

## Autologous Serum Therapy in the Management of Chronic Idiopathic Urticaria, Does It Really Work? A Case Report

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### ABSTRACT

*A Chronic idiopathic urticaria (CIU) is a troublesome condition which affect the patient's quality of life adversely. Conventional treatment of this condition comprises of antihistamines, steroids and sometimes monoclonal antibodies with varying degree of outcomes. Recently, autologous blood and serum used by some researcher to treat CIU with promising result. Here we present a case of chronic idiopathic urticaria that was treated successfully with autologous serum in Bangladesh.*

**Keywords:** Chronic Idiopathic Urticaria, Autologous Serum therapy, Autohemotherapy.

### Introduction:

Urticaria is an allergic skin disorder characterized by itchy, erythematous, well circumscribed bump on the skin. It is classified as acute and chronic. Urticaria persisting daily for more than six weeks is termed as chronic urticaria which can last for months to years and can significantly compromises patient's quality of life.<sup>1</sup> Chronic urticaria may be inducible (cholinergic urticaria, pressure urticaria, etc.) or may be secondary to an underlying condition or it may be

idiopathic. Among them chronic idiopathic urticaria (CIU) which sometimes termed as chronic spontaneous urticaria is the largest subset comprising 78-80% of total chronic urticaria patients.

A significant portion of these chronic spontaneous urticaria patients may have underlying autoimmune pathology but for the rest, no definitive cause could be found (hence termed idiopathic).<sup>2</sup> Conventional management of such patients include anti-H1

antihistamines, leukotriene antagonist, systemic corticosteroids, and sometimes monoclonal antibodies like Omalizumab. Maurer M et al reported that only half and sometime less patients who suffered from CIU responded with complete control of symptoms to licenced doses of anti-H1 antihistamines.<sup>3</sup> In the context of this reality several recent research showed promising result in case of CIU with autologous serum therapy.

Interest in this somewhat new modality sparked when Staubach et al reported significantly reduced chronic urticarial activity and improved quality of life following intramuscular administration of autologous whole blood (AWB) in patients whose autologous serum skin tests were positive.<sup>4</sup> Later some researchers suggested that autologous serum is better than autologous whole blood as circulating autoreactive factors which are present in serum are not present in blood and it is less painful to inject.<sup>5</sup> Against this background, here we present a chronic urticaria patient who was successfully treated with autologous serum.

### Case report:

A 56-year-old married, non-diabetic, normotensive, post-menopausal (not on hormone replacement therapy) woman visited to Dermatology OPD of Bashundhara Ad-din Medical College Hospital with the complaints of itching and wheals in whole body for the last 2 years. It started ambiguously in upper limbs and torso at first and was treated by a local physician with antihistamine medication. Though the symptoms initially subsided it reappeared within two weeks when the medication was discontinued. Eventually the intensity of the itching and wheals increased over the next few months, persisting most of the days and to control that, she needed different antihistamine in increased doses and systemic corticosteroids. Her symptoms never completely disappeared, and she noticed no aggravation of her symptoms with heat, cold or sun exposure. Also, she noticed no specific aggravating factor or seasonal variation. She had no history of taking NSAID or

other medication except occasional omeprazole. On physical examination she was found overweight with BMI 29 and her vital parameters were within normal limit. The wheals seemed to present all over the body, with various shapes and sizes but mostly annular, erythematous with central pallor with no pigmentation of any wheals after its disappearance and there was no angioedema. The urticarial activity score (Table I) was 28. There was no evidence of bacterial or fungal skin infection or hepatic impairment. On query patient denied persisting of any wheals more than 24 hours and the presence of such disease in her family members. She had no other skin disorder except some scratch mark and no history of psychiatric disorder or taking of antipsychotic drug. Complete blood count, erythrocyte sedimentation rate, fasting blood sugar, and thyroid function tests were done which revealed normal parameters. Based on history and clinical findings patient was diagnosed as a case of chronic idiopathic urticaria. As she had been taking antihistamine and steroid for a long time, she was counselled about autologous serum therapy to which she agreed.

