



CODEN [USA]: IAJPBB

ISSN: 2349-7750

## INDO AMERICAN JOURNAL OF PHARMACEUTICAL SCIENCES

<http://doi.org/10.5281/zenodo.3928617>

Available online at: <http://www.iajps.com>

Research Article

### A STUDY ON ALLERGENS PROFILE AND THE FEV1 SEVERITY IN ALLERGIC PATIENTS IN SERVICES HOSPITAL LAHORE

<sup>1</sup>Dr Aimen Khurshid, <sup>2</sup>Dr Uzma Qayyum, <sup>3</sup>Dr Uroosa Sultan  
<sup>1,2,3</sup>Poonch Medical College Rawalakot AJK

Article Received: May 2020

Accepted: June 2020

Published: July 2020

**Abstract:**

**Objective:** Bronchial asthma and allergic rhinitis are concomitant states that are part of the inflammatory cascade. Allergens cause inflammation and start allergic gait. The pattern and frequency of allergenicity can cause changes in spirometry parameters.

**Aim:** To identify the pattern of allergen sensitization in patients with bronchial asthma (BA) and allergic rhinitis (AR). To correlate the severity of FEV1 (forced expiratory volume at a time interval of 1 sec) in patients with allergy. To delineate the offending allergen geographically based on the coastal and the non-coastal region.

**Design:** A retrospective study.

**Place and Duration:** In the Pulmonology department of Services Hospital Lahore for one year duration from January 2019 to January 2020.

**Materials and methods:** Skin cutaneous test (SPT) and spirometry data were collected along with demographic and clinical symptoms from patients who visited the pulmonary department. SPT was performed using suitably standard kits and procedures. Spirometry performed before and after bronchodilation according to ATS guidelines.

**Results:** A total of 100 patients were enrolled in the study, with almost equal gender distribution (49% for men and 51% for women), 58% used inhaled medication during SPT. Shortness of breath (77%), cough (68%) and sneezing (66%) were the main symptoms. SPT showed sensitivity mainly to aerosols, such as house dust mites (84%), followed by acacia (58%), and mesquite (58%). The mean FEV1 was 1.74 l in the study group.

**Conclusion:** Aeroallergens cause greater degradation of FEV1 than food allergens.

**Key words:** bronchial asthma, allergenicity, sterility

**Corresponding author:**

Dr Aimen Khurshid,  
Poonch Medical College Rawalakot AJK

QR code



Please cite this article in press Maryam Ilyas et al, A Study On Allergens Profile And The Fev1 Severity In Allergic Patients In Services Hospital Lahore., Indo Am. J. P. Sci, 2020; 07(07).

**INTRODUCTION:**

Bronchial asthma and allergic rhinitis are concomitant conditions and are part of the inflammatory cascade. You can make one person vulnerable to another. Allergens cause inflammation and start allergic gait. The pattern and frequency of allergenicity can cause changes in the lung function test. The occurrence of air allergens varies in different areas due to geographical area, climate and vegetation. Pollen allergens, mold spores, house dust mites, animal allergens, insect allergens and food allergens form a wide spectrum of allergens in individuals. They were associated with increased symptoms of atopic asthma. Our goal in this study is to investigate the allergen pattern and severity of FEV1 in patients with atopic asthma.

**PATIENTS AND METHODS:**

This study was held in the Pulmonology department of Services Hospital Lahore for one-year duration from January 2019 to January 2020. Patients who were treated with the pulmonary medicine for allergic rhinitis, bronchial asthma, and other atopic conditions were included in the study. Demographic data such as age, gender, BMI, occupation, history of inhaled and allergic drugs, geographical origin, clinical symptoms, childhood history, and family asthma history were collected. The skin test has been adapted using a range of air

and food allergens for the relevant geographical area. Buffered saline and histamine were used as negative and positive controls, respectively. The skin prick test was performed by applying a drop of antigen to healthy skin of the palms of the forearm and puncturing with a sterile lancet. Reading was interpreted after 15-20 minutes. Assessment of skin reactivity was performed by calculating the average follicle diameter  $(D + d) / 2$ ; D = largest diameter, and d = perpendicular or perpendicular diameter at the largest width D after 15-20 minutes. A positive result (2+ or more) for a specific allergen is indicated by an average circle diameter of 3 mm or more, greater than the negative control (buffered saline).

