

**ORIGINAL ARTICLE****Assessment of food allergy in atopic dermatitis patients**

Dipali Taneja

Assistant Professor, Department of Dermatology, Saraswathi Institute of Medical Sciences, India

**ABSTRACT:**

**Background:** Allergic diseases, also known as allergies, are a group of conditions characterized by an abnormal immune response to harmless substances in the environment, known as allergens. These immune responses can lead to a wide range of symptoms affecting various organ systems. The present study was conducted to assess food allergy in atopic dermatitis patients. **Materials & Methods:** 86 patients suffering from atopic dermatitis aged 14 years and older of both genders were enrolled. The family history and food allergy was assessed. **Results:** Out of 86 patients, males were 46 and females were 40. Out of 86 cases with atopic dermatitis, food allergy was present in 33 patients. It was due to milk in 12, wheat in 6, soy in 4, peanut in 8, egg white in 2 and egg yolk in 1 case. The difference was significant ( $P < 0.05$ ). Out of 33 cases with food allergy, family history was positive in 20 cases and negative in 13 cases. **Conclusion:** There was association of food allergy, family history and atopic dermatitis in children. Hence, positive family history should be considered while making diagnosis of cases of atopic dermatitis.

**Keywords:** atopic dermatitis, food allergy, egg yolk

**Corresponding author:** Dipali Taneja, Assistant Professor, Department of Dermatology, Saraswathi Institute of Medical Sciences, India

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**INTRODUCTION**

Allergic diseases, also known as allergies, are a group of conditions characterized by an abnormal immune response to harmless substances in the environment, known as allergens. These immune responses can lead to a wide range of symptoms affecting various organ systems.<sup>1</sup>

Allergic Rhinitis also known as hay fever, allergic rhinitis is an allergic reaction that affects the nose and sinuses. Symptoms include sneezing, nasal congestion, runny nose, itching of the nose and eyes, and postnasal drip.<sup>2</sup> Asthma is a chronic respiratory condition characterized by inflammation and narrowing of the airways, leading to symptoms such as wheezing, coughing, chest tightness, and shortness of breath. Allergens such as pollen, dust mites, pet dander, and mold can trigger asthma attacks in susceptible individuals. Atopic dermatitis is a chronic inflammatory skin condition characterized by dry, itchy, red, and inflamed skin. It often starts in childhood and can be triggered or exacerbated by allergens, irritants, and environmental factors.<sup>3</sup> Food allergies occur when the immune system reacts abnormally to certain proteins in food. Common food allergens include peanuts, tree nuts, shellfish, eggs, milk, soy, wheat, and fish. Symptoms can range from mild itching or hives to severe anaphylaxis, a life-threatening allergic reaction.<sup>4</sup>

One-third of children with severe atopic dermatitis were also found to have an IgE-mediated food allergy. Furthermore, in children aged 9 to 11, food allergies

were strongly linked to bronchial asthma and allergic rhinitis. Early-onset food allergies also raised the likelihood of developing atopic dermatitis, bronchial asthma, and allergic rhinitis at age.<sup>5</sup> The present study was conducted to assess food allergy in atopic dermatitis patients.

**MATERIALS & METHODS**

The present study consisted of 86 patients suffering from atopic dermatitis aged 14 years and older of both genders. Parents gave their written consent to participate in the study.

Data such as name, age, gender etc. was recorded. Based on the findings of open exposure testing, atopy patch test (APT), skin prick test (SPT), and specific IgE (sIgE), a food allergy was diagnosed. Patients were classified as having a food allergy if they had a positive result in at least one of the diagnostic techniques (sIgE, APT, or SPT) and a positive result in the open exposure test (early and/or late reactions) with the food under examination. Patients who experienced an early reaction after consuming a food that had been inspected several times in their past, dating back to childhood, were also thought to have a food allergy. Patients with the negative test showed confirmation of their sensitivity to the tested food. The family history was assessed (parents, siblings, sisters, and children having allergies). Data thus obtained were subjected to statistical analysis. P value  $< 0.05$  was considered significant.

**RESULTS**

**Table I Distribution of patients**

Total- 86		
Gender	Male	Female
Number	46	40

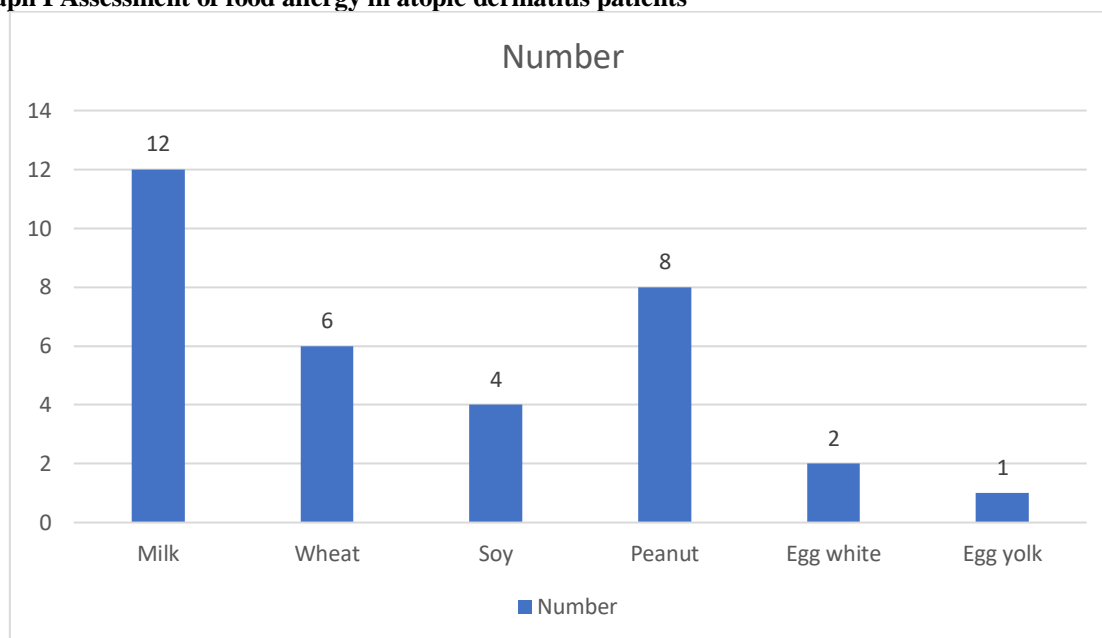
Table I shows that out of 86 patients, males were 46 and females were 40.

