Patch testing plays a role in management of chronic urticaria

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Summary

Background. Chronic urticaria (CU) is one of the most challenging and frustrating therapeutic problems faced by a dermatologist. This study was done to clinically evaluate patients of urticaria presenting with symptoms of more than 6 weeks duration and to estimate the practicality of doing patch testing in chronic urticaria.

Methods. A total of 160 patients of CU were included in the study. After evaluating with history, clinical examination and investigations sixty five patients were patch tested with Indian standard and cosmetic series.

Results. Physical urticaria was prevalent in 16.87% patients, infectious etiology in 14.37% patients, food and intestinal infestation in 5% of patients each, systemic disease in 2.5% patients and due to insect bite in one patient (0.62%). Of the seventy seven patients in whom no suspected cause could be arrived at, sixty five patients consented for patch testing, twenty four (36.9%) yielded positive results and on follow up with avoidance of suspected allergen, eleven (16.92%) had complete remission.

Conclusions. Patch test is a safe, simple and inexpensive test that can be included among the battery of diagnostic investigations for CU since it allows effective diagnosis and management of a relevant number of patients. More allergens can be included to widen the coverage of offending allergens.

KEY WORDS: chronic urticaria; cosmetic series; indian standard series; patch testing.

Introduction

Urticaria (1) characterized by itchy wheals of varied etiology is a vexing medical condition which has caused a lot of distress in patient as well as treating physician. Urticaria is defined as a skin lesion consisting of a wheal and flare reaction in which localized intra-cutaneous edema is surrounded by an area of redness that is typically pruritic with a spectrum of etiological factors and management options (2, 3). Urticaria is a common disorder affecting approximately 15-20% of the general population at least once during their lifetime. The rate is highest among young adults and more in women. Current opinions about urticaria suggest a deep impact on quality of life (4). Allergenic triggers can be identified in up to 60-80% of acute urticaria cases while this figure is much lower for chronic urticaria (CU). In a number of patients CU is associated with various aggravating factors including drugs, food and food additives, infections, infestations, systemic diseases etc. (3, 4). In spite of extensive laboratory investigations, large number of cases of CU remain idiopathic and difficult to treat (5).

Several recent studies have shown that contact allergy can play a role in the etiopathogenesis of chronic urticaria. There were reports of CU which were subsequently found to be caused by common contact sensitizers like nickel, chromium, cobalt, balsam of Peru, rubber chemicals, etc. Interestingly, many such patients of CU do not exhibit the physical signs of contact allergy. These studies have shown that patch testing for contact sensitization can be helpful in the management of chronic urticaria (6).

Even without any clinical history or signs of contact dermatitis, contact sensitization can lead to CU due to small amount of antigens absorbed via the skin or gut into the bloodstream and delivered to antigen presenting cells in the skin which provides mast cell activation (7). Patch testing is a safe, simple and inexpensive alternative that can be used for etiological diagnosis of CU before undertaking expensive investigations (6). The warning by Coleman that the greatest abuse of patch testing is not doing it, has been quoted several times stressing the need for using this test in various indications including urticaria (8).

Materials and methods

A prospective study to clinically evaluate patients of CU and to assess use of patch testing in CU was con-
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ducted. Cases of CU were included in the study based on the following criteria: daily or almost daily occurrence of urticarial wheals for at least six weeks with no identifiable cause by clinical evaluation. Patients with physical or cholinergic or vasculitic urticaria, pregnant and lactating mothers, those on antihistamines, systemic steroids, and immune modulators or on irradiation, those with acute exacerbation/ extensive wheals/angioedema and with irregular follow up were excluded.

A total of 160 patients were included in the study. And patch test was done on 65 patients fulfilling the criteria and those willing for the test and regular follow up. Permission was granted by the Institutional Ethics Committee and informed consent was taken from all patients for participating in the study. Only thirty healthy, age and sex matched subjects with similar occupations and with no history of urticaria or allergic contact dermatitis in the past could be recruited as controls for patch testing. The number of controls was not statistically decided.

