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Original Research Paper

Immunology

CLINICAL PROFILE OF NASOBRONCHIAL ALLERGY OF PATIENTS ATTENDING A TERTIARY CARE CENTER IN RURAL INDIA.

Dr. Mahendra Singh Raghuwanshi MD pulmonary medicine at ABVGMC Vidisha

Dr. Deepak Kumar* Senior resident at department of medicine ABVGMC Vidisha. *Corresponding Author

Dr. H. G. Varudkar Professor and head, Pulmonary medicine, R. D. Gardi medical college Ujjain M.P.

ABSTRACT

BACKGROUND: Asthma and other allergic conditions such as allergic rhinitis are major public health problems in world as well as in India. There are many socioeconomic and demographic factors which affect prevalence, severity and recurrence of disease process.

AIM: To study the effects of population characteristics on prevalence of nasobronchial allergy in community. **Objectives:** 1. to describe the clinical profile of study population. 2. To correlate clinical profile with nasobronchial allergy in terms of common allergens found at house hold.

MATERIALS AND METHODS: 40 patients were studied about their age, residence, occupation pattern of allergic condition affecting them with help of questionnaire and skin prick test was applied to know the pattern of allergen involved. Effect of avoidance of allergen was observed for 3 months.

RESULTS: Agriculture was found to be most common cause of respiratory allergic diseases. We found, 70% cases from rural populations while 30% from urban population. There was a considerable overlap of br.asthma and allergic rhinitis representing 43% of study population. In our study we found that the most common allergens are house dust mites (43.3%), then insects (21.7%), inhalants (18.8%) and Fungi (15.8%). Interestingly in follow up of the patients we observed that 53.3% patients of allergy became asymptomatic after avoidance of all relevant positive allergens, 40% shows reduced intensity of symptoms.

CONCLUSION: Better understanding of socio-demographic status of patient and assessment of most common allergen to the patient concerned is the key in evaluation and management of patients.

KEYWORDS : Population, Nasobronchial allergy, Prevention.

INTRODUCTION:

The incidence of bronchial asthma and allergic rhinitis allergies has been increasing over past few decades [1,2]. Proper diagnosis, identification, and avoidance of the allergens where possible is the key for the management of these conditions. In assessing patients with allergic diseases, a number of tests are now commonly performed [3]. Early diagnosis and treatment carries a great importance to improve the quality of life and to limit the progression of disease. Information on epidemiology of chronic respiratory illness in India is available through several small studies done by individual investigators from time to time. But the studies are not uniform in terms of definitions, designs, methodologies and reporting methods[4]. The pathophysiology of asthma is characterized by airway inflammation and bronchial hyper responsiveness, which subsequently cause symptoms of wheezing, dyspnea, chest heaviness and coughing [5].

A combination of genetic makeup and environmental factors in combinations seems to be involved in development of asthma symptoms [6-8]. If a person has family history of allergic disorder than he has more chance of developing asthma and its persistence in future [9,10], but it has been suggested that other non-allergic mechanisms also play a part [11]. Allergic Rhinitis in defined as an inflammatory disease of the nasal mucosa include by an IgE mediate reaction, following exposure to an allergen. Allergic Rhinitis has a global distribution with prevalence rates varying from 9% -42% in the general populace. As it is one of the most common atopic disorder, this condition is a concern of great social and economic burden to the society. This study was planned to correlate population characteristics with prevalence of allergic conditions like bronchial asthma and allergic rhinitis for role of allergens and effect of preventive measure to formulate preventive as well as therapeutic measures for patients.

AIM & OBJECTIVES:

To study the effects of population characteristics on prevalence of nasobronchial allergy in community. **Objectives:** 1. To describe the clinical profile of study population. 2. To correlate clinical profile with nasobronchial allergy in terms of common allergens found at house hold.

