

Study of Prick Test in Chronic Spontaneous Urticaria

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Abstract

Urticaria is a fairly common condition affecting 0.1% of the population characterized by transient swellings of the skin. Chronic Spontaneous urticaria has multifactorial aetiologies including intolerance to food or drugs, infectious diseases, and autoimmune processes. Skin prick testing or SPT demonstrates an allergic response to a specific allergen. In conjunction with an allergy focused history, SPT can help to confirm the presence of an allergy to either food, inhaled substance or any other allergen. *Aims and Objective:* To evaluate the types of chronic Spontaneous urticaria with reference to etiology from history and investigations and to identify the specific offending allergen and excluding it to reduce the severity and frequency of episodes of urticaria and angioedema. *Materials and Methods:* A total of 40 patients with chronic spontaneous urticaria of more than six weeks duration were studied. Skin test were performed according to history using Indian standard battery of prick test. *Results:* Out of 40 patients, 28 (60%) showed positive reactions to more than five antigens with maximum reaction to food (in 15 patients), of which sour and fermented foods were the commonest followed by dust and pollen (5 patients each), fungi (1 patient) and insect in 2 (1 each to cockroach & yellow flask) with 12 patients showing no reaction. *Conclusion:* Skin prick test is found to be a simple, quick and inexpensive method for identifying the causative allergen in a majority of the patients.

Keywords: Chronic Spontaneous Urticaria; Skin Prick Test

Introduction

Urticaria refers to a common, heterogeneous group of disorders with a large variety of underlying causes. It is characterized by the sudden appearance of fleeting wheals, each of which lasts 1-24 hours and/or angioedema lasting up to 72 hours [4].

Chronic spontaneous urticaria, with or without angioedema, has been defined as daily or almost daily symptoms recurring for more than 6 weeks [7].

Etiology of chronic spontaneous urticaria and angioedema till today remains unpredictable in most of the patients. Several agents and factors including medications, foods and food additives, infections, contactants, inhalants, physical factors and autoimmunity have been implicated in provoking urticaria symptoms. But there are no specific diagnostic or predictive tests that can point out the etiology. Skin prick testing (SPT) can

be used as a primary diagnostic method for IgE mediated allergic diseases by demonstrating an allergic response to a specific allergen.

Objective of the Study

To identify the specific offending allergen and excluding it to reduce the severity and frequency of episodes of urticaria and angioedema.

Materials & Methods

Forty (40) patients with chronic spontaneous urticaria were included in the study which was conducted from July '11 to December '12 considering the inclusion and exclusion criteria.

Inclusion Criteria

- Patients with chronic spontaneous urticaria

Exclusion Criteria [6]

- Acute urticaria (less than 6 weeks).
- Urticarial vasculitis.
- Pregnant or lactating women.
- Severely ill and immuno-compromised patients.
- Physical urticaria.
- Informed written consent and a detailed history regarding the various aggravating factors was obtained and prick testing was done using the commonly implicated/precipitating antigens based on the patient's history with resuscitation facility on standby.

Histamine and Buffered normal saline were used as positive and negative controls respectively. Emergency drugs (for anaphylaxis) were kept ready before starting the procedure.

Pre-requisite for skin prick test

- Antihistamines were discontinued (at least two days prior for short acting antihistamines,

6 days prior for Desloratidine and 2 weeks prior for Doxepin)

- Systemic steroids were discontinued for at least 2 weeks [4,5].
- Forearm should be free of wheals.

Procedure [5]

- The test allergens were selected.
- The skin was coded with a marker pen to identify the allergens to be tested.

One drop of histamine, buffered normal saline and each of the antigens were applied on the volar aspects of forearms, upper arm or back (upper and mid back).

- As few as 3 or 4 or up to about 25 allergens can be tested; superficial prick through the drops at 45 degrees tangentially to the skin was given with a lancet upto 1.5 mm in depth.

Skin Prick Test

- 1 Prick the skin at a 90-degree angle.

