

Original Research

Associations, Eosinophils and Serum IgE levels in Atopic dermatitis patients

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ABSTRACT:

Background: Atopic dermatitis (AD) is a chronic, non-contagious inflammatory skin disease. The present study was conducted to determine associations/sensitization, eosinophilia and IgE levels in Atopic dermatitis patients. **Materials & Methods:** The present study was conducted on 104 patients of Atopic dermatitis (AD) of both genders. The severity of AD was evaluated according to the SCORAD index. Eosinophils were measured in the differential white cell count by means of standard microscopic cytology. Sensitization studies were carried out and Total Serum IgE levels measured. **Results:** Out of 104 patients, males were 64 and females were 40. Manifestations among atopic dermatitis patients were asthma bronchiale (AB) seen in 55, allergic rhinitis (RC) in 46, sensitization to mites in 37, sensitization to bird feather in 23, sensitization to dust in 17 and sensitization to grass in 25. 52 males and 31 females showed peripheral blood eosinophilia of >6% of TLC. Elevated total IgE levels (≥ 250 IU/ml) were seen in 53 males and 36 females while a positive family history of atopy was present in 35 males and 22 females. **Conclusion:** Common manifestations such as asthma bronchiale and allergic rhinitis were seen among atopic dermatitis patients. Most of the patients had peripheral blood eosinophilia and higher IgE levels.

Key words: Asthma bronchiale, Atopic dermatitis, Allergic rhinitis.

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INTRODUCTION

Atopic dermatitis (AD) is a chronic, non-contagious inflammatory skin disease with specific immune and inflammatory mechanisms; it is inflammation of the epidermis and dermis with characteristic clinical and dermatopathological signs.¹ Atopy is defined as an inherited tendency to produce immunoglobulin E (IgE) antibodies in response to minute amounts of common environmental proteins such as pollen, house dust mites, and food allergens. Dermatitis derives from the Greek "derma," which means skin, and "itis," which means inflammation. Dermatitis and eczema are often used synonymously, although the term eczema is sometimes reserved for the acute manifestation of the disease (from Greek, ekzema, to boil over); here, no distinction is made.²

Eosinophils may play a critical role in the skin lesions of both extrinsic and intrinsic AD patients, and tissue eosinophilia has been shown to be a feature of acute and chronic AD and to correlate with disease activity.

Eosinophils are cells of the immune system that are most commonly known for their role in defense against parasites and along with basophils and mast cells, as mediators of allergy and asthma.³

Around 50% of all those with atopic dermatitis develop symptoms within their first year of life, and probably as many as 95% experience an onset below five years of age. Around 75% with childhood onset of the disease have a spontaneous remission before adolescence, whereas the remaining 25% continue to have eczema into adulthood or experience a relapse of symptoms after some symptom-free years.⁴ The present study was conducted to determine associations, sensitization, eosinophilia and serum IgE levels in Atopic dermatitis (AD) patients.

MATERIALS & METHODS

The present study was conducted in the department of Dermatology. It comprised of 104 patients of Atopic dermatitis (AD) of both genders. All were informed

regarding the study. Ethical approval was obtained from institute prior to the study. General information such as name, age, gender etc. was recorded. The severity of AD was evaluated according to the SCORAD index. Eosinophils were measured in the

differential white cell count by means of standard microscopic cytology. Sensitization studies were carried out and Total Serum IgE levels were measured by ELISA.

RESULTS

Table I Distribution of patients

Total- 104		
Gender	Males	Females
Number	64	40

Table I shows that out of 104 patients, males were 64 and females were 40.

Table II Manifestations among atopic dermatitis patients

Manifestations	Number
Asthma bronchiale (AB)	55
Allergic rhinitis (RC)	46
Sensitization to mites	37
Sensitization to bird feather	23
Sensitization to dust	17
Sensitization to grass	25

Table II, graph I shows that manifestations among atopic dermatitis patients were asthma bronchiale (AB) seen in 55, allergic rhinitis (RC) in 46, sensitization to mites in 37, sensitization to bird feather in 23, sensitization to dust in 17 and sensitization to grass in 25.

