

A Study of Allergens

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Abstract: *Background:* Almost forty percent of the people living in India is diagnosed to have some or the other kind of allergy. This caused mucous metaplasia and hyperplasia. Thus repeated and prolonged exposure leads to structural changes and enhanced mucous production. The tissues are washed with cytokines and other inflammatory mediators which causes classical pictures of asthma. Sincere effort has been made to find out the common allergens that cause the respiratory complications. This study is intended to help the fellow practitioners to identify the commonly associated allergens and thus take immediate actions in diagnosing and treating the patient which presents in complications in OPD. This study was conducted in the Department of Internal Medicine, Kanachur Institute of Medical Sciences, at Mangalore. The study was conducted from April 2016 to September 2016. 160 cases were studied in the Department of Medicine.. Mean age of the study population was 21.26 years with a standard deviation of 9.43. The most common presentation was rhinitis. Family history was found to be not significant. Dust allergy to exposure was significant. The most common allergen in this study has been identified successfully. This study forms a platform for many more studies in the near future so that more and more allergens which are significantly related can be found and affectively dealt with. Being in a country like ours where people carry out different customs and are exposed to a plethora of allergens it is the need of the hour to identify the allergen and properly dealt with in the local environment.

Keywords: Allergen, Respiratory, Internal Medicine, Sinusitis, Polyp

1. Introduction

Allergy mostly affects the body's interface with the environment or in other words affects the part of the body which comes in contact with the environment¹⁻⁵. The common parts are the skin, respiratory system, GI tract and conjunctiva. But any organ in the human body can be affected when the reaction involves the microvasculature. Patients claim allergy to hair spray, disinfectants, paint, Common food like milk, prawns, mutton. Dust allergy is complained in majority of the cases. The common vegetables are known to cause allergy. Sneezing and cough reflex are the most common responses to airway irritation. These manifestations are known to be seen in acute allergic reactions⁶. But it should always be kept in mind that not all adverse reactions to food are due to allergy. Although the allergic responses are seen commonly restricted to the area of contact, spread of allergen through blood or lymph can lead to generalized reactions. Each organ responds in its own way. The skin may show signs of urticaria, GI tract causes vomiting or diarrhea, in respiratory system it may cause blockage of nose, secretion of nose and sneezing. Prolonged exposure may cause sinusitis or nasal polyps. Lungs may set off asthma by broncho-constriction. The most severe manifestation is of course is anaphylaxis. It is one of the most difficult things to diagnose and give treatment in order to prevent its progression. It is fatal because patients go into a shock or asphyxia. This shock may be a result of volume redistribution or direct effects of allergens on the heart. The asphyxia may be due to respiratory passage blockage due to allergic reactions.

Most of the tissues of the human body can be affected by the allergic responses but the allergic responses shown by the respiratory system still remains by far the most common.

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dealt with. Being in a country like ours where people carry out different customs and are exposed to a plethora of allergens it is the need of the hour to identify the allergen and properly dealt with in the local environment.

2. Aims and Objectives

- 1) Age wise distribution of disease.
- 2) To study the most conditions due to allergy.
- 3) Association of conditions with family history and dust exposure.
- 4) Association of conditions with various allergens.

3. Materials and Methods

This study was conducted in the Department of Internal Medicine, Kanachur Institute of Medical Sciences, Mangalore.

The study was conducted from April 2016 to September 2016.

160 cases were studied in the Department of Internal Medicine.

Inclusion Criteria:

The patients who were confirmed to have an allergic reaction triggered by a particular allergen were selected.

Exclusion Criteria:

The patients who were already on corticosteroid therapy were not included in the study.

Detailed history of the patient was recorded. The family history of the condition was noted and also the past history was noted.

All statistics were done using the SPSS 2015, California. Only the allergen which consisted of significantly higher association has been reported.

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4. Results

Mean age of the study participants (n=320)

	Mean	Std. Deviation
age	21.26	9.43

Table 1: Frequency distribution of the disease

Rhinitis	Skin Rash	Ocular Inflammation	Anaphylaxis
56	223	28	13

Table 2: Association of conditions with family history and dust exposure

Conditions	Family history		X ² value	p value
	Present (%)	Absent (%)		
Rhinitis	16(17.3)	12(17.8)	2.542	0.468
Skin Rash	138(72.3)	42(65.9)		
Ocular Inflammation	7(7.3)	7(10.9)		
Anaphylaxis	3(3.1)	4(5.4)		
	Dust Exposure		X ² value	p value
	Present (%)	Absent (%)		
Rhinitis	12 (17.0)	16(17.9)	8.113	0.044
Skin Rash	48(65.3)	64(73.4)		
Ocular Inflammation	10(13.6)	4(4.6)		
Anaphylaxis	3(4.1)	4(4.0)		

Table 2: Association of conditions with various allergens

Respiratory conditions	Dust		X ² value	p value
	Present (%)	Absent (%)		
Rhinitis	4(50.0)	24(15.8)	12.988	0.005
Skin Rash	3(37.5)	113(71.4)		
Ocular Inflammation	1(6.2)	13(8.9)		
Anaphylaxis	1(6.2)	6(3.9)		
	Food		X ² value	p value
	Present (%)	Absent (%)		
Rhinitis	7 (18.4)	49 (17.4)	8.920	0.030
Skin Rash	21 (55.3)	202 (71.6)		
Ocular Inflammation	8 (21.1)	20 (7.1)		
Anaphylaxis	2 (5.3)	11 (3.9)		

Out of the various allergens, these were found to be the statistically significant predictors of respiratory conditions (p<0.05)

5. Discussion

The management of acute hypersensitivity patients includes medical line, immunotherapy and surgical approach. The themes of the treatment include allergen avoidance, reduce the risk of severe reaction and rescue from the effects. Prompt treatment of the condition should be carried out.

Some allergens are easily controllable than others. The study of inheritance suggests a multigenic pattern. But many of the genes in the humans have evolved based on the environmental factors⁷. Some substances are more likely to cause an allergic response than the other allergens. The allergens are mostly proteins in nature. In humans repeated doses of alum – conjugated allergen extracts are used to suppress IgE mediated allergy⁸. It has not been proved that possibly what proteins or what protein structure causes the allergic reactions. There have been papers published proving the fact that other factors associated with the initial exposure to the protein do influence the type of response. An adjuvant

is thus present which always alters the immune response. In some mouse models, aluminium hydroxide increases the anaphylactic antibody production⁹. This is known to reduce the allergy. In case of the anaphylaxis prompt treatment should be started and the patient has to be checked for sustaining a healthy vital output is the need of the hour.

6. Conclusion

This study forms a platform for many more studies in the near future so that more and more allergens which are significantly related can be found and affectively dealt with. Being in a country like ours where people carry out different customs and are exposed to a plethora of allergens it is the need of the hour to identify the allergen and properly dealt with in the local environment.

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