

Comparison of clinical features with positive and negative autologous serum skin test in chronic idiopathic urticaria

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Abstract

Background: Urticaria is commonly encountered in dermatology OPD. Chronic urticaria has some underlying pathology. The clinical history is most important when attempting to identify potential causes. **Aim and Objective:** To compare the clinical features of patients having positive ASST with those having negative ASST in Chronic Idiopathic Urticaria. **Methodology:** A total of 60 patients of chronic idiopathic urticaria were enrolled in the study. All sixty of them completed the study. Detailed history was taken and clinical examination was done. ASST performed and patients studied for clinical features in ASST positive (group A) and ASST negative (Group B). **Results and Discussion:** There were 31 males and 29 females. Maximum patients belonged to the age group of 30-40 years. Maximum patients presented with the complaints of itching and wheals (88.33%) others (11.67%) had history of angioedema along with itching and wheals. Out of 60 patients, 40 patients (66.7%) were ASST negative and 20 patients (33.3%) were ASST positive

Key Words: chronic idiopathic urticaria.

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Received Date: 17/08/2018 Revised Date: 12/09/2018 Accepted Date: 03/10/2018

DOI: <https://doi.org/10.26611/10218112>

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| Quick Response Code: | Website: www.medpulse.in |
|  | Accessed Date: 06 October 2018 |

INTRODUCTION

Urticaria (hives) consists of erythematous, oedematous papules or 'wheals' These wheals vary in size from 1 mm to many centimeters. Urticaria is a common condition with a lifetime incidence of approximately 15%. Females are affected more often than males. Both children and adults may develop urticaria, with the peak age of onset in adults being between 20 and 40 years. Urticaria presents as acute and chronic urticaria. In acute one most cases of urticaria are self-limited and of short duration;

the eruption rarely lasts more than several days, it but may be recurrent over weeks. Chronic urticaria is defined as urticaria with recurrent episodes lasting longer than 6 weeks. Chronic urticaria is classified according to whether it is inducible or not into chronic spontaneous urticaria or chronic inducible urticaria. Chronic spontaneous urticaria may be due to known (e.g. autoantibodies) or unknown causes. Urticaria is mediated by mast cell degranulation. Mast cells can be activated by immunologic and non-immunologic mechanisms, which lead to degranulation of inflammatory mediators including histamine, leukotrienes, and prostaglandins. Release of these mediators causes the characteristic pruritus, vascular permeability, and edema. Patients suffering from chronic urticaria are considered more difficult to satisfy, treat and to have a bigger emotional burden than the average patient in dermatology. The intradermal injection of autologous serum causes a wheal-and-flare reaction in many patients with CIU and this reaction forms the basis of the autologous serum skin test (ASST).¹

MATERIAL AND METHODS

The study was conducted in the outpatient (OPD) department of Dermatology of a tertiary care centre. Patients above 18 years having urticaria for more than 6 weeks with no identified cause attending the outpatient department were enrolled.

Inclusion Criteria

1. Patients above the age of 18yrs
2. Patients having daily or almost daily episodes of urticarial wheals > 6 weeks
3. Patient is willing to be part of study after informed consent

Exclusion Criteria

1. Patients having physical urticaria.
2. Patients having food allergy and urticaria of known cause.
3. Patients having positive ANA test.
4. Patients having raised serum IgE levels.
5. Pregnant women and lactating mothers.
6. Immunocompromised patients
7. Patients on immunosuppressive drugs.