Spirometry was performed using the Helios system with acceptable reference values and procedures used in accordance with ATS guidelines

**RESULTS:**

The study involved 100 patients of the same sex (women: 51% and men: 49%), and the majority of patients belonged to the age group <25 years (28%). Normal BMI was observed in most patients (69%). About 58% of patients had inhaled drugs in the past, 76% had antiallergic drugs in the past. Patients were defined as individuals from the coastal region (<50 km) (84%) and the coastal region (> 50 km) (16%) (Table 1).

Table 1 Patient demographics

Patient Demographics	N=100
<b>Age</b>	
<25	28
25-40	27
40-55	26
>55	19
<b>Gender</b>	
Male	49
Female	51
<b>BMI</b>	
<18 ( Underweight)	16
19-25 ( Normal)	69
26-30 (Overweight)	12
>30 Obese	3
<b>Occupation</b>	
Housewife	23
Student	28
Carpenter, Mason, Shopkeeper, Baker, etc.	24
Agriculture	10
Driver	2
Tailor	3
Clerk, Office, teacher, etc.	10
<b>History of inhaler medication</b>	
Present	58
Absent	42
<b>Prior history of allergy medications</b>	
Present	76
Absent	24
<b>Geographic</b>	
Coastal	84
Non-coastal	16
<b>Childhood history of BA</b>	
Present	16
Absent	84

The main clinical symptoms in patients included shortness of breath (77%), cough (68%), sneezing (66%), wheezing (43%), while 16% of patients had a history of bronchial asthma (Fig. 1).

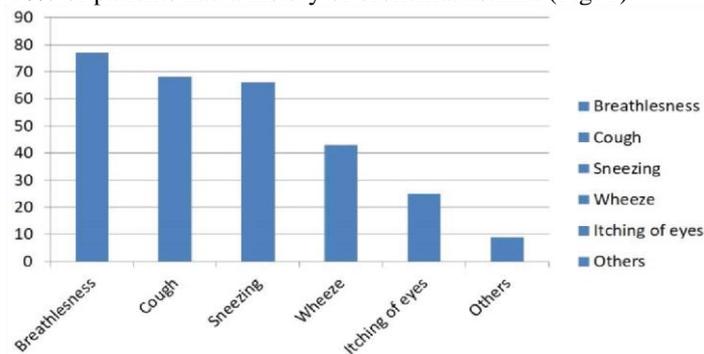
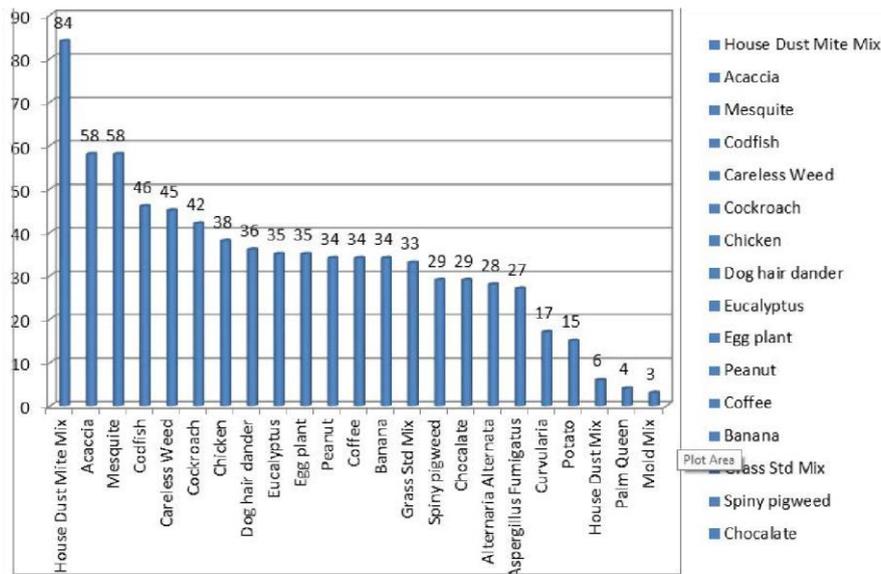


Figure 1 Patient symptomatology

Predominant allergens observed were house dust mites (Mix) (84%), acacia (58%) and mesquite (58%). The most common allergens seen in the patients from the coastal region was house dust mite (92.7%), acacia (86%) and codfish (73%) (Table 2). The common allergens in patients from non-coastal regions were house dust mites (97.1%), mesquite (86%) and acacia (70%) (Table 3, Figures 2-5).

