

Chronic Urticaria: The Necessity of Laboratory Examination

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Article information	Abstract
<p>Article history: Received: 3 Aug 2011 Accepted: 13 Oct 2011 Available online: 5 Nov 2012 ZJRMS 2013; 15(4): 66-68</p> <p>Keywords: Urticaria Laboratory tests Thyroid Function</p> <p>*Corresponding author at: Department of Immunology and Allergy, Mazandaran University of Medical Sciences, Sari,Iran, Bo-Ali- Sina Hospital E-mail: javadneg@yahoo.com</p>	<p>Background: Urticaria is a common dermatologic disease. About 20 per cent of the population experiences it in a life-time period. The aim of this study was to compare the various laboratory examinations of chronic urticaria patients and healthy individuals and to determine the necessity of laboratory tests in such patients.</p> <p>Materials and Methods: In this study 78 patients suffering from chronic urticaria and 67 healthy individuals (2-50 year-old) with analogous demographic features underwent ALT, AST, S/E, ESR, CBC, TSH, T4, C4, C3, CH50, ANA, anti-thyroglobulin, anti-peroxidase, and anti <i>H. pylori</i> antibodies testing.</p> <p>Results: Forty-one per cent of patients had increased IgE in comparison to 14.92% in normal subjects. Anti-thyroid antibodies were positive in 17.94% of cases while only 9% of normal individuals were positive ($p<0.05$). Anti <i>H. pylori</i> antibodies were positive in 69.23 % of patients (all above 18-year-old) and 61.19 per cent of normal population ($p>0.05$). No significant difference found in other variables.</p> <p>Conclusion: Urticaria is often diagnosed based on clinical grounds and no routine laboratory examination is required.</p> <p>Copyright © 2013 Zahedan University of Medical Sciences. All rights reserved.</p>

Introduction

Urticaria is a vascular reaction indicated by erythematous or blanching swelling, pruritus, non-pitting and evanescent edema. About 20 per cent of population experience urticaria [1, 2]. Chronic urticaria is a term used to define attacks of urticaria twice a week for more than 6 weeks. Acute urticaria is more prevalent (10-20 per cent) and is usually attributed to foods, drug reactions, or skin bites. On the other hand, chronic urticaria is much less prevalent (1%) and is mostly considered idiopathic or autoimmune in nature [1-3]. This condition is associated with remarkable disruption of various aspects of the quality of life (personal, social, and behavioral) [4]. Exact pathophysiology and triggers of chronic urticaria are elusive and different culprits such as serum antibodies (IgG1, IgG3) against FcεR1α, or IgE, were proposed in select populations [5, 6]. There are different evaluations recommended in these patients and a variety of causative etiologies include *H. pylori* infection, thyroid disease, liver dysfunction, parasitic diseases, vasculitis and etc [7-10]. Zuberbier et al. report CBC, ESR, CRP as routine recommendations and defers *H. pylori* test, thyroid function test, and biopsy as the next step [8]. Nevertheless, Khan suggests no routine laboratory test if the history is unremarkable [3]. In another study the significance of routine CBC, ESR, thyroid autoantibodies, and eosinophil count are considered dubious [2]. The purpose of this study was to recognize chronic urticaria variations and their etiologies while determining the significance of laboratory evaluation.

Materials and Methods

This is a descriptive study done over a course of 2.5 years (from Oct 2007 to Feb 2009). The study population acquired as non-randomized continuous sampling in the Boo-Ali-Sina Allergy Clinics and Tuba clinic both in Sari, Mazandaran. Any patient irrespective of age was included if the duration of their disease was 6 weeks or more. Demographic information including age and sex besides history and physical exam results such as duration of symptoms, angioedema, type of urticaria and associated symptoms documented in a questionnaire.

The laboratory evaluation ordered for all the participants include CBC, ESR, AST, ALT, T4, TSH, TGA (anti thyroglobulin antibody), TPO (anti peroxidase antibody), ANA, CH50, C3, C4, stool exam, urinalysis with culture, and anti *H. pylori* IgA and IgG. Sixty-seven healthy individuals with similar demographic features entered the study as the control group. Furthermore, all the participants went on total abdominopelvicsonography and plain chest X-ray.

All the participants entered using informed consent rules. The results analyzed by SPSS-17 and the significance value set as $p\leq 0.05$ for the descriptive analytical purposes.

Results

Of the total 78 chronic urticaria patients 55 (70.5%) were female and 23(29.5%) were male. The chronological age ranged between 2-50 years with the mean age of

28.55. The prevalence was higher in the patients aged 20-40 in both sex groups: 12 (52.17%) female and 36 (65.45%) males were inflicted (Table 1).

Five cases of physical urticaria in the form of dermatographism (6.41%) and one cold induced urticaria (1.28%) were diagnosed. Twenty-four had angioedema (30.76%). All the participants had normal results on the ESR, ANA, CH50, C3, C4, stool exam, abdominopelvic ultrasound, and CXR examinations. Only one patient had increased ALT and AST who was obese with hypercholesterolemia. IgE level was increased in 32 patients (41%) and in 14.92 per cent of controls, while eosinophilia detected in six patients (7.7%) and 7.3% of controls. One patient had decreased T4 and increased TSH and the remaining (77 cases, 98.71%) had normal results for thyroid function tests (Table 2). Increased anti *H. pylori* antibodies were found in 54 (69.23%) patients all above 18 years of age (Table 2).

