

## Allergy Situation in India: What is Being Done?

Allergy is a hypersensitivity disorder of the immune system of the human body. Allergic reactions occur when a person's immune system reacts abnormally to normally harmless substances, present in the environment. A substance that causes a reaction is called an allergen. Allergy is formally called type I (or immediate) hypersensitivity and is one of four or more forms of hypersensitivity.

The burden of allergic diseases in India has been on an uprising trend in terms of prevalence as well as severity. These allergic diseases comprise of asthma, rhinitis, anaphylaxis, drug, food and insect allergy, eczema and urticaria and angioedema. Approximately 20% to 30 % of total population suffers from at least one of these allergic diseases in India. A study carried, over 30 years ago in Delhi reported around 10% allergic rhinitis and 1% asthma in 1964.<sup>1</sup> Thereafter later studies have reported that 20% to 30% of the population suffer from allergic rhinitis and that 15% develop asthma.<sup>2,3</sup> Recently, a multi-centre population study, Indian Study on Epidemiology of Asthma, Respiratory Symptoms and Chronic Bronchitis (INSEARCH)<sup>4</sup> has also been conducted. The study covered 12 centres comprising of both rural and urban areas spread over different parts of India. The prevalence of bronchial asthma pooled for all the 12 centres was found to be 2.05% (range, 0.4%–4.8%).<sup>4</sup> Advancing age, smoking, household environmental tobacco smoke (ETS) exposure, asthma in a first degree relative and use of unclean cooking fuels have been associated with increased odds of asthma.

Correspondingly the prevalence rates of asthma in children in India have also been studied and the mean prevalence has been found to be 7.2±5.4 percent. The overall weighted mean prevalence from different studies has been observed to be 2.7 percent.<sup>5</sup> Childhood asthma among children 13 to 14 years of age has been lower than that in younger children (6–7 years of age). In the socio-demographic analysis, urban children have higher general prevalence with male predominance. In another study done in school girls (4-17 years), the prevalence of asthma was found to be 8.8 percent.<sup>6</sup> In a study pointing socio-economic status of family, the prevalence of asthma in children was 9.4% in lower class, 7.3% in middle class, 9.4% in upper class in urban area of Delhi and 3.9% in village area of Delhi.<sup>7</sup> A wide inter-regional variation in prevalence of asthma has also been observed.

A study was undertaken to investigate the relative prevalence of food allergens that causes IgE-mediated reactions in older children and adults with asthma, allergic rhinitis or both. Of 1860 patients screened, 1097 (58.9%) gave history of food allergy. Sensitisation to food was significantly associated

with asthma while aeroallergens were strongly related to rhinitis. Food allergy is estimated to be 4.5% in adolescents and adults with asthma, rhinitis or both. Rice, citrus fruits, blackgram and banana are identified as major allergens for inducing allergic symptoms. There is a great difference between perceived allergy and actual allergy to food.<sup>8</sup>

Allergic rhinitis is another major allergic disease which frequently is ignored both by the patients and doctors. A multi-centre study by the Asthma Epidemiology Study Group of the Indian Council of Medical Research found the prevalence allergic rhinitis (manifested as "recurrent coryza") in 3.5% of population in India.<sup>9,10</sup> In case of children, another multi-centric study found that allergic rhinoconjunctivitis occurred in 3.3% of children aged 6-7 years and 5.6% of children aged 13-14 years in India. In a study<sup>6</sup>, the prevalence of allergic rhinitis in school girls (4-17 years) was found to be 21.27%. In another study<sup>7</sup>, overall prevalence of allergic rhinitis was 26.1% in school children. When seen along with socio-economic status, the prevalence was 27.1% in lower class 33.3% in middle class, 28.6% in upper class in urban area and 11.1% in village area of Delhi. Also, in a study it has been found that tobacco users had higher prevalence of rhinitis (55% of tobacco users compared to 12.8% no-tobacco users).<sup>11</sup> Studies have also found association of indoor and outdoor air pollutant levels with respiratory problems among children.<sup>12,13</sup> In a study to identify the effect of indoor air pollution generated from fuel used for cooking on respiratory allergy in children was done in Delhi. The study concluded that biomass fuel increases the concentration of indoor air pollutants that may increase risk of asthma, rhinitis and upper respiratory tract infection in children.<sup>7</sup>

Vallabhbai Patel Chest Institute (VPCI), a premier institute has been working toward respiratory allergy diagnosis and management since its inception. Department of Respiratory Allergy and Applied Immunology of VPCI started in early 1960s with the objective of undertaking research on diagnostic and therapeutic aspects of patients suffering with respiratory allergic disorders. Identification of the offending allergens in patients of naso-bronchial allergy and their treatment by immunotherapy is being carried out. From 1975, the Department started *Workshops on Allergy, Allergens and Immunotherapy* to impart training, in clinical and laboratory aspects of diagnosis and management of allergic respiratory diseases. Till now 37 workshops on "Respiratory Allergy: Diagnosis and Management" has been conducted and many physicians have been trained. The Indian College of Allergy, Asthma and Immunology, having head-quarter at Vallabhbai

Patel Chest Institute is conducting conferences and educating the physicians. The College publishes a journal, namely, the *Indian Journal of Allergy, Asthma and Immunology* with two issues in a year.

