

Clinico epidemiological study of chronic idiopathic urticaria and ASST as a diagnostic aid in chronic idiopathic urticaria

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Abstract

Background: About one third of patients with chronic idiopathic urticaria tend to have autoantibodies directed against the alpha subunit of the high affinity IgE receptor (FceRI) or IgE itself. Basophil histamine release assay is currently the gold standard for detecting these functional autoantibodies. Autologous serum skin test (ASST) is a simple in vivo test for the detection of these autoantibodies. **Aims and objectives:** To estimate ASST positivity in patients with chronic idiopathic urticaria and to compare the clinical features of ASST positive patients with ASST negative patients. **Materials and Methods:** ASST was performed in 100 patients of chronic urticaria aged between 18 and 60 years. **Results:** 40% of the patients were ASST positive and 60% were ASST negative. ASST positive patients had higher mean age, longer duration of the disease, higher mean urticaria activity score and absolute eosinophil count. **Conclusions:** ASST is a useful screening test for chronic autoimmune urticaria, which has proven to be a challenge to the treating physician.

Keywords: Urticaria, FceRI, anti IgE autoantibodies, ASST.

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INTRODUCTION

Chronic urticaria has a plethora of clinical presentations and causes. About 25% to 45% of patients have histamine releasing autoantibodies directed against the alpha subunit of the high affinity IgE receptor or IgE receptor or IgE itself and these patients tend to have more severe disease and other associated autoimmune diseases.^{1,2} Diagnosing these patients become important as they need high dose of antihistamines and systemic corticosteroids during acute exacerbations. It is often clinically difficult to distinguish chronic urticaria from autoimmune urticaria. Diagnosis is practically relied upon clinical

suspicion and autologous serum skin test, as facilities for basophil histamine release assay are not available at all centers.

MATERIALS AND METHODS

A total of 100 patients of chronic urticaria were examined. Comprehensive history was taken, clinical examination was carried out and relevant investigations were done. Written informed consent from the patient and ethical committee clearance was taken. ASST was performed after the patients were off antihistamines for 3days, 2weeks for Doxepin and 6weeks to 3months for corticosteroids or immunosuppressive agents.^{3,4,5} Sites of active whealing were avoided.

Inclusion criteria: all cases of chronic urticaria, acceptance of protocol, both sexes, age between 18-60 years.

Exclusion criteria: physical causes of urticaria, food or drug allergy, urticarial vasculitis, pregnant mothers, age less than 18 years and more than 60years, failure to drugs prior to the test. Statistical test used – Two tailed T test.

Method of sample collection: 2ml of blood was drawn from antecubital vein in a plain tube, allowed to clot under room temperature and later centrifuged at a rate of

2000rpm for 10minutes. 0.05 ml of serum is injected intradermally on the volar aspect of the patient’s forearm unaffected by a wheal. Similar amount of normal saline is injected 5cms away from the serum injection site. Wheal and flare responses were measured at 30mins.² A positive test is defined as the serum induced wheal response with a diameter of more than 1.5mm or more than that of the saline induced response at 30mins.

RESULTS

100 patients of chronic urticaria were included in this study. The mean age in the ASST positive group was 34±11.09 and in the ASST negative group was 33.5±10.52.

Table 1: Age distribution of chronic urticaria patients

Age group (years)	ASST		Total
	Positive	Negative	
18 to 27	12 (30%)	15 (25%)	27 (27%)
28 to 37	18 (45%)	25 (41.66%)	43 (43%)
38 to 47	5 (12.5%)	12 (20 %)	17 (17%)
48 to 57	2 (5%)	6 (10%)	8 (8%)
58 to 67	3 (7.5%)	2 (3.33%)	5 (5%)
Total	40 (100%)	60 (100%)	100(100%)

In our study, 40 out of 100 patients showed ASST positivity. Out of 100 patients, 35 were males and 65 were females. The mean disease duration was 23.55±9.49 in the ASST positive and 15.22±9.89 in the ASST negative group. Number of wheals, duration of persistence, intensity of itching and frequency of appearance of lesions were taken as the parameters to assess the disease severity. Each was given a score of 1, 2, 3 and comparison was made between positive and negative groups. Urticaria activity score was calculated by adding the scores for the number of wheals and the score for the intensity of itching. Urticaria activity score (UAS) for ASST positive group was 4.27±1.09 and for negative group 3.9±1.47. 11 out of 100 patients had associated systemic symptoms, out of which 7 were ASST positive and 4 were ASST negative. The mean AEC in the positive group was 233.23±65.66 and in the negative group 169.32±64.1

Table 2: Systemic symptoms in chronic urticaria patients

Systemic symptoms	ASST	
	Positive	Negative
Headache	0	0
Arthralgia	4 (40%)	2 (3.33%)
Abdominal pain	2 (5%)	1 (1.66%)
Belching	0	0
Fever	1 (2.5%)	1 (1.66%)
Breathlessness	0	0
Total	7 (17.5%)	4 (6.67%)

Thyroid function tests were abnormal in 3 ASST positive and 2 ASST negative patients. Of the 100 patients, 16

ASST positive patients and 20 ASST negative patients had history of angioedema.

DISCUSSION

The gold standard test for autoimmune chronic urticaria is the demonstration and measurement of histamine release from target basophils. However, the test is time consuming and available only in research centers. In the present study, evaluation of patients of chronic idiopathic urticaria and comparison of the clinical features of patients with ASST positive and ASST negative results has been made. The ASST positivity of 40% in our patients is comparable with the 39.6% to 46% reported previously.^{7,8,9} Females were higher in number as compared to males and ASST positivity was also higher in females. The higher ASST positivity in females (75%) than in males (25%) has been seen in other studies too.⁶ The UAS of 4.22+1.09 and 3.9+1.47 in the ASST positive and ASST negative group was comparable to that of study by Zeinab Abdel Azim *et al.* of the 100 patients 40% of the ASST positive patients and 33% of the ASST negative patients had history of angioedema. Similar findings have been recorded previously.⁸ In a study done by Juhlin¹⁰ ASST positive patients had significantly more systemic symptoms compared to ASST negative patients, our study did not show any such association. A study by Noemi Bakos *et al*¹¹ found association between autoimmune urticaria and autoimmune thyroiditis. However in contrast to this, George *et al*¹² and our study did not reveal any such association. The mean AEC in our study was higher in ASST positive group compared to ASST negative group. This is comparable to study by Zeinab Abdel Azim *et al*⁸, which showed similar result. In contrast to this study by M Abd EL Azim *et al*⁷ showed higher value in ASST negative group. A positive history of atopy was present in 12.5% of ASST positive and 5% of ASST negative patients, but the study by Bajaj *et al*¹³ showed higher incidence of atopy in both the groups.

CONCLUSION

ASST is a useful screening test for chronic autoimmune urticaria, which has proven to be a challenge to the treating physician. ASST is a simple, inexpensive test where results can be obtained within 30mins and it helps in determining the origin of chronic idiopathic urticaria, thereby helping the dermatologist to initiate immunosuppressive therapy in these cases.

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