MATERIAL AND METHODS:

The study group consisted of 40 patients with different allergic conditions who were attending the OPD of our hospital. They were carefully examined and the symptoms suggestive of different allergic conditions were noted. These patients were off treatment during the study. History Performa was thus filled and details regarding name, age, sex, and duration of symptoms were noted. A detailed history was taken for each subject regarding the illness. Age and sex-matched healthy volunteers were selected as controls. This was studied against the 7common allergen groups such as pollen, fungi, insects, mite, dust, animal dander's and epithelia and food. Skin prick test was used as a test of delayed hypersensitivity reactions. All patients were tested for a panel of 221 allergens. A positive flare or induration of > 3 mm was considered a 3+ positivity [11]. The reactions of skin test to the standard allergens were compared to their total serum IgE levels to test the efficacy of the test.

Inclusion Criteria:- As per GINA (Global Initiative for Asthma) definition for Asthma. As per ARIA (Allergic Rhinitis and its Impact on Asthma) definition for allergic rhinitis.

Exclusion Criteria:- Uncooperative, unwilling patients, Patients with skin diseases or skin reaction like urticaria or dermatographism, HIV & HBsAg Positive patients, Patient with acute condition(acute asthma or rhinitis), Co-morbid conditions, Bleeding disorders, smoking, diabetes mellitus, parasitic infections, TB, and other lung diseases.

Study Design:
A prospective, observational, hospital-based study.

Study Period: 12 months

Other Procedures: Routine lab investigations, absolute eosinophil count, Total IgE, chest x-ray, spirometry etc. were also carried out.

Follow up after 3 months-
Patients were followed up after 3 months for evaluation of symptoms & improvement.

OBSERVATION AND RESULTS:

In this study majority (65%) of patients were in middle age group (21 to 40 yr) and 11 (27.55%) patients are above 40 years. Total patients were 40, out of which 26 (65%) were male and 14 (35%) female. 70% cases were from rural population and 30% from urban population. So majority of allergic patients were of rural origin. On the basis of clinical diagnosis, all the patients included in our study were divided into three groups: Bronchial Asthma (n=8), allergic rhinitis (n=15); and both bronchial asthma and allergic rhinitis (n=17). It was observed that in our study that majority of patients i.e. 42.5% were affected by both allergic rhinitis and bronchial asthma.

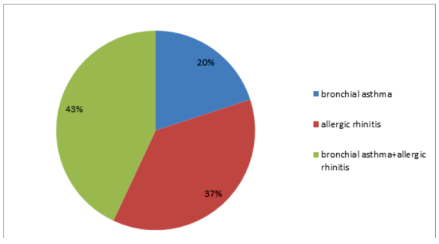
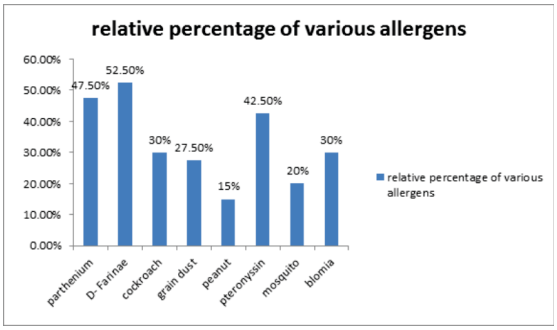


Figure 1. Percentage Of Clinical Diagnosis

Out of 11 farmers, 27.3% had BA , 27.3% had AR and 45.5% had BA with AR, so farmers predominantly were having Allergic Rhinitis with or without BA. Others include shopkeeper, beautician, etc. 20% patients had more symptoms in Indoor, 32.5% in Outdoor and 47.5% patients had similar symptoms in indoor as well as outdoor. 19(47.5%) patients had more symptoms during day time and 52.5% patients had more symptoms during night time 72.5% patients had more symptoms during winter season and 27.5% patients had similar symptoms throughout the year. Most common symptom was found to be cough. Patients with both bronchial asthma and allergic rhinitis had more symptoms as compared to single disease. Their prominent symptoms in descending order were found to be cough, breathlessness, running nose and sneezing. Pure bronchial asthma patients had less symptoms, their prominent symptoms was breathlessness and cough, they had less associated symptoms. Runny nose and sneezing were common in patients with allergic rhinitis.