Duration of urticaria varied from 2 months to 10 years with the mean 2.58 ± 2.10 years. No symptoms such as fever, arthralgia, arthritis, petechial, purpura, or persistent lesions were found.

Table 1. Gender distribution of chronic urticaria patients and healthy participants

Gender	Case N (%)	Control N (%)	Mean age (year)
Male	23 (30)	28 (42)	26.43
Female	55 (70)	39 (58)	30.67
Total	78 (100)	67 (100)	28.55

Table 2. Laboratory data for patients and controls

Marker	Case N (%)	Control N (%)	p-Value
IgE (increased)	32 (41)	10 (15)	0.01
Normal ANA	78 (100)	67 (100)	0.58
Normal C3	78 (100)	67 (100)	0.58
Normal C4	78 (100)	67 (100)	0.58
ESR (normal)	77 (99)	67 (100)	0.38
Stool exam (normal)	78 (100)	67 (100)	0.58
Eosinophilia	6 (8)	2 (4)	0.02
TPO (increased)	5 (6)	2 (3)	0.02
TGA (increased)	9 (12)	4 (6)	0.02
T3 (normal)	78 (100)	67 (100)	0.58
T4 (decreased)	1 (1)	0 (0)	0.20
TSH (increased)	1 (1)	0 (0)	0.20
AHPA (IgG) (increased)	21 (31)	32 (41)	0.15
AHPA (IgA) (increased)	22 (38)	20 (30)	0.30
Abdominal sonography (normal)	77 (99)	67 (100)	0.38
Chest X-ray (normal)	78 (100)	67 (100)	0.58
AST (increased)	1 (1)	0 (0)	0.20

Discussion

We found that laboratory examinations in urticaria patients are not significantly different from normal population. However, the antithyroid antibodies in patients were significantly different in comparison to controls. In our study, chronic urticaria predominantly affects females (70%) especially in mid-adult life which is consistent with other studies [11, 12]. In another study done by the author, the prevalence of chronic urticaria was 78% [13].

We found 30.76 per cent of the patients suffer from angioedema which corresponds to other studies who report its prevalence between 30-50%. Most patients respond well to histamine blockers, either H₁ blocker alone or in combination with H₂ blockers and were not in need of anti-depressants or corticosteroids.

The physical urticaria (dermatographism) is reported to affect 2-5% of normal population [14]. We found five cases (6.41%) affected by dermatographism and one (1.28%) cold induced urticaria. Totally, we found 6 cases (7.69%) of physical urticaria. It is generally accepted that physical urticaria is easily diagnosed by history and physical examination (skin scratch by depressor or administration of ice) and do not necessitate further evaluation.

Liver function tests, complements, and acute phase reactants were normal in our study except for a case of increased ALT and AST who was obese and hypercholesterolemic; these abnormalities returned to normal by weight reduction and diet.

Serum IgE increase was observed in 32 (41%) patients. Although it was significant in comparison to controls, it was total IgE and less valuable for assessing its importance relative to specific IgE. This finding may be attributed to allergic nature of the disease.

Eosinophilia (eosinophil count more than 450) was increased in 7.7% of the patients among whom one also had increased IgE. This means eosinophil count and IgE level are not parallel essentially. We found eosinophilia in 3.7% of the normal subjects.

Thyroid function was normal in all but one patient (98.71%). However, antithyroid antibodies, namely TPO and TGA, was increased in 14 (17.94%) which is higher beside the mean worldwide statistics (12%) [1]. The prevalence of antithyroid antibodies in controls was 9% (3-6% worldwide) [1].

Although both hyper- and hypothyroidism are associated with urticaria, most of the patients only bear antibodies with normal thyroid function. It is possible that the mechanism of urticaria in such patients is autoimmunity not thyroid disease itself [1, 13]. There are other studies demonstrating significant correlation between chronic urticaria patients and healthy subjects with respect to autoimmune thyroid disease [10].

Anti *H. pylori* antibodies (either IgA or IgG) were increased in 54 cases (69.23%). All of the patients with this marker were above 18. Similarly, anti *H. pylori* antibodies were positive in 61.19% of controls. There are studies showing *H. Pylori* infection as a plausible cause for the chronic urticaria [7, 15]. Therefore, our deduction is that evaluation of *H. pylori* status without clinical symptoms, especially in age under 18, will not prove beneficial.

In other studies, recommendations are given for routine CBC, ESR, urinalysis, liver function tests, and antithyroid autoantibodies [1]. Nevertheless, based on our findings, if the chronic urticaria patient is not prone to vasculitic disorders based on clinical grounds (fever, arthralgia, arthritis, weight loss, petechia, purpura, and persistent lesions) many laboratory tests, even CBC or ESR, are not

essential and the disease may be diagnosed only through a complete history and physical examination. The only helpful tests are thyroid function tests plus antithyroid antibodies (TGA, TPO) at all ages.

The relatively few numbers of participants is a limitation to our study. We also were not able to treat thyroid abnormalities or *H. pylori* infection and reassess their significance in the course of chronic urticaria. Autologous skin prick test is appropriate in the diagnosis of autoimmunity which we could not perform. We also did not utilize specific *H. pylori* diagnostics such as urea breath test or gastric biopsy.

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Authors' Contributions

All authors had equal role in design, work, statistical analysis and manuscript writing.

Conflict of Interest

No conflict.

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