Journal of the Saudi Society of Dermatology & Dermatologic Surgery (2011) **15**, 47–51

King Saud University

Journal of the Saudi Society of Dermatology & Dermatologic Surgery

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ORIGINAL ARTICLE

Significance of antithyroid antibodies and other auto-antibodies in Saudi patients with chronic urticaria. Possible parameters in predicting chronic over three years disease

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Received 7 March 2011; accepted 1 April 2011
Available online 23 May 2011

KEYWORDS

Chronic urticaria;
Autoimmune thyroid disease;
Auto-antibodies;
Anti-thyroglobulin;
Antimicrosomal antibodies

Abstract *Objective:* To determine the frequency and significance of thyroid auto-antibodies and antinuclear antibody among Saudi patients with chronic urticaria and to identify markers of chronic urticaria disease.

Materials and methods: Non-interventional, prospective analytical study carried out among consecutive patients with chronic urticaria in the Department of Dermatology, College of Medicine, King Saud University, Riyadh, Saudi Arabia between January 2005 and December 2007. Patients were divided into two groups: Group 1 – with hypothyroidism, Group 2 – without hypothyroidism, both age-matched to normal healthy controls. All patients were investigated for the presence of antithyroglobulin (ATG), antimicrosomal (AMA), antinuclear antibodies (ANA) as well as rheumatoid factor (RF) and antibodies to hepatitis B and C.

Results: A total of 90 participants were included in the study. Significant elevation of anti thyroglobulin antibodies was found in patients with hypothyroidism than in those without hypothyroidism and in the control group (30.4% vs. 24.4% vs. nil, $p = 0.022$). Elevated titers of antimicrosomal antibodies were seen in chronic urticaria patients with or without hypothyroidism compared to control group. Positive antinuclear antibodies were detected in all groups. There were no significant

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Peer review under responsibility of King Saud University.
doi:10.1016/j.jssdds.2011.04.007

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differences in the severity of the disease in between study groups ($p = 0.234$). Chronic urticaria was statistically significantly associated with hypothyroidism ($p = 0.0014$) and with the presence of antithyroglobulin antibodies ($p = 0.022$). The duration of urticaria was significantly associated with positive antithyroid and anti-nuclear antibodies ($p = 0.0315$ and $p = 0.0056$, respectively). Disease severity was not significantly associated with elevations of ANA, TMA and TGA titers ($p = 0.558$, 0.827 and 0.324, respectively).

Conclusion: Chronic immunologic urticaria may be entertained in patients with long standing urticaria especially in the presence of hypothyroidism and elevated antithyroid antibodies. Assays for thyroid antibodies, TSH and ANA may be justified for early diagnosis of autoimmune urticaria to institute appropriate treatment modalities, hence improve the quality of life.

1. Introduction

Urticaria is a common dermatosis observed in 15–25% of the general population and 25% of urticaria is chronic (Leznoff, 1998; Sharma and Miller, 1993). Chronic urticaria is characterized by recurrent, itchy, transient macula-papular rash with or without angioedema lasting for more than 6 weeks (Greaves, 1995; Turktas et al., 1997). Patients with chronic urticaria have impairment in the quality of life similar to patients with psoriasis, acne and heart disease (O'Donell et al., 1997; Poon et al., 1999; Yosipovitch and Greaves, 2008). The probable lethal risk of laryngeal edema and the influence of urticaria on quality of life make this skin condition a true health concern (O'Donell et al., 1997).

Despite extensive investigations no cause is identified in the majority of patients, thus remains idiopathic (Greaves, 2000; Tong et al., 1997). The prevalence of thyroid function alterations in such patients as well as the efficacy of correcting these alterations has been discussed in many studies but it remains questionable (Zauli et al., 2002).

Furthermore, around 10–40% of patients with chronic urticaria were found to have antibodies to FC epsilon R1 (IgE receptors), IgE or both in the sera of patients (Tong et al., 1997; Zauli et al., 2002; Collet et al., 1995; Grattan et al., 1992; Kaplan and Greaves, 2009). It has been reported in previous studies that the frequencies of antithyroid antibodies, such as antithyroglobulin (TGA), antimicrosomal (TMA) or antithyroperoxidase antibodies (TPO) were found to be significantly higher in patients with chronic urticaria (Zauli et al., 2001). In addition, an association has been reported between hepatitis C and chronic urticaria (Broussolle et al., 1999; Fernandez-Soto et al., 1998).

2. Methods

This non-interventional, prospective analytical study was carried out in the Department of Dermatology, College of Medicine, King Saud University, Riyadh, Saudi Arabia between January 2005 and December 2007 among patients with chronic urticaria of more than six weeks in duration.

Patients were divided into two groups; Group 1 consisted of chronic urticaria patients with hypothyroidism and Group 2 consisted of chronic urticaria patients without hypothyroidism. For comparison, a separate group of patients were recruited which comprised normal healthy age-matched controls. In all patients ANA, TGA and TMA were measured. A hemagglutination technique titer of $<1{:}10$ was considered negative for TGA and $<1{:}100$ was negative for TMA. ANA was positive if titer reads 1:80 or above. TSH and T4 were measured by radioimmunoassay. Hypothyroidism was diagnosed clinically together with a TSH level >5 mIU/L. All patients including the controls were investigated for the presence of antithyroglobulin, antimicrosomal, antinuclear antibodies as well as antibodies to hepatitis B and C to exclude known causes of urticaria.

Data were collected and analyzed using Predictive Analysis Software version 18 (PASW, SPSS Inc., IBM-SPSS, Chicago, Illinois, USA). Demographic frequencies were expressed as mean ± standard deviation (SD) or as percentage distribution. The group statistics were assessed using students' t-test for paired samples or Fisher's exact test as appropriate. The relationship between urticaria duration, family history and auto-antibodies was evaluated using Fisher's exact test or Chi-square test, when appropriate. Two-tailed p value of <0.05 was considered statistically significant.

3. Results

There were 23 patients with chronic urticaria with hypothyroidism (Group 1) and 45 patients with chronic urticaria without clinical or biochemical hypothyroidism (Group 2). Twenty-two participants comprised the normal healthy age-matched controls. Patients with chronic urticaria without hypothyroidism were significantly younger compared to those with hypothyroidism (37.9 ± 15.6 years vs. 46.2 ± 12.6 years, $p = 0.03$). There is significant preponderance to the female gender in both study groups (100% and 84.4%, $p = 0.047$). The mean duration of urticaria was relatively longer in patients with hypothyroidism than in those without hypothyroidism (6.3 ± 6.0 years, range: 6 months to 25 years vs. 4.4 ± 4.4 years, range: 2 months to 25 years, $p = 0.138$).

Table 1 describes the comparison of frequencies of TGA, TMA and ANA between the study groups and the control group. There were 30.4% of patients in Group 1 who had elevations of TGA, 24.4% of Group 2 and none among the healthy controls ($x^2 = 0.022$). There were no significant differences in the mean TGA titers observed in between study groups ($p > 0.05$), however, significant elevations of TGA titers were observed among the study patients compared to the healthy group (18/68 or 26.5% vs. none, $p < 0.0001$). There were 26.1% of patients in Group 1 who had elevations of TMA, 26.7% of Group 2 and 4.5% among the healthy controls ($x^2 = 0.09$). There were no significant differences in the mean TMA titers observed in between study groups ($p > 0.05$), however, significant elevations of TMA titers were observed among the study patients compared to the healthy