QUALITATIVE ESTIMATION OF IMPACT OF BIO-ALLERGENS ON ASTHMATIC PATIENTS OF LUCKNOW

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Any air-borne living matter, capable of inducing an allergic response in the body of sensitive individual is called Bioallergen. House dust mites (HDM), fungal spores and pollen grains are proved to be major source of respiratory allergies. The study was aimed to estimate the qualitative impact of bioallergens on asthmatic patients of Lucknow. A specially designed case record sheet was given to patients living in different localities of Lucknow which was later collected from their houses and qualitatively analyzed. The result, of extensive biomonitoring helped in ascertaining the biotic ecogenic markers characterizing the unfavourable allergic conditioning of dwellings, for patients sensitized to indoor allergens.

It is envisaged that any indoor bioallergen may play an important role in manifestation of respiratory allergy. Researches indicate that people spend approximately 90% of their time indoors, thus, the risk of health hazard is greater from indoor pollutants than outside air in sensitive individuals. The amount of contaminants that are suspended in the air determine the air “quality” which varies from home to home, depending upon the type of furniture, building materials, presence of pets, moisture and other factors. In everyday life we encounter variety of dusts. The so-called ‘house dust’ is a heterogeneous mixture of various bioallergens. Amount and nature of these bioallergens differ considerably in various houses. Microscopic mites including house dust mites\(^1\), fungal spores, pollen grains, skin flakes, dead skin (dander) of human beings and pet animals, body parts of insects, food crumbs, feathers, natural fibers, silverfish, bacteria, viruses etc are the major biocontaminants in the house dust. Any bioallergenic component of house dust may trigger the symptoms similar to pollen allergy\(^2\). The allergic state includes hay fever, bronchial asthma, nasal, bronchial or nasobronchial allergic disorders and many forms of dermatologic conditions such as urticaria, pruritis and eczema\(^3\). The major symptoms are- year round runny or stuffy nose, itchy, watery eyes, sneezing, wheezing, coughing, breathlessness, insomnia, general weakness, headache/body ache, restlessness, throat infection and tightness of chest etc.

MATERIALS AND METHODS

The detailed case history of 65 asthmatic patients was recorded in a specially designed case record sheet, collected from their houses located in Hazratganj, Gomti nagar, Raniganj, Vikas nagar, Model House, Dugawan, Maqboolganj, Aishbagh, Golaganj, Aliganj, Ganeshganj, Rajajipuram ,Triveni nagar, Khadra, Madihaon, Jankipuram, Chowk, Charbagh, Aminabad, Molviganj, Khajua, Rakabganj, Kursi road, Bakshi ka talab, Kakori, Mohanlalganj, Nigohan, Chinchhat, Tiwariganj, Banthara and Sarojini nagar locality of Lucknow.

Criteria for selection of allergic/asthmatic patients:
1. Patients having alteration in nasobronchial allergy symptoms mainly related to change of season/place/exposure of dust etc.
2. Patient's allergic history, family history and history of other diseases pointed out that most of the patients suffer from house dust allergy.
3. Patients offering history of bronchial-asthma, allergic rhinitis breathlessness, more during night and early in the morning.

RESULTS AND DISCUSSION

The result, of extensive biomonitoring of house dust from asthmatic patients of Lucknow helped in ascertaining the biotic ecogenic markers characterizing the unfavourable allergic conditioning of dwellings, for patients sensitized to indoor allergens. Out of total cohort of 65 patients of bronchial-asthma and/or allergic rhinitis who were analyzed, there were 43 males and 22 females. The total number of patients was divided into 3 groups in accordance with their age. The first group consisted of patients of age group 10-25 years; second group of age group 26-45 years; and third group of age group 46-75 years.
Though there is no written clinical account that bronchial-asthma (BA)/ allergic rhinitis (AR) affects any particular sex more yet it was practically noticed that males were at higher risk towards this pathological condition (disease) because of various reasons like greater involvement in out-door activities (which may be occupational or any other reason) where they are exposed more to dust containing various bioallergens, working in places where there is more humidity and less of fresh air which promotes rapid growth of dust mite population. It was observed that in case of males, largest number of patients belongs to age group 46-75 years followed by patients of age group 26-45 years and least number of patients belonged to age group 10-25 years. In case of females the number of patients of age group 26-45 years was exceedingly larger; those of age group 10-25 years were lesser, while least number of female patients belonged to age group 46-75 years.

As the study includes bioallergens found in houses of asthmatic patients of Lucknow, the bronchial-asthma /allergic rhinitis patients (from whom the case record sheet were filled) were divided according to their addresses in six regions (areas) viz- Central Lucknow, Old Lucknow, New Lucknow, suburban Lucknow, and Adjoining posts of Lucknow.

It was found that maximum number of patients belonged to suburban Lucknow, equal number of patients belonged to Central and Old Lucknow, followed by patients belonging to New Lucknow while least number of patients resided in Adjoining posts of Lucknow. Broadly the ratio of number of patients classified on the basis of seasonal and perennial attacks of bronchial-asthma (BA) or/and allergic rhinitis (AR) was 1:1, though critical analysis revealed that patients residing in open areas suffered from seasonal attacks while those living in congested areas were more prone to perennial attacks. The seasonal attacks of BA due to house dust mites were more in months in which the humidity level was high (preferably 75-80% humidity), especially during rainy season, onset of winters. Some cases were also reported during the onset of summers.

In case of seasonal attacks of BA, the frequency of attacks varied from 1-2 months to almost daily, the duration of attacks ranged from 5-10 min. to 1-2 hours. The most distinguishing feature of seasonal attacks was that the severity of attacks was very drastic viz- choking of breath, inability to breathe, sounding breath, intense chest pain, restlessness. In case of perennial attacks of BA it was found that attacks were persistent, but the severity of attacks is less (e.g. episodic breathlessness, throat infection, body ache, headache, runny nose, wheezing etc). Thus symptoms of perennial attacks are long lasting. Physical stress also acts as important factors and induces symptoms of BA in cases of perennial attacks. The cases of BA/AR can be treated by proper administration of Bronchodilators (e.g. Deriphylline, Theophylline), Decongestants, Antihistamines and Inhalers.
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