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ORIGINAL ARTICLE

Comorbid Asthma in Allergic Rhinitis Patients in Kashmir

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ABSTRACT

The study was conducted in the department of otorhinolaryngology, head and neck surgery, Government Medical College, Srinagar and Associated Hospitals, Jammu and Kashmir for the period of 2 years from May 2011 to June 2013 with the aim to determine the prevalence of asthma in allergic rhinitis (AR) patients and the effect of medical management of allergic rhinitis on asthma it is a hospital based prospective study. A total of 576 patients who presented with features of AR were enrolled in the study after proper written consent was taken. All cases were evaluated for AR and for the comorbid asthma. Detailed history and clinical examination was done. Skin prick test (SPT) and spirometry was used to confirm the allergy and to detect comorbid asthma respectively. Wilsons scoring system and spirometeric parameters forced expiratory volume and forced vital capacity (FEV1/FEV25-75 and FVC) were used for pre- and post-treatment symptom comparison.

Results: Out of 576 patients, 117 patients were positive for SPT for various inhalant allergens, with prevalence of comorbid asthma being 41.08%. There was significant improvement in symptomology of asthma following the use of nasal inhalational steroids for AR. Wilsons score system and spirometric parameters showed marked improvement in post-treatment results, with p-value of 0.00 which is statistically highly significant.

Keywords: Allergic rhinitis, Comorbid asthma, Inhalational steroids, Spirometry.

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INTRODUCTION

The allergic rhinitis and its impact on asthma (ARIA) 2008 updated document estimates that there are 500 million subjects in this world who suffer with allergic rhinitis (AR).[1] Multiple co-morbidities like sinusitis, asthma, conjunctivitis, eczema, eustachian tube dysfunction and otitis media are generally associated with AR. Allergic rhinitis and its impact on asthma guidelines redefined the old nomenclature (seasonal, perennial) and proposed that rhinitis should be classified according to duration (intermittent and persistent), severity and evaluated as their impact on patients quality of life (QoL) mild and moderate severe[2,3] as in Table 1.

The best established risk factor for AR is a family history of allergy, especially of AR.[4] Allergic rhinitis may be considered as the first step of the progression of respiratory allergy toward asthma. Allergic rhinitis has been recognized as a significant risk factor for adult onset asthma.[5,6] Allergen avoidance along with pharmacotherapy is the mainstay of treatment. Key allergens should be identified and avoided as far as possible. Oral/intranasal antihistamines along with intranasal corticosteroids comprise the armamentarium against AR.[1,7]

METHODOLOGY AND RESULTS

The study was conducted in the Department of Otorhinolaryngology, Head and Neck Surgery, Government Medical College, Srinagar and associated hospitals, Jammu and Kashmir for the period of 2 years from May 2011 to June 2013.

A total of 576 patients with features of AR who presented to our outpatient department were enrolled in the study after proper written consent. They were evalua-ted in detail with history and full clinical examination including skin prick test (SPT) and spirometry. Skin prick test (using common allergens prevalent in the valley) was used to confirm the allergy. All those patients who were diagnosed as having AR were subjected to spirometry for diagnosis and documentation of latent as well as apparent comorbid asthma. All cases were put on medical treatment (inhalational nasal steroids) and were examined for symptom relief on follow-up.

RESULTS

Out of 576 patients, 117 patients were positive for SPT for various inhalant allergens. These 117 patients with AR comprised of 63 males and 54 females with the age between 9 and 41 years having almost equal male female ratio as shown in Table 2. They were classified into intermittent allergic rhinitis (IAR) and persistent allergic rhinitis (PAR) as per World Health Organization (WHO) initiative, ARIA criteria.

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Out of total of 117 patients 73 patients were found to have persistent AR (62.39%) while as only 44 patients had IAR (37.60%). Table 3 shows the ARIA classification.