Graph I Manifestations among atopic dermatitis patients

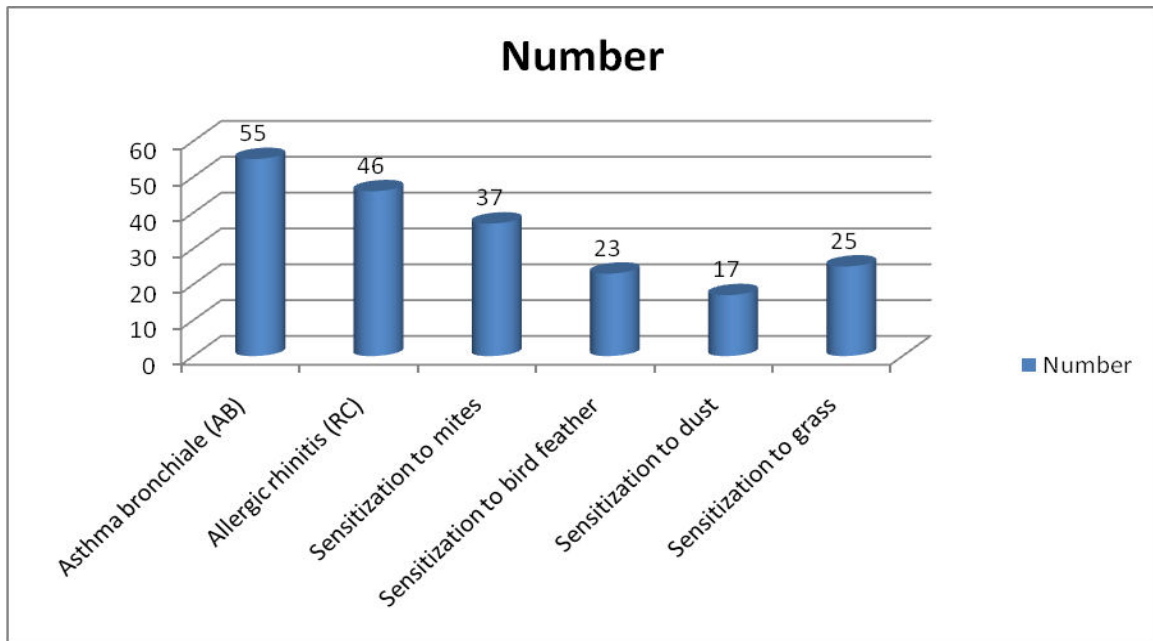


Table II Assessment of parameters in patients

Parameters	Males	Females
Total IgE (≥ 250 IU/ml)	53	36
Positive family history	35	22

Table II shows that patients with total IgE (≥ 250 IU/ml) was seen in 53 males and 36 females, positive family history was seen in 35 males and 22 females.

DISCUSSION

Eosinophils were thought to have a protective role in the pathogenesis of allergic diseases. Research in the 1980s demonstrated that eosinophils are in fact active pro-inflammatory cells. Granular proteins released by eosinophils play an important role in the pathogenesis of allergic diseases. Under the physiologic conditions, the skin does not harbor eosinophils, but in some of the disease processes, such as AD, these cells can be found in the lesional skin.⁵ Eosinophils are also closely associated with the pathogenesis of other atopic diseases, specifically in the respiratory tract, with the development of allergic asthma.

Increase in eosinophils in the tissues, blood, and bone marrow is a hallmark of most asthma phenotypes, and in general, elevated numbers correlate with disease severity (although “noneosinophilic/nonneutrophilic” asthma is characteristic of bacterial, viral and pollutant triggers).⁶ The present study was conducted to determine level of eosinophil and manifestation in Atopic dermatitis (AD) patients.

In this study, out of 104 patients, males were 64 and females were 40. Complete dermatological and allergological examinations were performed in all patients with the evaluation of monitored manifestations. 83 patients (52 males and 31 females) showed peripheral blood eosinophilia of >6% of TLC. The count of eosinophils in peripheral blood was significantly higher in patients with total IgE \geq 250 IU/ml, with persistent and severe eczematous lesions and in patients with the onset of AD under 5 year of age. The count of eosinophils above 6% of TLC was recorded as well in patients suffering from asthma bronchiale, rhinitis, sensitization to mites, dust, animal dander and bird feather and in patients with positive family history of atopy. On the other hand, the count of eosinophils was under 6% in patients with sensitization to a mixture of grass and trees.

We found that manifestations among atopic dermatitis patients were asthma bronchiale (AB) seen in 55, allergic rhinitis (RC) in 46, sensitization to mites in 37, sensitization to bird feather in 23, sensitization to dust in 17 and sensitization to grass in 25. Kang K et al⁷ found that the eosinophil levels roughly correlated with the disease severity, but the pattern of eosinophilia was not homogeneous.

The clinical presentation of atopic dermatitis is often more elaborate with a large variation in the morphology and distribution of the eczema combined with various other features. However, many patients with atopic dermatitis have a general tendency to present with dry skin (xerosis) due to the low water content and an excessive water loss through the epidermis. The skin is pale.⁸

CONCLUSION

Authors found common manifestations such as asthma bronchiale and allergic rhinitis among atopic dermatitis patients. Most of the patients had peripheral eosinophilia and higher IgE levels.

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