**Table 2 Geographical distribution of most common allergens**

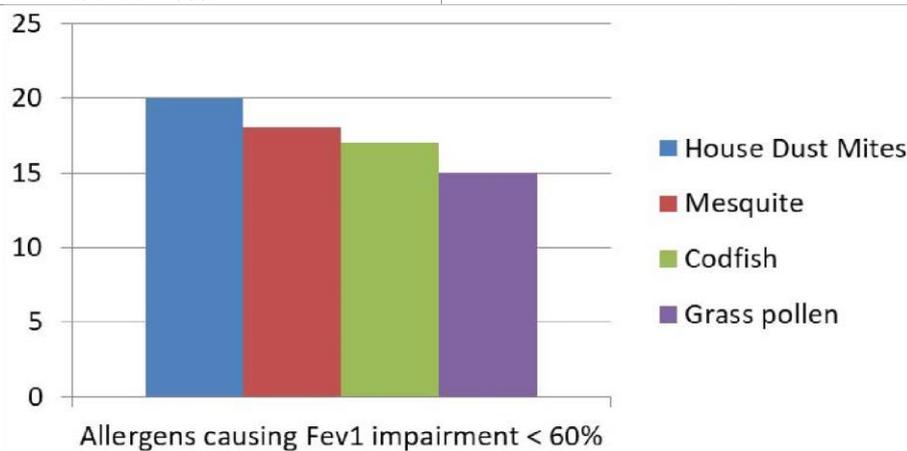
Geographic	Most Common Allergen 1	Most Common Allergen 2	Most Common Allergen 3
Coastal	House Dust Mite (92.7%)	Acacia (86%)	Codfish (73%)
Non Coastal	House Dust Mite (97.1%)	Mesquite (86%)	Acacia (70%)