The Government of India is promoting various activities to increase awareness, impart education and update about allergic diseases. A national level programme with the aim to train doctors in diagnosis and management of allergic disease is being conducted at V.P. Chest Institute, Delhi at frequent intervals. The different hospitals have now established asthma clinics and have employed doctors trained in diagnosis and management of allergic diseases. National Centre of Respiratory Allergy, Asthma and Immunology (NCRAAI) has also been established at V.P. Chest Institute, Delhi, with an objective to improve allergy care, through research, education, and training. The Centre is fully equipped with latest technology in the field of research, allergy testing to help a large number of patients for proper diagnosis and efficient management of their respiratory allergic diseases through different modalities including immunotherapy. University of Delhi has approved to start a Diploma Course in Allergy and Clinical Immunology at V.P. Chest Institute. However, approval from the Medical Council of India (MCI) is awaited.

**Rajendra Prasad**

*Editor-in-Chief, IJCDAS*

*and*

*Director*

*Vallabhbai Patel Chest Institute*

*University of Delhi, Delhi - 110 007*

*and*

**Raj Kumar**

*Head*

*National Centre of Respiratory Allergy,*

*Asthma and Immunology (NCRAAI)*

*Vallabhbai Patel Chest Institute*

*University of Delhi, Delhi - 110 007*

*E-mail: rajkumarvpci@gmail.com*

---

## REFERENCES

---

1. Viswanathan R. Definition, incidence, aetiology and natural history of asthma. *Indian J Chest Dis* 1964;6:108-24.
2. Anonymous. All India Coordinated Project on Aeroallergens and Human Health Report. Ministry of Environment and Forests, New Delhi; 2000.
3. Chhabra SK, Gupta CK, Chhabra P, Rajpal S. Prevalence of bronchial asthma in schoolchildren in Delhi. *J Asthma* 1998;35:291-6.
4. Jindal SK, Aggarwal AN, Gupta D, Agarwal R, Kumar R, Kaur T, *et al.* Indian study on epidemiology of asthma, respiratory symptoms and chronic bronchitis in adults (INSEARCH). *Int J Tuberc Lung Dis* 2012;16:1270-7.
5. Pal R, Dahal S, Pal S. Prevalence of bronchial asthma in Indian children. *Indian J Commun Med* 2009;34:310-6.
6. Kumar R, Singhal P, Jain A, Raj Neelima. Prevalence of bronchial asthma and allergic rhinitis in school girls in Delhi. *Indian J Allergy Asthma Immunol* 2008;22:99-104.
7. Kumar R, Nagar JK, Raj Neelima, Kumar P, Kushwah Alka S, Meena M, *et al.* Impact of domestic air pollution from cooking fuel on respiratory allergies in children in India. *Asia Pacific J Allergy Immunother* 2008;20:213-22.
8. Kumar R, Kumari Dolly, Srivastava Prakriti, Khare V, Arora N, Gaur SN, *et al.* Identification of IgE mediated food allergy and allergens in older children and adults with asthma and allergic rhinitis. *Indian J Chest Dis Allied Sci* 2010;52:217-24.
9. Aggarwal AN, Chaudhry K, Chhabra SK, D'Souza GA, Gupta D, Jindal SK, *et al.* Prevalence and risk factors for bronchial asthma in Indian adults: a multi-centre study. *Indian J Chest Dis Allied Sci* 2006;48:13-22.
10. Beasley R, Keil U, von Mutius E, Pearce N. Worldwide variation in prevalence of symptoms of asthma, allergic rhino-conjunctivitis, and atopic eczema: ISAAC. *Lancet* 1998;351:1225-32.
11. Kumar R, Mahakud GC, Nagar JK, Tabassum, Goel N. Rhinitis and tobacco consumption: a brief study. *Indian J Allergy Asthma Immunol* 2011;25:15-20.
12. Kumar R, Nagar JK, Kumar H, Kushwah AS, Meena M, Kumar P, *et al.* Association of indoor and outdoor air pollutant level with respiratory problems among children in an industrial area of Delhi, India. *Arch Environ Occup Health* 2007;62:75-80.
13. Kumar R, Nagar JK, Kumar H, Kushwah AS, Meena M, Kumar P, *et al.* Indoor air pollution and respiratory function of children in Ashok Vihar, Delhi: an exposure-response study. *Asia Pacific J Pub Health* 2008;20:36-48.