



PREVALENCE OF AERO ALLERGEN AND FOOD ALLERGENS IN ATOPIC PATIENTS WITH CHRONIC URTICARIA IN DIYALA GOVERNORATE IN IRAQ

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ABSTRACT

Objective: the aim of the study is to determine the most common aero allergens and food allergens at atopic patients with chronic urticaria. **Material and methods:** the study had included 555 patients (477 female and 78 male) their age group were 5-60years with atopic disease and chronic urticaria, attending Baquba teaching hospital, consultation clinic, Dr.Adnan and Dr Ahmed private clinic from 1/1/2017 to 31/12/2017. Skin prick test were done for them aeroallergen and food allergen. **Results:** Most common offending aeroallergen was olive tree pollen and ulternaria fungi (3.96%) followed by chaenopedcea pollen and cock roach allergen (3.78%), then the other last allergen in reactivity was zea mays pollen (1.087%). For food allergy, the most common reacting allergen was banana (3.6%), followed by wheat flour (3.06%), the last one was fish meat(1.44%). **Conclusion:** the study revealed an association between atopic disease and chronic urticaria, many aero allergens and food allergens play a role at chronic urticaria.

KEYWORDS: Atopic disease, Allergic rhinitis, Atopic dermatitis, Allergic rhinoconjunctivitis, Asthma and Urticaria.

INTRODUCTION

Chronic Urticaria (CU), a common dermatosis characterized by spontaneously occurring short-lived and itching weal and flare type skin reactions, can be caused by a large number and a variety of distinct conditions including intolerance to food or drugs as well as infections and autoimmune diseases.^[1, 2]

The skin disease that are related to food allergy include urticaria, oral allergy syndrome, and atopic dermatitis.^[3]

In CU, food allergy is known to be a rare cause. It is known that in less 2% of cases is food itself, or food additives, the reason for CU.^[4]

The prevalence of CU estimated to be 1% in the general population.^[5] Also CU associated with high rate of psychological consequences as poor sleep, anxiety and depression.^[6]

The mast cell know to be the most important effector cell in CU through releasing of its mediators; from them the histamine with its inflammatory action, stimulation of peripheral nerves and increasing vascular permeability . also other mediators such as leukotriene, tryptase and heparin sharing in the pathogenesis of CU.^[7]

The role of IgE in the activation of mast cell is well known also its role in CU as a part of activation of mast cell in this disease (8). More over a significant higher total IgE level in CU patients (34%) than the healthy control (8.6%) with significant correlation between elevated level of serum total IgE (above 175U/ml) with CU symptoms severity (9) were found.

On other hand treatment with anti-IgE monoclonal antibody (Omalizumab) now known to be effective in the treatment of CU and reduction of its symptoms even in cases not responding to anti histamine^[10, 11] and decrease the need of oral corticosteroid with up to 12 months of Omalizumab use.^[12]

Atopic disease

Atopic disease are group of diseases linked by a shared underlying problem with the immune system. The main feature is development of particular immunoglobulin (IgE) directed against allergens that are usually harmless.^[13]

The atopic diseases (eczema, asthma, rhinoconjunctivitis) are clinical syndromes each defined by group of symptoms and signs.^[14]

MATERIALS AND METHODS

The study was conducted in patients of atopic diseases (allergic rhinitis, allergic rhinoconjunctivitis, asthma and atopic dermatitis) who are complaining of chronic urticaria at Baquba teaching hospital, asthma and allergy unit, Dr. Adnan private clinic and Dr. Ahmed private clinic.

The patients included in the study are 555 (477 female and 78 male).

The study was performed during the period from 1/1/2017 to 31/12/2017. Children under 5 years old, elderly, pregnant, lactating females, diabetic patients and patients with -ve skin prick test were excluded from the study. Full history, clinical examination, spirometer and slit lamp are used for confirmation of the diagnosis.

Before performing the skin prick test antihistamine drugs were stopped 10 days and the systemic steroid were stopped three weeks before.

Skin sensitivity test

Antigen used at the study were obtained from (Immunoteck Spain, Allergo Pharma companies) numbers of allergens used were 15540 including positive and negative control for all the patients included in the study.

Only 2+, 3+ and 4+ were labeled as markedly positive skin reaction.

Table (2) Disease distribution.

No	Atopic disease	Patients no.	Percentage(%)
1	Allergic rhinitis and urticarial	327	58.91
2	Atopic dermatitis and urticarial	120	21.62
3	Allergic rhinoconjunctivitis and urticarial	40	7.2
4	Allergic rhinitis, asthma and urticria	38	6.84
5	Asthma and urticarial	30	5.4
	Total	555	100.0

Disease association

The study was showing association between all kinds of atopic disease and urticaria, also it showing association between atopic disease themselves that 7.2% of the patients are rhinoconjunctivitis patients and 6.84% of patients are allergic rhinitis asthmatic patients (table 2)

Skin prick test positivity for aero allergens

In the study 8880 skin test were performed by a total of 14 aero allergens (Mites, Fungi, Pollens and Animal product) and the most common offending aero allergens were *Alternaria* fungi and olive tree pollen aeroallergen (22 patients, 3.96%) followed by chenopodacea pollen and cockroach animal product (21 patients, 3.78%), the third aeroallergen was saltwort pollen (17 patients, 3.06%).