All patients of AR were subjected to computer assisted spirometry (CAS) which was used as diagnostic tool for the diagnosis of asthma. The parameters used were forced expiratory volume/forced expiratory flow and forced vital capacity (FEV1/FEF25-75 and FVC). The improvement of 10% in FEV1 after the use of inhalational short acting bronchodilator was set as a criteria for diagnosis of asthma. Using the above criteria, it was found that the prevalence of asthma in AR is 41.08% (48/117). Fourteen out of 44 (46.57%) cases of PAR patients were found to have comorbid asthma which was more than that seen in IAR patients in whom only 34 out of 73 (31.8%) had the same (Table 4).

All 117 patients of AR were put on inhalational nasal corticosteroids. The patients of AR with out comorbid asthma were put on fluticasone (150 μg) 1 puff BD for 1 week only while as patients of AR with comorbid asthma were put on fluticasone (150 microgram) 1 puff BD for 6 weeks as per standard of asthma treatment recommended by Global Initiative for Asthma (GINA).

All AR patients with or without comorbid asthma were evaluated for symptom relief using 'Wilson' score system after 1 week of inhalational nasal steroids while as patients of AR with comorbid asthma were in addition subjected to post-treatment spirometry 6 weeks after completing the treatment.

It was seen that both AR without asthma and AR with comorbid asthma subjects had marked relief of symptoms on the follow-up. The pre- and post-treatment spirometric parameters in AR with comorbid asthma showed that there is statistically significant improvement in spirometric parameters (FEV1 and FEF25-27) as shown in Tables 5 and 6.

DISCUSSION

Magnan et al,[8] in their hospital based study found the prevalence of AR of 10 to 40% in adults. Dykewicz et al[9] reported in their study the prevalence of 10 to 30% in adults, which is consistent with our results. In the present study, symptoms suggestive of latent asthma were cough, nocturnal waking, occasional wheezing, occasional chest tightness. Cough during night was most frequent symptom found in 27.05% of patients followed by nocturnal waking (17.24%) occasional wheezing (13.79%) and chest tightness (8.6%). In the current study, all these chest symptoms are more commonly observed in persistent rhinitis group (33.78%) as compared to intermittent rhinitis groups (19.04%). Linneberg et al[10] reported asthma in 25% of patients with AR who were sensitive to pollen with intermittent rhinitis and in 50% of those who were mite sensitive with persistent rhinitis. The above epidemiological study corroborate the findings of current study and highlight the importance of recognizing the upper and lower airway disease as a continuum of single disease process. Schatz[11] in his study

Table 1: Allergic rhinitis and its impact on asthma classification

Intermittent	*Persistent*
Symptoms	Symptoms
< 4 days per week or < 4 weeks	> days per week or > 4 weeks
Mild severity	Moderate severity (1 or more following items)
Normal sleep, normal daily activities, sports, leisure, normal work and school, no troublesome symptoms	Abnormal sleep, impairment of daily activities, sports, leisure, problems at work or school, troublesome symptoms

Table 2: Patients positive for SPT

Gender	*No. of patients*	*Percentage*
Males	63	53.8
Females	54	46.15
Total	117	100

Table 3: Groups of patients, using ARIA classification

Classification of AR	*No. of patients*	*Percentage*
Persistent AR	73	62.39
Intermittent AR	44	37.60
Total	117	100

Table 4: Prevalence of comorbid asthma in AR

Type of AR	*No. of cases*	*Comorbid asthma*	*Percentage*
Persistent AR	73	34	46.57
Intermittent AR	44	14	31.8
Total	117	48	41.08

Table 5: Pre- and post-treatment FEF25-75 comparison in AR with comorbid asthma subjects

	Pretreatment FEF25-75	*post-treatment FEF25-75*
Mean	66.02	75.13
SD	4.28	5.91

With a paired difference standard error of mean = 0.683. p-value = 0.000 (highly significant)

Table 6: Pre- and post-treatment FEV1 comparison in AR with comorbid asthma subjects

	Pretreatment FEV1	*Post-treatment FEV1*
Mean	74.11	78.97
SD	6.44	5.08

With a paired difference standard error of mean = 0.701. p-value = 0.000 (highly significant)