**Figure 2 Pattern of allergenicity**

**Table 4 FEV1 severity**

Severity N=100	
Mean FEV1	1.74 L
Mild >80%	45
Moderate 60-80%	31
Severe <60%	24



**Figure 3 Pattern of allergenicity in FEV1<60%**

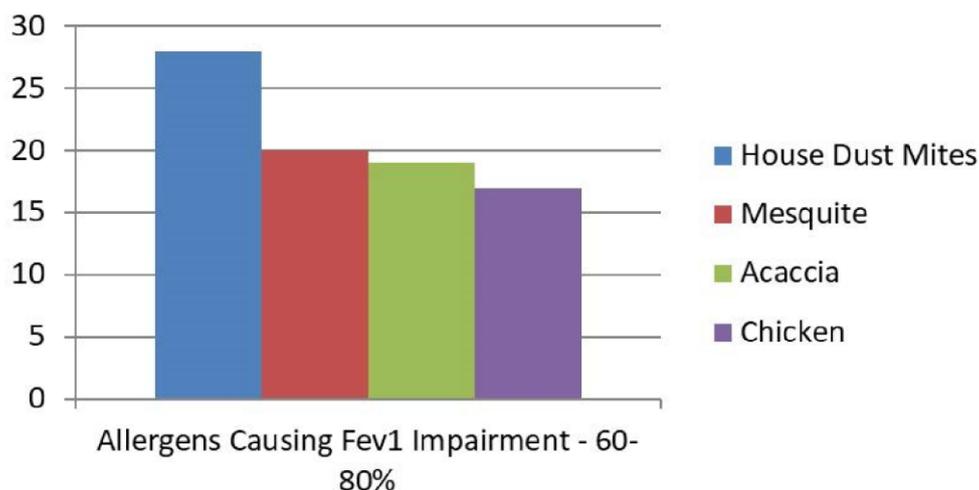


Figure 4 Pattern of allergenicity in FEV1-60-80%

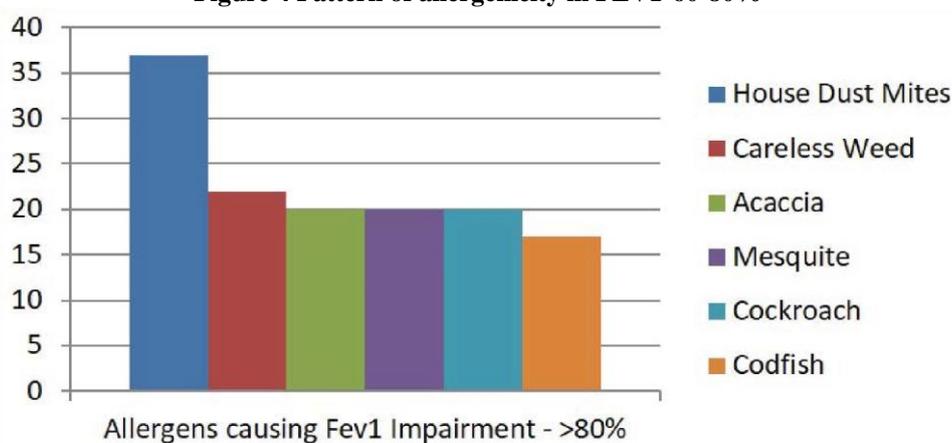


Figure 5 Pattern of allergenicity in FEV1>80%

#### DISCUSSION:

Bronchial asthma is a chronic inflammatory disease of the respiratory tract, common worldwide, with a variable geographical and seasonal system. Atopy is considered a strong risk factor for asthma and increases the risk 10-20 times compared with non-atopic. If atopy was an aggravating factor in asthma, it has been observed that the severity of asthma will increase with the increase in allergy due to symptoms and the number of positive skin tests. Allergic rhinitis is a recognized risk factor for bronchial asthma, 20–30% of these bronchial asthma patients, on the contrary, 60–80% of bronchial asthma patients have RA. It is known that various environmental aeroallergens and food allergens play a role in triggering or exacerbating BA or AR. Identifying the most common aeroallergens in each area plays a key role in the diagnosis and treatment of BA and / or RA. Our study showed that most patients with atopy and allergies in the young age group were sensitive to oxygen and food allergens in skin tests. This was observed in similar studies with peak cases (> 50%) in the 16-30 age group. Our working group Aggarwal *et al.* It was also the most common symptom reported by breathing and had difficulty coughing. We observed the occurrence of

allergenicity between coastal and coastal areas and found that most patients are allergic to house dust mites, regardless of geographical location. However, coastal patients mostly had acacia and cod allergies, while non-coastal patients had mesquite and acacia allergies. Differences in the frequency of aero-allergic reactivity in different regions may result from the adaptation of different geoclimatic conditions and specific microbiological flora and fauna to a specific climate and changing eating habits.

Allergen pattern and the most common house dust mites, acacia, mesquite etc. were observed in these patients. Ghaffari *et al.* Almorgen showed that house dust mites were the most common SPT reaction. There are findings consistent with this in our study. Airflow was restricted in 55% of patients with allergies (moderate to severe). A pattern of allergenicity and lung disorders between different degrees of airflow restriction was observed. These findings were consistent with other studies in which a greater bronchial response capacity associated with lower levels of lung function was observed. Ulrik *et al.* It has been shown that people with new or persistent atopy of house dust mites significantly increased bronchial sensitivity

compared to non-atopic people, and also significantly correlated with the predicted pre-challenge FEV1 percentage. In another study, according to the results of the spirometry function of the lungs and skin test in children with asthma, atopy was associated with house dust mites in a skin test and positive cat responses and lower levels (in% FEV1, and greater PEF variability). Possible explanation, basic immunity Mucosal damage caused by a mediator may be similar in both atopic and non-atopic patients. However, atopic patients may be associated with easier identification of mediator release stimuli than non-atopic patients. If the patient has an external allergic component, chronic nonspecific stimulation of late phases of mast cell allergen-induced immune responses can cause long-term nonspecific airway hyperresponsiveness that can lead to bronchospasm even in the absence of an identifiable external factor.

### CONCLUSION:

Allergens are the main causes of allergic symptoms in patients with BA or RA. It is known that different types of environmental allergens play a role in triggering or exacerbating BA or AR. Identifying the most common allergens in each area plays a key role in the diagnosis and treatment of BA and / or RA. The skin test is the first test proposed to detect harmful allergens. Our study shows the pattern of allergens observed in patients with allergies in Mangalore and it has been concluded that large food and oxygen allergens can reduce airflow in allergy sufferers. Bronchial challenge etc. Further testing may be required. configure.