Bar diagram no.1. Showing relative percentage of various allergens on the basis of skin prick test

Above table shoes that most common allergens are house dust mites followed by parthenium, cockroach, grain dust and peanuts. 53.3% patients of allergic became asymptomatic after avoidance of all relevant positive allergens, 40% shows reduced frequency of symptoms. Only 6.7% patients of allergic rhinitis had no symptomatic relieve even after avoidance of causative allergens. 25% patients of bronchial asthma are asymptomatic, 50% had reduced symptoms and 25% had no relieve even after allergen avoidance. Patients of AR with BA became asymptomatic in 70.6% cases, 11.8% had reduced symptoms and 17.6% had similar complaints. 2 (5%) patients became asymptomatic after avoidance of food only. 33.3% patients of AR became asymptomatic after avoidance of food+ HDM+ inhalants.

DISCUSSION

Allergic respiratory disorders are the common cases visiting the respiratory outpatient department. For diagnosis of allergic diseases, the patient's history and physical examination are the most important factors. However other tests like skin prick allergy testing are useful for further helping in the diagnosis and identifying potentially important environmental allergens. These tests help us in finding out common allergen sensitivity pattern and avoidance of the relevant allergens helps in the correct management. It also helps to improve the quality of life in allergic respiratory disorders like allergic rhinitis and allergic rhinitis with bronchial asthma. There were 43% patients with diagnosis of br.asthma plus allergic rhinitis, 37% with allergic rhinitis and 20% with br.ashtma alone which represents a considerable overlap. In our study, out of 40 patients 65% were males and 35% were female maintaining a ratio of nearly 1.85:1 **Minov et al** (2015) concluded that highest occurrence of occupational asthma was found to be in agriculture. In our study also, agriculture was found to be most common cause of respiratory allergic diseases. We found, 70% cases from were from rural populations while 30% from urban population. This may be due to our institute being a rural medical college, most of the patients hail from rural area. Also India have a large population residing in the rural area, gives majority of patients from rural background. **Priftis et al (2007)** [12] and Pesek et al (2010) [13] showed no differences in asthma prevalance in rural and urban area from several studies. In present study of 40 patients of allergic rhinitis with or without bronchial asthma, total 8840 skin prick test were performed,899 (10.5%) were positive reaction of various allergens. In adults, **Shankar et al**(1979) [14] has reported 15.07% positive reaction with various allergens. Similar observations were also observed by **Sethi et al**(1986) [15]

SENSITIVITY PATTERN OF ALLERGENS (Skin Prick Test) : In our study we found that the most common allergens are house dust mites (43.3%), then insects (21.7%), inhalants (18.8%) and Fungi (15.8%). Overall 10.16% patients showing dermal sensitivity. Our study revealed that house dust mites give largest number of positive reactions (43.3%), followed by insects (21.7%), inhalants (18.8%), Fungi (15.8%) and pollens (8.8%). Similar to the present study, house dust mites detected common allergy in Qatar, according to **Satta HA et al** (2003) [16], followed by insects same as in our study. The difference observed could be because of different geographical location and different flora and fauna at which these studies were performed.

Result Of Allergen Avoidance:-
Interestingly in follow up of the patients we observed that 53.3% patients of allergy became asymptomatic after avoidance of all relevant positive allergens, 40% shows reduced intensity of symptoms.

CONCLUSION:

As we know that allergic disorders are a cause of of large

number of OPD visits as well as indoor admissions in our country as well as whole world. Various studies have shown co morbidities being aggravated by these disorders and financial burden to a large extent. Hence it becomes topic of utmost importance to assess the socioeconomic structure and prevalent pattern of allergens associated with these disorders for better understanding of disease process, progression and aggravation and effect of avoidance of allergens. The vulnerable population i.e. farmers, people living in kuchcha houses needs to avoid exposure to allergens by keeping windows closed specially at evening hours when pollen and house dust settles down. Also skin prick test shows relevant allergy to a specific allergen which helps a physician as well as patient for particular lifestyle modification and change of profession accordingly with preservation of income thus reducing morbidity and financial burden of the community.

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