RESULTS

The total number of the patients included in the study were 555 (477 female, 78 male), their age were between 5-60 years (table 1).

Table 1: Age and sex distribution.

Age (years)	Number		Percentage (%)
5-10	M	50	9.0
	F	70	12.6
11-20	M	2	0.36
	F	84	15.13
21-30	M	12	2.16
	F	99	17.83
31-40	M	11	1.98
	F	97	17.47
41-50	M	5	0.9
	F	76	13.69
51-60	M	7	1.26
	F	42	7.56
Total	555		100.0

M=male F= female

Disease distribution of the patients

In the study 555 patients were included, all are suffering from chronic urticaria, from them 327 are allergic rhinitis (58.91%), 120 atopic dermatitis (21.62%), 40 rhinoconjunctivitis (7.2%), 38 allergic rhinitis asthmatic patients (6.84%) and 30 patients were asthmatic (5.4%) (table 2).

The minimal positivity reacting allergen was *zea mays* pollen (6 patients, 1.08%) (table 3).

Table 3: skin sensitivity reaction to aeroallergen.

No.	Allergen group	Allergen	No. of patients with +ve reaction	Percentage (%)
1	Mites	D. farinae	12	2.16
2		D. pteronyssinus	14	2.52
3	Fungi	Alternaria	22	3.96
4	Pollens	Chenopodacea	21	3.78
5		Olive tree	22	3.96
6		Grass mix	16	2.88
7		4 cereals	16	2.88
8		Bermuda	14	2.52
9		Mugwort	7	1.26
10		Zea mays	6	1.08
11		Salt wort	17	3.06
12	Animal products	Dog hair	9	1.62
13		Cat epithelium	9	1.62
14		cockroach	21	3.78

D= dermatophagoides

Skin prick test positivity for food allergens

In the study 6660 prick test were done for the patients by total 12 food allergen which are Banana, Wheat flour, Barely flour, Maize flour, Peanuts, Beans, Chicken meat, Cow meat, Fish meat, Cow milk, Egg and Soya beans.

The most common positivity reacting food allergen was Banana allergen (20 patients, 3.6%) followed by wheat

flour (17 patients, 3.06%) the third allergen in reaction were Barely flour and Mize flour.

The minimal positivity reacting food allergy was fish meat (8 patients, 1.44%) table (4).

Table 4: skin sensitivity reaction to food allergen.

No.	Food allergen	No. of patients with +ve reaction	Percentage (%)
1	Banana	20	3.6
2	Wheat	17	3.06
3	Barely	16	2.88
4	Maize	16	2.88
5	Peanut	11	1.98
6	Beans	9	1.62
7	Chicken meat	9	1.62
8	Egg (whole)	10	1.8
9	Soya beans	10	1.8
10	Cow milk	10	1.8
11	Cow meat	10	1.8
12	Fish meat	8	1.44

DISCUSSION

In our study we found that 58.91% of patients of urticarial (327 patients) are complaining of allergic rhinitis, 7.2 % (40 patients) were allergic rhinoconjunctivitis with urtercaia patients, 6.84% (38 patients) were allergic rhinitis asthmatic patients with chronic urticaria and the last group 5.4% (30 patients) asthma with urticaria.

In similar study R.Balaji et al found that 14.3 % of patients are complaining of urticaria and conjunctivitis, 11.3% of patients are urticaria with allergic rhinitis and the test positivity reacting group at their study was urticaria with rhinoconjunctivitis 7%.^[15]

In this study regarding to aero allergen the most common markedly positive skin reaction was found to olive tree pollen and Alternaria fungi allergen followed by cheanopodcea pollen and cockroach allergen . The last aeroallergen in reaction of skin prick test was found zea mays pollen.

In his study R.Balaji et al found pollen are the most common allergen with positive reaction in patients with urticaria (30.7%) then dust mite (20%).^[15]

In our study we found that banana allergen was the most common reacting food allergen in patients with chronic urticaria followed by wheat flour (30.06%) then maize and barely flour (2.88%) followed by peanuts (1.98%),

egg, soya beans, cow milk and cow meat (1.44%). R.Balaji et al found that 5% of patients were sensitive to masoor dal followed by almonds (4.7%) ginger (4.3%).^[15]

In study of mites association with chronic urticaria P.A .Mahesh et al found evidence of an association of house dust mite sensitivity with chronic urticaria using skin prick test method.^[16]

Bo Young Chung et al found in study of food allergy in Korean patients with chronic urticaria that (13.2%) of patients has self reported history of food allergy and the most common suspicious food reported were pork (4.6%), beef (2%), shrimp (1.7%) and the last food in his study were salmon, buck wheat, beer, ramen and soya bean paste (0.3%).^[17]

CONCLUSION

The study revealed that

- 1- There is association between different allergic disease in atopic patients and urticaria .
- 2- In addition to mites, another aeroallergens are associated with chronic urticaria.
- 3- Food allergen also has a role in the patients with chronic urticaria.

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