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Original Article

Efficacy of Autologous Serum with Antihistamine Therapy in the Treatment of Chronic Urticaria

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ABSTRACT

Objective: To compare the efficacy of autologous serum with Antihistamine therapy in treating chronic urticaria.
Study Design: Quasi-experimental study.
Place and Duration of Study: Dermatology Department, Pak Emirate Military Hospital, Rawalpindi Pakistan, from Jul 2018 to Jan 2019.
Methodology: One hundred four patients of chronic urticaria (≥3 times/ week for ≥6 weeks) with ages ranging from 16 to 70 years were assigned the treatment groups using a lottery method. i.e., Group-A (autologous serum therapy) and Group-B (Antihistamine therapy). During the eight weeks of therapy, weekly Urticaria Activity Scoring (UAS-7) was utilized to quantify response in terms of the number of weals and pruritus.
Results: Of 104 patients, 75(72.12%) were females, and 29(27.88%) were males. Sixty-nine patients were between 18 to 35 years of age, with a mean age of 37.79±10.15 years in Group-A and 38.04±10.98 years in Group-B. Efficacy of Group-A (autologous serum therapy) was seen in 40(76.92%) patients while in Group-B (Antihistamine therapy) it was seen in 25(48.08%) patients (*p*-value =0.002).
Conclusion: Autologous serum therapy is more effective than Antihistamine therapy in treating chronic urticaria.

Keywords: Autologous serum skin test, Autologous serum therapy, Chronic urticaria.

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INTRODUCTION

Urticaria (also known as nettle rash) is a reaction pattern that shows mast cell degranulation, leading to extravasation of plasma into the dermis, resulting in distinctive hives, edematous pruritic pink weals of varying size and shape, with or without angioedema.[1,2] The disorder is considered chronic if the lesions reappear for more than 6 weeks.[3] Chronic urticaria (CU) frequently occurs in women and men, with a peak incidence in those aged 20–40 years.[4,5]

In chronic urticaria, antihistamines are considered first-line therapy.[6] The release of histamine into the dermis is responsible for intense pruritus in urticaria.[7] In addition to relieving itching, the Antihistamines reduce the number, size, and duration of urticaria. Antihistamines should be used daily rather than as needed. Second-generation Antihistamines are the most commonly used Antihis-tamines, which help reduce urticaria for a short time.[8] As a result, the need of the hour is to find a treatment method that can give long-term comfort. According to one research, Antihistamines helped 44.6% of CU sufferers.[9]

Autologous serum therapy (AST) containing antibodies against degranulating mast cell antigens is a promising treatment for CU sufferers. It contributes to a decrease in pill load and an increase in quality of life. In 30-60% of CU patients, circulating autoantibodies were detected. AST works by express-ing the antibodies against the high-affinity receptor for IgE (anti-FcRI) of mast cells or IgE (anti-IgE). AST was found to be effective in 60.7% of CU patients.[10]

There needs to be more data on this subject in our local population. This prompted us to compare the efficacy of AST with Antihistamines in the treatment of CU in our community. The outcome of our study will aid in selecting the best CU treatment.

METHODOLOGY

This study was carried out at the Dermatology department, Pak Emirates Military Hospital Rawalpindi Pakistan, from July 2018-January 2019. Ethical approval (A/28) was taken from Hospital Ethical Committee before the start of our study. The sample size was calculated using the WHO calculator by taking p1=60.7%10 and p2=44.6%.[11] The non-probability, consecutive sampling technique was used to select the patients.

Inclusion Criteria: Patients of either gender, aged 16-70 years with chronic urticaria (≥3 times/week) for ≥6 weeks were included in the study.

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Exclusion Criteria: Patients with a history of systemic steroids and immunosuppressants use in the past four weeks, hypersensitivity and intolerance to cetirizine, pregnant females or patients who are unable to follow were excluded from the study.

