: 2-6)	100/236	42.37	Yes
2	If yes, is the child's nose problem worse during specific months of the year?	76/100	76	Yes
3	Has this nose problem been accompanied by itchy–watery eyes?	63/100	63	Yes
4	If yes, does this nose and eye problem occur when your child is in the same room with a cat, dog, disturbance of house dust, or when outdoors near freshly cut grass?	42/63	66.67	Yes
5	In the past 12 months, how much did this nose problem interfere with your child's daily activities?	59/100	59	Not at all
		26/100	26	A little
		15/100	15	Moderately
6	In the past 12 months, has your child had "hay fever"?	26/236	11.02	Yes

DISCUSSION

It is a known fact that as much as 30% of Indian population, which included children as well, suffers from at least one allergic disease.[7] Reported incidence of allergic rhinitis in India also ranges between 20% and 30%.[8] Allergic rhinitis is on the rise in India over past few years. According to international study of asthma and allergies in childhood (ISAAC) phase 3 (2009), in India, prevalence of nasal symptoms was as high as 12.9% and 23.6% in 6-7- and 13-14-year age groups, respectively, while that of allergic rhino-conjunctivitis were 3.9% and 10.4% respectively.[6] While in our own study, which correspond to the age group 2-to-15-year age, the figures were 24% and 15% respectively.

Allergic rhinitis is there as 'sneeze runners and blockers' because it is identified due to its distinct clinical profile. In such patients who are allergic as well as 'sneezers and runners', the main symptoms are: sneezing, itchy nose, itchy eyes and anterior rhinorrhea. Patients who are 'blockers', have nasal congestion with thick mucus with post nasal drip and breathlessness as predominant symptom.[9] Our study also showed significantly higher proportion of blockers (61%) than sneeze runners (39%) (see Figure 2), quite similar to the study by Deb et al, but dissimilar in the sense that their patients screened were adults with allergic rhinitis.[9]

A study conducted in Mysore showed a consistently rising trend of allergic rhinitis in children from 6-14 years old over period of 15 years from 1998 to 2013 (Figure 5).[10] Our result also showed higher prevalence also corresponding to this study's prevalence of 21.2% for the year 2013.

Allergic rhinitis can be associated with number of co-morbid conditions such as asthma, sinusitis, otitis media, atopic dermatitis and nasal polyps.[11] In the study by Deb et al asthma was the most common co morbid condition, present in almost half of patients.[9] In the present study too, a number of co-morbid conditions are found associated with allergic rhinitis. In children with allergic rhinitis majority of children had one or more co morbidity (56%), whereas 44% had 'nil' co-morbidities. A study by Sharma et al also showed that a total of 41.9% children had no recorded co-morbid condition.[12]

Common allergens to allergic rhinitis were found to be mostly perennial or seasonal and duly present in the indoor and outdoor environment. The most common ones are: Pollens (grass, trees, weeds), house dust mites, pets, molds, fungi and food.[9]

The limitations of the study are: firstly, it was carried out on children pertaining to the age group: 2 to 15 years and therefore the comparative discussion on other such studies carried out on adults and a different age groups cannot be conclusive; and secondly QoL index needs to be more clearly defined.

CONCLUSION

In India the population, especially children, suffering from prevalence of allergic rhinitis is increasing over past many years. Allergic rhinitis is associated with number of co-morbid conditions such as asthma, sinusitis, otitis media, etc. Allergic rhinitis adversely affects quality of life of patients and furthermore studies should be conducted for more clarity on the subject. AR should not be ignored as any other allergy and timely medical intervention and treatment could possibly avoid the rising morbidity associated with the disease.

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