- 2 Tip the lancet to a 45-degree angle.

- 3 Lift the lancet slightly for 1 second to check that the epidermis is punctured.

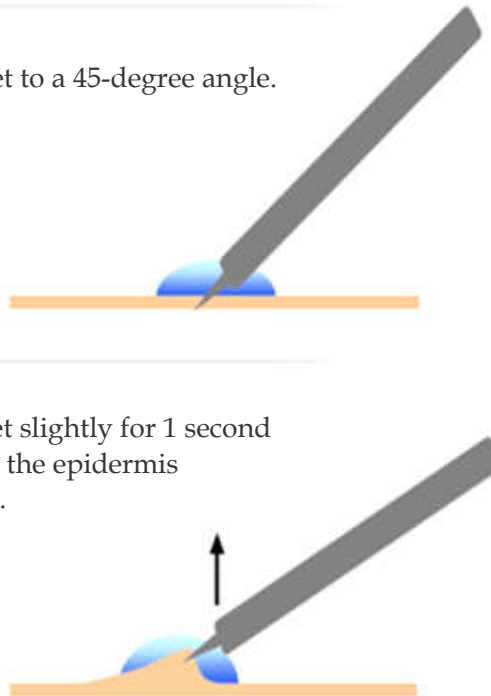


Fig. 1: Skin prick test: How it is Done? [3]