Informed consent was taken from all patients, and by using a lottery system, patients were assigned to one of two therapy groups. i.e., Group-A (Autologous Serum-Group) and Group-B (Antihis-tamine-Group). Each group ended up with 52 patients.

In Group-A, 5mL of venous blood was drawn and kept in an un-heparinized plastic tube to make it clot at room temperature. The sample was centrifuged at 2000 revolutions per minute for 10 minutes to extract the serum. Then, a 22G needle was injected 0.05ml/kg of the patient's serum deep intramuscularly in the gluteal region. AST is given once weekly for a total of 8 weeks.

In Group-B, the oral Antihistamine Cetirizine 10mg was given once daily for eight weeks. In addition, doctors used weekly Urticaria Activity Scoring (UAS-7) to measure response in relation to several weals and pruritus for clinical results. On a specially constructed proforma, a baseline and weekly assessment were done over eight weeks of therapy.

Data, including demographic data and response to treatment, was recorded on proforma. Statistical Package for Social Sciences (SPSS) version 22.0 was used for the data analysis. The proportions of both categories were compared in the analysis. For qualitative variables such as gender and efficacy, frequency and percentage were calculated. For quantitative data such as age and disease duration, mean and standard deviation were used. To compare the efficacy of both groups, the Chi-square test was used, with p ≤0.05 taken as significant.

RESULTS

A total of 104 patients were included in the study with the age ranged from 16-70 years, and mean age of 37.86±10.53 years. Patient baseline characteristics were shown in Table-I.

The efficacy of Group-A (autologous serum) was seen in 40(76.92%) patients, while Group-B (Antihistamine therapy) was seen in 25(48.08%) patients (*p*-value=0.002). The Association of efficacy with respect to age groups, gender, disease duration and the number of weals was shown in Table-II.

Table-I: Baseline Characteristics (n=104)

Characteristics	Group-A (n=52)	Group-B (n=52)
Age (years)		
Mean±SD	37.79±10.15	37.86±10.53
16-40 years	33 (63.46%)	36 (69.23%)
41-70 years	19 (36.54%)	16 (30.77%)
Duration of Disease (weeks)		
Mean±SD	9.83±2.49	9.71±2.00
6-9 weeks	30 (57.69%)	30 (57.69%)
>9 weeks	22 (42.31%)	22 (42.31%)
Number of Weals		
Mean±SD	32.90±16.37	32.58±16.60
≤50	39 (75.00%)	40 (76.92%)
>50	13 (25.00%)	12 (23.08%)

Table-II: Overall Efficacy (n=104)

Characteristics	Group-A (n=52)		Group-B (n=52)		*p*-value
	Efficacy		Efficacy		
	Yes	No	Yes	No	
Overall	40(76.92%)	12(23.08%)	25(48.08%)	27(51.92%)	0.002
Gender					
Male	10(19.23%)	05(9.6%)	08(15.38%)	06(11.53%)	0.597
Female	30(57.69%)	07(13.46%)	17(32.69%)	21(40.38%)	0.001
Age (years)					
16-40	25(48.07%)	08(15.38%)	18(34.61%)	18(34.61%)	0.027
41-70	15(28.86%)	04(7.60%)	07(13.46%)	09(17.30%)	0.032
Duration	26(50%)	04(7.69%)	13(25%)	17(32.69%)	0.001
Disease	14(26.92%)	08(15.38%)	12(23.07%)	10(19.23%)	0.540
Number of Weals					
≤50	30(57.69%)	09(17.30%)	20(38.46%)	20(38.46%)	0.013
>50	10(19.23%)	03(5.76%)	05(9.61%)	07(13.46%)	0.072

DISCUSSION

Chronic urticaria progresses in an unpredictable, relentless manner. Patients of chronic urticaria experience morbidity due to irritating itch and weals, as well as a high Antihistamine pill burden.[11] Patients are constantly worried about this temperamental condition, which waxes and wanes and impairs the quality of life.[12] Many trials are conducted to compare the efficacy of various second-generation Antihista-mines used as first-line treatment for chronic urticaria.[13] However, Antihistamines' effectiveness is limited throughout their use. Therefore, developing a therapeutic technique that might provide long-term relief while minimizing pill load is a pressing necessity.[14]