### REFERENCES:

1. Sharif, Nadia, Mirza Saifullah Baig, Sana Sharif, and Muhammad Irfan. "Etiology, Clinical, Radiological, and Microbiological Profile of Patients with Non-cystic Fibrosis Bronchiectasis at a Tertiary Care Hospital of Pakistan." *Cureus* 12, no. 3 (2020).
2. Savio, Jayanthi, Priya Ramachandran, Vinutha Jairaj, Uma Devaraj, and George D'Souza. "A cross-sectional study of skin prick test to *Aspergillus fumigatus* antigen in asthmatic patients seen at a tertiary healthcare center." *Indian Journal of Allergy, Asthma and Immunology* 33, no. 1 (2019): 19.
3. Ünal, Derya. "Allergic Bronchopulmonary Aspergillosis: A Clinical Evaluation of 15 Patients and Successful Omalizumab Treatment of Five Patients." *Asthma Allergy Immunology* 17, no. 2 (2019): 103-110.
4. Agache, Ioana, Susanne Lau, Cezmi A. Akdis, Sylwia Smolinska, Matteo Bonini, Ozlem Cavkaytar, Breda Flood et al. "EAACI Guidelines on Allergen Immunotherapy: House dust mite-driven allergic asthma." *Allergy* 74, no. 5 (2019): 855-873.
5. Eyerich, Stefanie, Martin Metz, Apostolos Bossios, and Kilian Eyerich. "New biological treatments for asthma and skin allergies." *Allergy* 75, no. 3 (2020): 546-560.
6. Kleine-Tebbe, Jörg, Torsten Zuberbier, Thomas Werfel, Matthias Krüll, Martin Wagenmann, Niels Johansen, Peter Adler Würtzen et al. "Is allergy immunotherapy with birch sufficient to treat patients allergic to pollen of tree species of the birch homologous group?." *Allergy* 75, no. 6 (2020): 1327-1336.
7. Ridolo, Erminia, Cristoforo Incorvaia, Irene Martignago, Marco Caminati, Giorgio Walter Canonica, and Gianenrico Senna. "Sex in respiratory and skin allergies." *Clinical Reviews in Allergy & Immunology* 56, no. 3 (2019): 322-332.
8. Lee, Tak-hong, Ting-fan Leung, Gary Wong, Marco Ho, Jaime Rosa Duque, Philip Hei Li, Chak-sing Lau et al. "Allergy and Immunology." (2019).
9. Vazquez-Ortiz, Marta, Elizabeth Angier, Katharina Blumchen, Pasquale Comberiati, Bettina Duca, Audrey DunnGalvin, Claudia Gore et al. "Understanding the challenges faced by adolescents and young adults with allergic conditions: a systematic review." *Allergy* (2020).
10. Luthra, Mahima, S. S. Bist, Sarita Mishra, Bhartendu Bharti, Vinish Aggarwal, and Uday Monga. "Evaluation of Association of Allergic Rhinitis with Bronchial Asthma." *Indian Journal of Otolaryngology and Head & Neck Surgery* 71, no. 3 (2019): 1687-1691.
11. Maharani, B., R. Venkateswara Babu, and M. Prakash. "Adherence to Prescribed Medication and Its Association with Quality of Life Among COPD Patients Treated at a Tertiary Care Hospital in Puducherry—A Cross Sectional Study S Keerti kumar S." *Southwest Journal of Pulmonary and Critical Care* 18 (2019): 157.
12. Vandenborgh, Louise-Eva, Raphaël Enaud, Noémie Coron, David Denning, and Laurence Delhaes. "Fungalresponsible diseases for occur an increasing worldwide, number affect hundreds of deaths. of Paradoxically, millions of people therapeutic and are advances probably may have resulted in an increased number of survivors of (malignant) disease able to develop mycosis, which is often misdiagnosed and responsible for patient death. Mortality." *The Lung Microbiome* 83 (2019): 88.
13. Agondi, Rosana Câmara, Gabriella Melo Fontes Silva Dias, João Paulo de Assis, Rosilane Pacheco, Jorge Kalil, and Pedro Giavina-Bianchi. "Hypersensitivity to dipyrone

in aspirin-exacerbated respiratory disease patients is associated with urticaria." *Respiratory Medicine* (2020): 106041.

14. Costa, Ana R., Ana Galveias, Rute Arriegas, Ilda Abreu, Helena Ribeiro, and Celia M. Antunes. "Atmospheric pollutants NO<sub>2</sub> and O<sub>3</sub> enhance allergenic potential of *Dactylis glomerata* pollen." (2019).
15. Anvari, Sara, Jennifer Miller, Chih-Yin Yeh, and Carla M. Davis. "IgE-mediated food allergy." *Clinical reviews in allergy & immunology* 57, no. 2 (2019): 244-260.