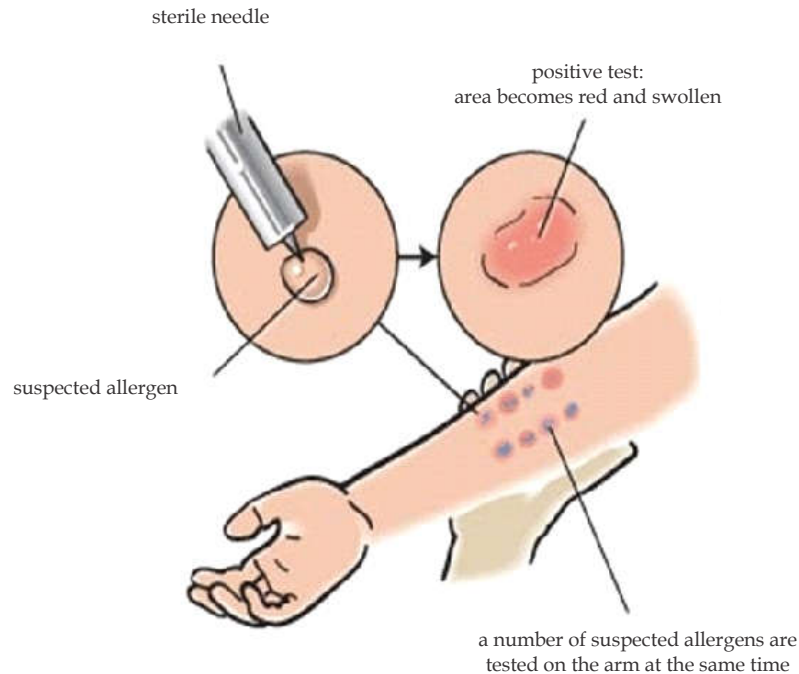


Fig. 2: Prick test and result

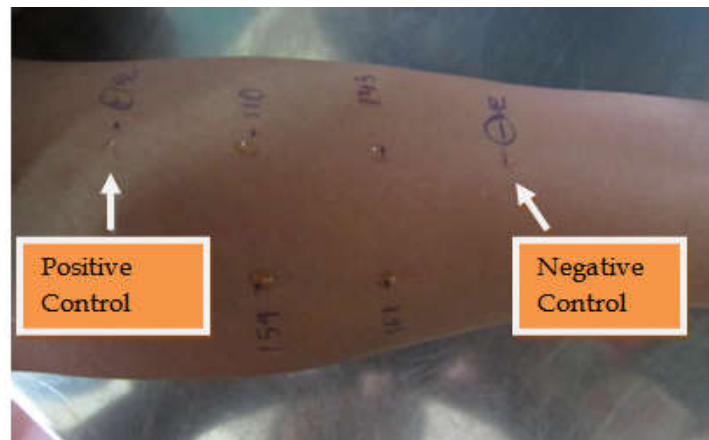


Fig. 3: Prick test done on patient with negative and positive control

Reading Time

15-30 min

Interpretation

An edematous reaction (wheal) of at least 3 mm in diameter or at least half of the size of the histamine control is considered positive in absence of such a reaction in normal saline control [1,5]. All patients showed allergy to prick test allergen were advised to avoid/restrict allergen in diet or avoid contact with relevant allergens. This avoidance and restriction was advised for a period of 6 week. During this period, clinical improvement of patient was evaluated and recorded at weekly interval.

Results

Out of 40 patients 14 were males and 26 females. Female to male ratio was 1.8:1. The average age in all urticaria categories belonged to the 20-40 years age groups. 28 (60%) patients showed reactions to more than five antigens with maximum reaction to foods (in 15 patients), of which sour and fermented foods were the commonest followed by dust and pollen (in 5 patients), fungi (1 patient) and insect in 2 (1 each to cockroach & yellow flask) with 12 patients showed no reaction. None of the patients showed anaphylactic reaction. The prick test has a high positive predictive value (69- 100%) [2]. A positive test signifies reactivity to the specific allergen; however a negative test does not definitely exclude it.



Fig. 4: Showing result of prick test

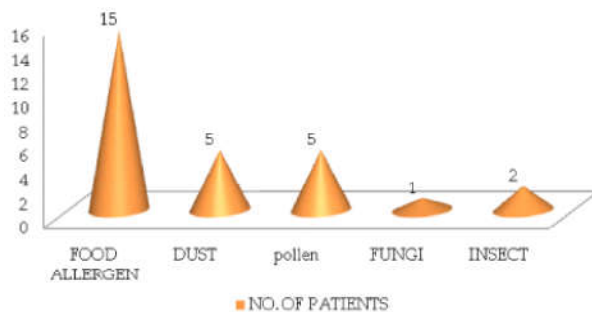


Fig. 5: Interpretation of prick test in study

Out of 28 patients 20 patients showed reduced frequency, severity and requirement of antihistamines after avoidance of positive allergen. Remaining cases partial recovery was noted. It was observed that all patients experienced quick relapse as they returned to their normal life and diet.

Discussion

Skin prick test is the most convenient and least expensive method of allergy testing and result can be made available within 15 - 20 minutes. Prick testing helps to trace out type 1 (immunoglobulin E) mediated hypersensitivity specifically [8,9]. Patients with idiopathic urticaria, who were willing and had a high degree of suspicion towards particular food items or aero allergens, and in whom all other clinical and laboratory findings were non contributory, underwent skin prick testing. Standardized extracts for many antigens are readily available. These tests are generally well tolerated with mild erythema and edema that usually subsides within one to two hours. More severe swelling is treated with oral antihistamines, topical steroids and ice-packs. It was possible to identify cause and eliminate it in 20 patients.

A positive skin test indicates that the subject is allergic to the particular substance. In general, skin tests are most reliable for diagnosing allergies to airborne substances, such as pollen, epithelia, and dust mites.

Diagnosing food allergies can be complex, and may need additional tests or procedures. In our study maximum number of patients reacted positively to yeast out of the food allergens but due to the small case numbers for prick test, no conclusion can be made. In pollen, maximum number of patients reacted positively to parthenium which is the most common aeroallergen in India.

Conclusion

Urticaria affects 15-25% of people at least once in their lifetime. It is more common in the younger age group with a female predominance. Skin prick test is found to be a simple, quick and inexpensive method for identifying the causative allergen in a majority of the patients. Skin prick test carries the minimum risk of anaphylaxis; hence, it can be performed routinely for CSU (chronic spontaneous urticaria) patients.

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