Total 60 patients were studied after applying inclusion and exclusion criteria. The study design was approved by the Institutional Ethics Review Committee (IERC). Written informed consent was obtained from each subject prior to enrolling in the study. Physical urticaria, food and drug allergies as well as urticarial vasculitis were ruled out after taking detailed history and appropriate provocation tests. All the patients were subjected to complete blood count, ESR, blood sugar tests, liver function tests, renal function tests, serum IgE levels, thyroid function tests and ANA. Clinical details of all patients were recorded using attached proforma. Data was collected with pretested questionnaire. Data included details pertaining to the history of onset and progress of lesions, family history of similar complaints, investigation done if any, treatment taken in past and their response to treatment were recorded as per the proforma. Also the clinical features such as site, severity of itching, size of wheals and number of wheals and results of investigations were noted. In all patients, long acting antihistamines were withdrawn 7 days prior and for short acting 2 days prior to ASST. ASST was considered to be positive if a serum induced wheal was both erythematous and had a diameter bigger than the saline induced response by > 1.5 mm seen at the end of 30 minutes². ASST positive patients were grouped in group A and ASST negative were grouped in group B. Clinical features of patients in these groups were compared on the basis of history and clinical examination. Data was analysed using appropriate statistical tests.

RESULTS

A total of 60 patients with chronic idiopathic urticaria who fulfilled the inclusion criteria were selected.

Table 1: Distribution of patients according to age and sex

| Age | Sex | | Total |
|--------------------|---------------------|---------------------|----------------------|
| | Male | Female | |
| Less than 20 Years | 2 40.0% | 3 60.0% | 5 100.0% |
| 20-30 Years | 6 37.5% | 10 62.5% | 16 100.0% |
| 30-40 Years | 12 60.0% | 8 40.0% | 20 100.0% |
| 40-50 Years | 4 36.4% | 7 63.6% | 11 100.0% |
| 50 Years and above | 7 87.5% | 1 12.5% | 8 100.0% |
| Total | 31 51.7% | 29 48.3% | 60 100.0% |

The mean age of patients in the study was 38.87±3.6 years. Most of the patients, 20 out of 60 (33.33%) were in age group of 30 years to 40 years. This was followed by 16 patients (26.67%) in age group of 20 years to 30 years, 11 patients (18.33%) in 40 years to 50 years, 8 patients (13.33%) in above 50 years and 5 patients (8.33%) in less than 20 years age group respectively (table 1) Out of the total patients in our study, 31 out of 60 (51.7%) were males and 29 out of 60 (48.3%) were females. Maximum number of males, 12 out of 31 (38.70%) were in 30 years to 40 years age group while maximum number of females, 10 out of 29 (34.48%) were in 20 years to 30 years age group.

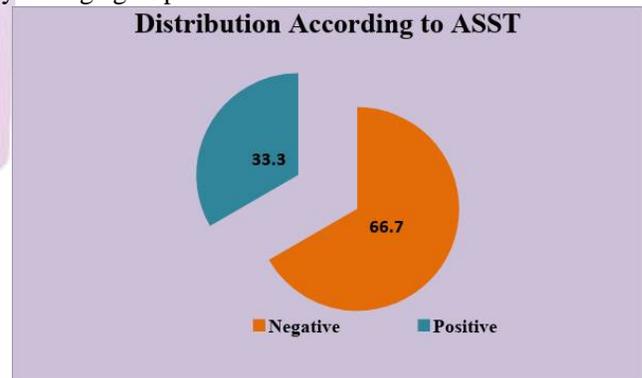


Figure 1: Distribution of patients according to ASST.

Out of 60 patients, 40 patients (66.7%) were ASST negative and out of 60 patients 20 patients (33.3%) were ASST positive. (fig 1)

Table 2: Distribution of patients according to chief complaints

| Chief Complaint | No. of Cases | Percentage |
|--------------------------------|--------------|----------------|
| Itching and wheals | 53 | 88.33% |
| Itching, wheals and angioedema | 7 | 11.67% |
| Total | 60 | 100.00% |

In our study 53 (88.33%) out of 60 patients presented with itching and wheals as their chief complaints and 7 (11.67%) out of 60 were having history of angioedema along with itching and wheals. (table2)