'burden of AR in US' found that moderate or severe AR was significantly higher in patients with asthma than in those without asthma (73 *vs* 58.5%). He also found that burden of AR is greatest in patients with persistent rhinitis compared to intermittent group thus, confirmed our results. Ciprandi et al[12] in their study noticed that duration of rhinitis was significantly associated with impaired values of 2 or 3 spirometric parameters and FEF25-75 reflecting small airway obstruction is most common affected parameters. Management of AR includes allergen avoidance, education and possibly immunotherapy, surgery rarely needed. Treatment strategies, should involve both the upper and lower airways where the latter is also affected. In the current study, patients were put on nasally inhaled corticosteroid fluticasone. The patients with latent asthma on spirometry were put on nasally inhaled corticosteroid fluticasone[1] puff BD, (75 μg for 6 weeks) as per recommendation of asthma treatment. Patients were followed after 6 weeks and repeat spirometry was done and AR scored. It was observed that 77.77% patients showed improvement in asthmatic symptoms and spirometric derangements on medical treatment. This is in accordance with the study done by Camargos et al[13] on 'effect of nasally inhaled flutisone on AR score and asthma' where they observed that symptom scores were reduced by 75% and nasal respiratory peak flow increased by 50 to 80%. Progressive improvements in FEV1 and FEF25-75 were seen. FEV1 increased by 17.5%. FEF25-75 was improved by 15%. Adequate control of AR can result in significant improvement of asthma scores and flow rates.[14]

CONCLUSION

The study emphasis on importance of recognizing the upper and lower airway disease as a continuum of single disease process, and thus great attention should be paid on history of chest symptoms in AR patients to diagnose latent asthma.

REFERENCES

1. Bousquet J, Khaltaev N, Cruz AA, Denburg J, Fokkens WJ, Togias A, et al. Allergic rhinitis and its impact on asthma 2008 update (in collaboration with the World Health Organization, GA2LEN and Aller Gen) Allergy 2008; 63(Suppl 86):8.
2. Bugiani M, et al. Allergic rhinitis and asthma comorbidity in a survey of young adults in Italy. Allergy 2005;60:165-170.
3. Hamouda S, et al. Allergic rhinitis in children with asthma: a questionnaire based study. J Exp Allergy 2008 May;38(5): 761-766.
4. Bahana SL. Factors determining development of allergy in infants. Allergy proceedings 1992;13:21-50.
5. Bousquet J, et al. Allergic rhinitis and its impact on asthma comorbidity and complications. J Allergic Clin Immunol 2000; 108:S198-207.
6. Bachert C, et al. Allergic rhinitis and its impact on asthma in collaboration with the World Health Organisation. Executive Summary of the Workshop Report 7-10.
7. Bousquet J, Reid J, Van Weel C, Baena Cagnani C, Canonica GW, Demoly P, et al. Allergic rhinitis management pocket reference. Allergy 2008;63:990-996.
8. Magnan A, et al. Frequency and impact of allergic rhinitis in asthma patients in everyday general medical practice: a French observational cross-sectional study. Allergy 2008 Mar; 63(3):292-298.
9. Dykewicz MS, et al. Diagnosis and management of rhinitis: complete guidelines of the joint task force on practice in allergy, asthma and immunology American Academy of Allergy, Asthma Land Immunology. Ann Allergy Asthma Immunol 1998;81:478-518.
10. Linneberg A, et al. The link between allergic rhinitis and allergic asthma: a prospective population based study. The Copenhagen Allergy Study Allergy 2002;57:1048-1052.
11. Schatz M. A study of burden of allergic rhinitis in USA. Allergy 2007;62(Suppl 85):9-16.
12. Ciprandi G, et al. Impact of allergic rhinitis on asthma effects on spirometric parameters. J Allergy 2008;63:255-260.
13. Camargos P, Ibiapina C, Lasmar L, Cruz A, et al. Obtaining concomitant control of allergic rhinitis and asthma with a nasally inhaled steroid. Allergy 2007;62:310-316.
14. Magnan A, et al. Frequency and impact of allergic rhinitis in asthma patients in everyday general medical practice: a French observational cross-sectional study. Allergy 2008 Mar; 63(3):292-298.