A detailed history regarding symptoms and cutaneous lesions was taken. Detailed history of possible provocative factors were also noted. In addition, inquiries about episodes of contact eczema in the past, any surgical implants/pacemaker/dental braces were also noted.

Urticaria activity score (UAS) (9) was calculated for the patients, as follows.

The UAS consisted of the sum of the wheal number score and the itch severity score. The wheal numbers are graded from 0 to 3 as follows: 0 - less than ten small wheals (diameter less than 3 cm), 1 - ten to fifty small wheals or less than 10 large wheals (diameter more than 3 cm), 2 - greater than fifty small wheals or ten to fifty large wheals and 3 - almost the whole body is covered. The severity of the itching is graded from 0 to 3 (0, none; 1, mild; 2, moderate; and 3, severe).

Detailed cutaneous examination was done which included distribution and morphology of lesions, demonstration of dermographism and full systemic checkup including oral examination. Necessary basic lab investigations were done in all patients. Sixty five consenting patients who satisfied the inclusion criteria were subjected to patch testing. The Indian Standard Series and Cosmetic Series approved by Contact and Occupational Dermatoses Forum of India (CODFI) and supplied by Systopic Laboratories Pvt. Ltd., New Delhi, India were used.

Informed consent was taken. And patients were tested for contact sensitization by using the Finn test system which consists of small occlusive aluminum discs mounted on non-occlusiv one tape with acrylic based adhesive backing. Upper back was used for testing. Patches were removed on D2 and reading was taken 45-60 minutes after removal of patches. Interpretation was made according to the International contact dermatitis research group (ICDRG) criteria of visual grading only (10).

Patients who elicited a positive result to patch test allergens were advised to avoid/restrict these allergens in their day to day living, a list of items/food to be avoided was given. Antihistamines were stopped one week prior to patch testing and during the period of avoidance of suspected allergens. Avoidance/restriction was advised for a period of six weeks. Patients were reviewed at the end of two weeks and if no urticaria had recurred, follow up every two weeks was done till end of six weeks. If urticaria recurred antihistamines were reintroduced and it was derived that contact sensitization was probably absent or avoidance was not effective and some other cause was suspected. Those with negative results were clubbed with those who were not patch tested for further follow up, and not considered as patch test negative controls.

Results

The Male: Female ratio observed in our study was 1:1.105 and the mean age was 33.34 years with the average duration of disease being 7.5 months (median) which was in tune with other studies (1, 11). A large group of patients affected were skilled workers (31.25%) followed by housewives (27.5%), students (25%), white collar job (15%) and 1.25% were unemployed. Only four patients (2.5%) gave history of urticaria exacerbating at work due to coming in contact with certain items.

Approximately 26% patients had lesions developing more commonly in the evening and at night time and 20.62% patients had a seasonal variation with most common season being summers. Majority of the patients (54.37%) had 10 - 50 wheals. Urticaria was episodic in 12.5% of patients. Around 18.12% patients had family history of urticaria/angioedema.

Approximately 32% patients have had episode/s of angioedema associated with urticaria in the past, which was slightly lower than observed by others (12, 13).

Around 43.75% CU patients had a history of atopy (family, personal or both) and Dermographism was observed in 69.37% patients.

Forty three patients (26.87%) had various systemic features associated with urticaria, suggestive of underlying associated disease, urticarial vasculitis or angioedema.

The most common precipitating factor observed was food and food additives in 19.37% patients.

Serum IgE was normal in 28.75% patients and was raised in 71.25% patients.