**Table II Assessment of food allergy in atopic dermatitis patients**

Food allergy	Number	P value
Milk	12	0.02
Wheat	6	
Soy	4	
Peanut	8	
Egg white	2	
Egg yolk	1	

Table II, graph I shows that out of 86 cases with atopic dermatitis, food allergy was present in 33 patients. It was due to milk in 12, wheat in 6, soy in 4, peanut in 8, egg white in 2 and egg yolk in 1 case. The difference was significant ( $P < 0.05$ ).

**Graph I Assessment of food allergy in atopic dermatitis patients**



**Table III Evaluation of family history in patients with atopic dermatitis**

Patients	Family history positive	Family history negative	Total
Food allergy present	20	13	33
Food allergy absent	25	28	53
Total	45	41	86

Table III shows that out of 33 cases with food allergy, family history was positive in 20 cases and negative in 13 cases.

**DISCUSSION**

Food allergies and atopic dermatitis (eczema) are two conditions that can sometimes be interconnected, particularly in children.<sup>6</sup> Atopic dermatitis is a chronic inflammatory skin condition characterized by dry, itchy, and inflamed skin. It often starts in infancy and can persist into adulthood.<sup>7,8</sup> Food allergies, on the other hand, occur when the immune system reacts abnormally to certain foods, triggering symptoms such as hives, swelling, digestive issues, or even

anaphylaxis.<sup>9,10</sup> The present study was conducted to assess food allergy in atopic dermatitis patients. We found that out of 86 patients, males were 46 and females were 40. Celakovska et al<sup>11</sup> evaluated if there is some relation in atopic dermatitis patients at the age 14 years and older who suffer from food allergy to common food allergens to other allergic diseases and parameters as bronchial asthma, allergic rhinitis, duration of atopic dermatitis, family history and onset of atopic dermatitis. Food allergy was altogether

confirmed in 65 patients (29%) and these patients suffer significantly more often from bronchial asthma and allergic rhinitis. Persistent atopic dermatitis lesions and positive data in family history about atopy are recorded significantly more often in patients with confirmed food allergy to examined foods as well. On the other hand, the onset of atopic dermatitis under 5 year of age is not recorded significantly more often in patients suffering from allergy to examined foods.

We found that out of 86 cases with atopic dermatitis, food allergy was present in 33 patients. It was due to milk in 12, wheat in 6, soy in 4, peanut in 8, egg white in 2 and egg yolk in 1 case. Worm et al<sup>12</sup> determined the frequency of atopic dermatitis in an unselected population sample and evaluated the role of food allergy. A total of 1739 questionnaires was returned. In all, 23.5% of patients stated that they had atopic dermatitis, and 146 persons (8.4%) fulfilled our atopic dermatitis criteria after a detailed telephone interview. Of these, 111 were examined, and 28 (1.6%) were identified as currently suffering from atopic dermatitis. Twenty-seven patients were further evaluated: 9/27 were found to be skin prick test negative, 19/27 were skin prick test positive either to pollen and/or food allergens. Nine of 27 were challenged with the suspected food allergen: 1/9 showed a worsening of the eczema, 3/9 had oral symptoms, and 5/9 were negative. In conclusion, only 20% of adults with a positive history of atopic dermatitis show active eczema lesions at a given time point. The data indicate that most individuals with atopic dermatitis were sensitized against pollen allergens and according to that, pollen-associated food allergens. A non-selected AD patient cohort does not frequently suffer from clinically relevant pollen-associated food allergy.

We found that out of 33 cases with food allergy, family history was positive in 20 cases and negative in 13 cases. AL- Hammadi et al<sup>13</sup> in their study a significant association were found between childhood food allergy and a history of personal allergy (atopic dermatitis, asthma or allergic rhino-conjunctivitis) or immediate family members with food allergy or other allergic diseases. The best predictors for childhood food allergy were a personal history of asthma ( $p < 0.001$ ), a personal history of atopic dermatitis ( $p < 0.001$ ), a paternal history of atopic dermatitis ( $p = 0.005$ ) and a paternal history of allergic rhino-conjunctivitis ( $p = 0.012$ ).

The limitation of the study is the small sample size.

## CONCLUSION

Authors found that there was association of food allergy, family history and atopic dermatitis in

children. Hence, positive family history should be considered while making diagnosis of cases of atopic dermatitis.

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