In numerous autoimmune illnesses, autologous serum containing antibodies against mast cell antigens has been used to remit the disease. Therefore, the short-term, non-randomized study was performed to assess the efficacy of autologous serum given to patients having chronic urticaria.[15]

In our study, the efficacy of Group-A (autologous serum) was seen in 40(76.92%) patients, while in

Group-B (Antihistamine therapy) was seen in 25 (48.08%) patients (*p*-value=0.002). Cherrez Ojeda et al. conducted a retrospective study (2005-2016) and found that 44.6% of patients of CU responded to Antihistamines solely.[7]

It was assumed that the AST likely mode of action is similar to anti-idiotypes which were found to be responsible for limiting disease-inducing antibodies in the case of pemphigus and changing the Th2 response to Th1 in ASST (+) patients.[15-17]

Aruna *et al*. included 61 autoimmune urticaria patients to check for the effectiveness of autologous serum injections given weekly for eight weeks, with a 12-week follow-up period after the intervention. They concluded that 16.4% of patients had an excellent response to autologous serum treatment, 55.7% had a moderate to acceptable response, and the remaining 27.9% responded poorly. 15.9% [out of 72] of the responders relapsed after 12 weeks of follow-up.[10]

In 2020, Talwar *et al*. concluded after a study of 106 patients that there was a significant improvement in urticarial activity score in both patients from the baseline and at nine weeks. (UAS reduced from 15.3 to 10.8 in ASST-positive patients, and in ASST-negative patients, UAS decreased from 16.2 to 10.1).[18] In an autologous serum skin test ASST(+) CU, auto-haemotherapy was found to be beneficial by Staubach *et al*.[19] This therapy was also found to be beneficial to the smaller yet significant number of ASST (-) patients.

CONCLUSION

This study concluded that autologous serum therapy is better at treating chronic urticaria than Antihistamine therapy. Therefore, we recommend that autologous serum therapy be used to treat chronic urticaria to improve patients' quality of life and emotional well-being.

Conflict of Interest: None.

Author's Contribution

Following authors have made substantial contributions to the manuscript as under:

SSN: Data acquisition, data analysis, data interpretation, critical review, approval of the final version to be published.

SM: Conception, study design, drafting the manuscript, approval of the final version to be published.

AA & NA: Critical review, drafting the manuscript, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy integrityof any part of the work are appropriately investigated and resolved.