Physical urticaria was prevalent in 16.87% patients, infectious etiology in 14.37% patients, food induced and intestinal infestation in 5% patients each, drugs and inhalants in 3.75% each, systemic disease in 2.5% patients and insect bite reaction in one patient (0.62%). Of the seventy seven patients in whom no suspected cause could be elicited, sixty five patients consented for patch testing, twenty four (Eight male, sixteen females) yielded positive results, including Thiomersal 7, Fragrance mix 8, Nickel sulphate 5, Cobalt chloride 3, Balsam of peru 3 and one each of...
Phenylenediamine, Formaldehyde, Mercaptobenzothiazole, Neomycin, Parthenium and Chlorocresol. On follow up of those advised avoidance, eleven (including Nickel 3, Cobalt 2, Fragrance mix 2, Parthenium 2 and one each of Chlorocresol, Mercaptobenzothiazole) had complete relief from CU. Disease was considered idiopathic in the remaining sixty six (41.25%) subjects. Of the thirty controls two had positive tests. Thirty five patients (21.87%) were lost to follow up, in fifty nine patients (36.87%) first line drugs could control the CU but twenty six (16.25%) needed second line drugs (5) for control of symptoms and twenty nine (18.12%) could stop medication due to cure of underlying causative factor or by avoiding suspected precipitating factor. Eleven patients directly benefited from the patch test whereby they were relieved of wheals on avoiding detected allergen. None of them had recurrence even after six months.

Discussion

Sixty five patients of the idiopathic group were patch tested and twenty four yielded positive result which was statistically significant compared to control \((X^2=9.226, P=0.0024)\) and on follow up with avoidance eleven of them (16.92%) proved to have contact sensitivity (relief after avoiding detected antigens causing urticaria) this was statistically not significant \((P>0.05)\). Guerra et al. (11) observed contact sensitization in 41.32% and Sharma et al. (6) in 15.78%. In various other studies the idiopathic group consisted of 47% in Sarojini et al. (14), 56% in Humphreys et al. (15) and 36% in Kozel et al. (16). However it was only 21% in a study by Guerra et al. (11) and very high (79%) in the study by Champion et al. (12) which was conducted in 1969 and lot of etiologic factors have been discovered since then. In our study, of the seventy seven who did not seem to have any suspected cause before patch testing, eleven (out of twenty four) of them who tested positive benefited from avoidance of antigen. They were classified under known causes therefore we could bring down the number of idiopathic CU to 41.25%. Avoidance of the following positive allergens proved useful in preventing urticaria recurrence: Nickel Sulphate, Cobalt Chloride, Potassium Dichromate, Phenylenediamine, Formaldehyde, Mercaptobenzothiazole, Neomycin, Parthenium and Chlorocresol. Nickel was found positive in three followed by Cobalt in two. Nickel was the most common culprit of contact sensitization in other similar studies too (6, 11, 17). Patients belonging to the idiopathic and physical urticaria group were most difficult to treat and had frequent relapses, which was also observed by Kozel et al. (16).

Management of Chronic urticaria is most perplexing and vexing difficulties faced by any dermatologist and challenging treatment options are available (18). Chronic urticaria affects the quality of life of the patients and can cause disability and distress (19). Fifty percent of cases cure spontaneously by six months, but of those that do not, many still have symptoms of urticaria several years later. More exhaustive work ups with extensive laboratory, technical diagnostics, challenge tests and skin prick testing should be reserved for individual cases following detailed history. And with such state of art investigations the idiopathic cases can properly be diagnosed and treated. Currently, patch test is being used as a diagnostic investigation for urticaria by dermatologists in many parts of the world. A questionnaire based Canadian study (20) showed that only 30% of all dermatologists consider patch test as an important test for chronic urticaria. In India, it is not routinely used for investigation of chronic urticaria. However, it is a safe, simple and inexpensive test that can give an etiological diagnosis of chronic urticaria and needs to be conducted before undertaking more expensive investigations. With the help of patch testing, it was possible to identify and eliminate the cause of urticaria in eleven cases, though not significant it could still bring a reduction in number of idiopathic cases. The decision for conducting patch testing was found to be productive. Patch testing should be included among the routine diagnostic procedures for chronic urticaria.

References

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