The 'Urticaria Activity Score'(UAS) was the tool used for patient's assessment regarding the severity of the condition. Before starting the treatment, the cumulative score of a week reported by the patient was as follows:

**Table I:** Urticaria Activity Score (UAS) of the patient before starting Autologous serum therapy.

Weekdays	Wheals	Itch	Total score
Wednesday [13.10.21]	2	3	
Thursday [14.10.21]	2	2	
Friday [15.10.21]	2	2	
Saturday [16.10.21]	1	2	
Sunday [17.10.21]	1	2	
Monday [18.10.21]	0	1	
Tuesday [19.10.21]	0	2	
Total score	8	14	22

*UAS ≤6 may be evaluated as well controlled, 7-15 as mild, 16-27 as moderate and 28-42 as severe urticaria*

Preparation of autologous serum: 4 ml of patient's blood was collected in a sterile tube with clot activator. After 10 minutes of collection the tube was centrifuged @ 3000 rpm for 10 minutes. 2 ml of serum was collected with a sterile 5 cc syringe.



**Figure 1:** Instruments used in the Autologous Serum Therapy procedure.

**Administration:** Prepared injection was given deep intramuscularly and repeated every week for 8 weeks.

**Outcome:** There was gradual decrease of symptoms over the course of treatment with simultaneous decrease of doses of antihistamines. After completion of treatment, the urticaria activity score of the patient was 2 with no need of antihistamine, which is demonstrated in Table II.

**Table II:** Urticaria Activity Score (UAS) following completion of 8-week therapy.

Weekdays	Wheals	Itch	Total score
Wednesday [29.12.21]	0	1	
Thursday [30.12.21]	0	1	
Friday [31.12.21]	0	0	
Saturday [1.01.22]	0	0	
Sunday [2.01.22]	0	0	
Monday [3.01.22]	0	0	
Tuesday [4.01.22]	0	0	
Total score	0	2	2

*UAS ≤6 may be evaluated as well controlled, 7-15 as mild, 16-27 as moderate and 28-42 as severe urticaria*

At six months follow up, patient was still symptom free with no need of antihistamine.

**Adverse event:** There was no adverse event reported by the patient during or after the treatment.

### Discussion:

The mast cell degranulation plays the key role in developing urticaria but what triggers the mast cells in chronic idiopathic urticaria is still a mystery. One hypothesis is that autoantibodies encompassing either IgG autoantibodies to the alpha subunit of Fc portion of IgE molecule (35-40% patient of chronic urticarial) or less commonly, anti-IgE autoantibodies (5-10% of patients with chronic urticaria), both of which can activate mast cell or basophil to release histamine.<sup>6</sup> Mast cell may also be degranulated through an IgE- and IgG-dependent mechanism in chronic urticaria.<sup>7</sup>

How the autologous serum therapy or autologous whole blood therapy, which can be called autohemotherapy altogether, apparently effective in treating chronic idiopathic urticaria is still under speculation because of the scarce amount of systematic research on it. Some researchers hypothesized that autologous serum therapy increase tolerance of circulating histamine-releasing factors by prompting a new immune response.<sup>4,5,8</sup> Nevertheless, it is reported by several authors that autohemotherapy significantly decreases the disease activity and improve the quality of life in chronic urticaria patients.<sup>4,5,8,9,10</sup> There are some evidence that autologous serum therapy is also effective in chronic urticaria when administered in subcutaneous route.<sup>11</sup>

### Conclusion:

Autologous serum therapy may be a promising adjunct therapy for the management of CIU. It is safe, cost effective and somewhat better than some conventional approaches. Much effort is needed in this field to find out the potentiality of autologous serum therapy in the management of CIU.

**Conflict of interest:** There is no conflict of interest.

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