REFERENCES

1. Al-Hamamy HR, Hameed AF, Abdulhadi AS. Autologous serum skin test as a diagnostic aid in chronic idiopathic urti-caria. ISRN Dermatol 2013; 2013(1): 291524. doi: 10.1155/2013 /295645641524.
2. Abolnezhadian F, Alyasin S, Amin R, Babaei M. The Effect of Autologous Serum Therapy on Disease Severity in Patients with Chronic Urticaria. Iran J Allergy Asthma Immunol 2016; 15(4): 328-333.
3. Debbarman P, Sil A, Datta PK, Bandyopadhyay D, Das NK. Autologous serum therapy in chronic urticaria: promising complement to antihistamines. Indian J Dermatol. 2014; 59(4): 375–382.
4. Kasperska-Zajac A, Jasinska T, Grzanka A, Kowalik-Sztylc A. Markers of systemic inflammation in delayed pressure urticaria: Markers of systemic inflammation in DPU. Int J Dermatol 2013; 52(3): 309–310. doi:10.1111/j.1365-4632.2011.05330.x
5. Konstantinou GN, Asero R, Maurer M, Sabroe RA, Schmid-Grendelmeier P, Grattan CE. EAACI/GA(2)LEN task force consensus report: the autologous serum skin test in urticaria. Aller-gy 2009; 64(9): 1256-1268. doi: 10.1111/j.1398-9995.2009. 02132.x.
6. Konstantinou GN, Asero R, Ferrer M, Knol EF, Maurer M, Raap U, et al. EAACI taskforce position paper: evidence for autoim-mune urticaria and proposal for defining diagnostic criteria. Allergy 2013; 68(1): 27-36. doi: 10.1111/all.12056.
7. Cherrez Ojeda I, Vanegas E, Felix M, Mata V, Cherrez S, Simancas-Racines D, et al. Etiology of chronic urticaria: the Ecuadorian experience. World Allergy Organ J 2018; 11(1): 1.
8. Lima H, Gooderham M, Dutz J, Lynde C, Chapdelaine H, Ellis A, et al. Management of chronic spontaneous urticaria (CSU): a treat to target approach using a patient reported outcome. Allergy Asthma Clin Immunol 2017; 13: 38. doi: 10.1186/s13223-017-0210-0.
9. Cornillier H, Giraudeau B, Samimi M, Munck S, Hacard F, Jonville-Bera AP, et al. Effect of diet in chronic spontaneous urticaria: A systematic review. Acta Derm Venereol 2019; 99(2): 127-132. doi: 10.2340/00015555-3015
10. Aruna C, Senthil Kumar AL, Ramamurthy DVS, Sridevi K, Kameti S, Naga ST. Efficacy of Autologus serum therapy in patients with chronic autoimmune urticaria: A prospective, open label study conducted in a tertiary care centre, India. J Pak Assoc Dermatol 2017; 27(3): 238-242
11. Karn D, Kc S. Clinical Outcome of Autologous Serum Therapy in Chronic Idiopathic Urticaria. J Nepal Health Res Counc 2017; 15(1): 71-74. doi: 10.3126/jnhrc.v15i1.18018.
12. Park GH, Choi JH, Kim S, Bae Y. The Relation of Autologous Serum Skin Test and Autologous Plasma Skin Test Result with Various Clinical and Laboratory Findings in Patients with Chronic Spontaneous Urticaria. Ann Dermatol 2020; 32(4): 280-288. doi: 10.5021/ad.2020.32.4.280.
13. Rather S, Keen A, Sajad P. Serum Levels of 25-hydroxyvitamin D in Chronic Urticaria and its Association with Disease Activity: A Case Control Study. Indian Dermatol Online J 2018; 9(3): 170-174. doi: 10.4103/idoj.IDOJ_74_17.
14. Ghiasi M, Mehdizadeh M, Hamidieh AA (2021) A novel injection for chronic urticaria by autologous serum derived whole blood. J Comm Med Public Health Rep 2021; 2(11). 120-125. doi:10.38207/JCMPHR/2021/0211208.
15. Patil S, Sharma N, Godse K. Autologous serum therapy in chronic urticaria. Indian J Dermatol.2013; 58(3): 225-226. doi: 10.4103/0019-5154.110833.
16. Nageswaramma S, Lakshmi Sarojini V, Bhavani Pujitha B, Sirisha G, Suma Bindu G. Efficacy of autologous serum therapy in chronic urticaria. Int J Contemp Med Res 2017; 4(1): 110-112
17. Surendran K, Nanjundaswamy B, Sathish S, Bangaru H, Kudari S. Autologous serum therapy in chronic urticaria. Indian J Clin Exp Dermatol 2019; 5(4): 275–279. doi:10.18231/j.ijced.2019.059.
18. Talwar V, Bhaskar P. Autologous serum therapy in chronic spontaneous urticaria: useful in both ASST positive and negative patients. Int J Res Dermatol 2022; 8(2): 224-227. doi:10.18203/issn.2455-4529.
19. Staubach P, Onnen K, Vonend A, Metz M, Siebenhaar F, Tschentscher I, et al. Autologous whole blood injections to patients with chronic urticaria and a positive autologous serum skin test: a placebo-controlled trial. Dermatology 2006; 212(2): 150-159. doi: 10.1159/000090656.