Table 3: Distribution of patients According to age and ASST

| Age (in Years) | ASST | | Total |
|----------------|--------------------|--------------------|------------------|
| | Positive | Negative | |
| Less than 20 | 3 (5%) | 2 (3.3) | 5 (8.33%) |
| 21-30 | 6 (10%) | 10 (16.67%) | 16 (26.67) |
| 31-40 | 7 (11.67%) | 13 (12.67%) | 20 (33.33%) |
| 41-50 | 2 (3.33%) | 9 (15%) | 11 (18.33%) |
| Above 50 | 2 (3.33%) | 6 (10%) | 8 (13.33%) |
| Total | 20 (33.33%) | 40 (67.67%) | 60 (100%) |

Table 4: Descriptive Statistics for Age (in Years)

| ASST | N | Mean Age (Years) | SD | SE Mean | t-Stat | P-value | Significance |
|---------------|----|------------------|--------|---------|--------|----------|-----------------|
| ASST Positive | 20 | 33.450 | 11.678 | 2.611 | 1.53 | p > 0.05 | Not Significant |
| ASST Negative | 40 | 38.300 | 11.523 | 1.822 | | | |

The mean age in patients with positive ASST was 33.45 years (SD± 11.67) and the mean age in patients with negative ASST was 38.3 years (SD± 11.52). The difference in mean age of patients with positive and negative ASST was not statistically significant using unpaired t test (p value > 0.05).(table 4).

Table 5: Distribution of patients According to Gender and ASST

| Sex | ASST | | Total |
|--------------|-----------|-----------|-----------|
| | Positive | Negative | |
| Male | 8 | 23 | 31 |
| Female | 12 | 17 | 29 |
| Total | 20 | 40 | 60 |

In our study there were 12 (60%) females and 8 (40%) males out of 20 positive ASST patients while there were 17 (42.5%) females and 23 (57.5%) males out of 40 negative ASST patients.(table 5)

Table 6: Distribution of patients According to Duration of Illness and ASST

| Duration of Illness (Wheals) | No. of Patients | | Total |
|------------------------------|-----------------|---------------|-----------|
| | ASST Positive | ASST Negative | |
| < 1year | 16 | 15 | 31 |
| 1 to 2 year | 3 | 11 | 14 |
| 2 to 3 year | 0 | 4 | 4 |
| 3 to 4 year | 0 | 1 | 1 |
| 4 to 5 year | 0 | 3 | 3 |
| > 5 year | 1 | 6 | 7 |
| Total | 20 | 40 | 60 |

In our study among the positive ASST patients, most of the patients 16 (85%) out of 20 patients were having urticaria of less than 1 year duration, followed by 3 (15%) patients having urticaria of 1year to 2 years duration and 1 (5%) patient with urticaria more than 5 years respectively. Among the negative ASST patients, most of the patients 15 (37.5%) out of 40 patients were having

In our study maximum number of patients with positive ASST, 7 (11.67%) out of 20 were in 30 years to 40 years age group followed by 6 (10%) in 20 years to 30 years age group, 3 (5%) in 18 years to 20 years age group and 2 (3.33%) each in 40 years to 50 years age group and above 50 years age group respectively. The maximum number of patients with negative ASST, 13 (12.67%) out of 40 were in 30 years to 40 years age group followed by 10 (16.67%) in 20 years to 30 years age group,9 (15%) in 40 years to 50 years age group, 6 (10%) in above 50 age group and 2 (3.3%) were in 18 years to 20 years age group respectively.(table 3)

urticaria of less than 1 year duration, followed by 11(27.5%) patients having urticaria of 1 year to 2 year duration and 1 (2.5%) patients was having urticaria of 3 years to 4 years duration. (table6) In our study the mean value of duration of illness (urticaria) in positive ASST patients was 4.3 years (SD± 4.001) and in in patients with negative ASST was 5.6 years (SD± 4.008) respectively. The difference in the duration of illness in positive and negative ASST patients was not significant using unpaired t test (p > 0.05).

Table 7: Comparison of Duration of Attacks (hours) according to ASST

| ASST | N | Mean | SD | SE Mean | t-stat | p-value |
|----------|----|--------|---------|---------|--------|-----------|
| Positive | 20 | 4.1000 | 1.20961 | .27048 | 7.913 | < 0.001** |
| Negative | 40 | 2.1250 | .72280 | .11428 | | |

** : Significant at 1 % level of Significance

The mean value of duration of attacks in patients with positive ASST was 4.10 hours (SD ± 1.20) and the mean value of duration of attacks in patients with negative ASST was 2.12 hours (SD ± 0.72). The difference in the mean value of duration of attacks in ASST positive and ASST negative group using unpaired t test was statistically significant (p< 0.001). The mean value of duration of attacks was more in ASST positive patients as compared to ASST negative patients.(table 7)

DISCUSSION

In present study, the mean age of the patients was 38.87±3.6 years. Most of patients 11.57 % in ASST positive and 12.67 % in ASST negative group were between 30 years to 40 years age group in both ASST positive and ASST negative patients. There was no significant difference in age distribution among the

patients with positive ASST and negative ASST in parlance with earlier studies done by Mamatha G³. In the present study, 31 out of 60 patients (51.7%) were males and 29 (48.3%) were females. Thus, the male to female ratio was almost equal 1.06. The study done by Vohra S *et al* in 2011, showed female preponderance⁴. Also study done by Caproni M *et al* had female to male ratio of 2.09: 1⁵. The proportion of patients with CIU who showed a positive reaction to ASST was 33.33%, which is comparable with earlier reports¹. Sabroe *et al.* found evidence of functional autoantibodies against FcεRIα in 31% of 107 patients with chronic urticaria⁽⁶⁾. Mamatha G *et al* found ASST positive in 34% of 100 patients with chronic idiopathic urticaria³. Also study done by Nettis *et al* in 2002 reported 41.2% of 102 showed wheal and flare response. Caproni *et al* found ASST positive in 33% of patients.⁷ Zweiman *et al.* reported basophil histamine releasing activity in 30% of 70 chronic urticaria sera⁸. While Tong *et al.* found that 52% of 50 chronic urticaria patients had autoimmune urticaria⁹. In our study 53(88.33%) out of 60 patients presented with itching and wheals as their chief complaints and 7 (11.67%) out of 60 were having history of angioedema along with itching and wheals. In a similar study done by Sabroe *et al.* angioedema occurred in 93 (86.91%) out of 107 cases⁶. Angioedema occurred in 15 of 100 patients in a study done by Mamatha G *et al*³. In both the studies, there was no significant difference between ASST-positive or -negative patients in the incidence, duration, frequency or distribution of angioedema as in present study. In our study the mean duration of illness (years) in ASST positive patient was 4.3 years and the mean duration of illness in ASST negative patients was 5.6 years which was statistically not significant ($p > 0.05$) which was in parlance with other studies. Similar findings were seen in the study done by Mamatha G *et al*³. Also, in a study done by Sabroe *et al.*, there was no statistically significant difference in the duration of urticaria in both ASST positive and negative groups⁶. The mean value of duration of attacks (hours) in patients with positive ASST was 4.10 hours and in patients with negative ASST was 2.12 hours. The difference in the mean value of duration of attacks in ASST positive and ASST negative group using unpaired t test was statistically significant ($p < 0.001$). The mean value of duration of attacks was more in ASST positive patients as compared to ASST negative patients. Staubach *et al* observed that the median duration of urticaria was little longer in ASST positive patients compared to ASST negative patients¹⁰. Mamatha G *et al*

also noted long-lasting episodes of urticaria in ASST-positive patients as compared to ASST negative patients as in our study³. However, Sabroe *et al* in one study found that the wheals in ASST positive patients lasted for shorter duration as compared to ASST negative patients⁶.

CONCLUSION

The patients with positive ASST test have more severe urticaria compared to patients with negative ASST.

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Source of Support: None Declared
Conflict of Interest: None Declared