Chronic Urticaria and Thyroid Auto-Immunity

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Abstract

The association between thyroid auto-immunity and chronic urticaria (CU) has long been recognized as significant. The prevalence of antithyroid antibodies (ATAs) has been estimated as 12 to 29%. However, most studies have suggested that these auto-antibodies are not a direct causative agent in CU. In some patients, ATAs are associated with the presence of anti-immunoglobulin E receptor antibodies. It appears more likely that these antibodies are associated, parallel, auto-immune events. The effects of hormonal treatment on clinical symptoms of CU are controversial. They must be evaluated by controlled trials.

Index Entries

Chronic urticaria; antithyroid antibodies; auto-immunity.

Introduction

Chronic urticaria (CU) is a common disorder characterized by the recurrence of transient and itching maculo-papular skin lesions, with or without angioedema, for more than 6 wk. Despite extensive investigation, no cause is identified in the majority of patients (1). However, auto-immunity may be a contributing factor based on two main findings: (a) antibodies reactive with FcεRI (the high-affinity immunoglobulin [Ig]E receptor), IgE, or both are found in sera of 10 to 40% of patients with CU (2) and (b) the frequency of antithyroid antibodies (ATAs) such as antithyroglobulin (anti-TG), antithyroid microsomal or antithyroperoxidase (anti-TPO) antibodies, or both is significantly higher in patients with CU than in the general population (3).
This article focuses on the association CU-thyroid auto-immunity, frequency, the relationship between ATA and antibodies against FcεRI, and the pathogenesis and management of urticaria.

Thyroid Auto-Immunity in Patients With CU

A few anecdotal reports about the association between thyroid disease and CU can be found in the literature, but they do not provide rates of prevalence.

Leznoff et al. (4) were the first to demonstrate a statistically significant association of thyroid auto-immunity and CU. Of 140 consecutive patients with urticaria, 17 (12%) had elevated titers of thyroid microsomal antibodies. Eight of these patients had a goiter or thyroid dysfunction. All 17 displayed angioedema, and 15 of 17 patients (88.2%) were female. The control group consisted of 477 subjects, of whom 27 (5.6%) demonstrated thyroid microsomal antibodies. The association of thyroid auto-immunity with CU, angioedema, or both was statistically significant. In a larger follow-up study (5), these authors reported that 90 of 624 patients (14.4%) with CU and/or angioedema had evidence of associated thyroid auto-immunity. On the basis of an assumption that less than 6% of the normal population has evidence of thyroid auto-immunity, the expected number of patients in this cohort would have been 37, a statistically significant association. Collet et al. (6) examined 45 patients (29 men and 16 women) with CU. Eight of these patients (all women) had laboratory evidence of autoimmune thyroid disease. Turktas et al. (7) explored the association of CU, angioedema, or both with thyroid auto-immunity by measuring thyroid function tests and ATAs in 94 patients with CU, angioedema, or both and comparing the results to those of 80 age- and sex-matched healthy volunteers. In the CU/angioedema group, 11 patients (11.7%) were discovered to have TG antibodies, and 9 (9.57%) were found to have thyroid microsomal antibodies; both antibodies were found in 3 members (3.7%) of the control group. This association is statistically significant ($p < 0.01$).

In a study by Gaig (8), 25 of 170 subjects with CU (14.7%) had ATAs. Ryhal et al. (9) noticed antibodies to TPO in significantly more patients with urticaria (5 of 25; 20%) than in controls (0%; $p < 0.01$). Zauli et al. (10) observed 35 of 122 patients with ATAs (29%). Thyroid disease or altered serum thyroid-stimulating hormone (TSH) levels requiring treatment was present in 14 patients. Asero et al. (11) studied 257 patients with CU. Of these patients, 66 (26%) were found to have circulating ATAs. Additionally, 46 of these subjects had normal thyroid function, 16 showed a reduction of thyroid function (decreased free thyroxine [FT4], increased TSH, or both), and 4 showed an increase of thyroid function (increased FT4, decreased TSH, or both).

In a prospective case-control study, Verneuil et al. (12) compared the frequency of ATAs in 45 patients with CU with that of 30 healthy adult volunteers. The frequency of ATAs was significantly higher in patients with CU than in healthy controls (26.7 vs 3.3%; $p < 0.01$). All patients with ATAs had thyroid hormone concentrations within normal limits.

Toubi et al. (13) reported the presence of ATAs in 17 of 129 (12%) patients with CU, compared with none of the normal controls ($p = 0.004$).

Palma Carlos et al. (14) evaluated antibodies to TG, TPO, TSH, FT3, and FT4 in 56 patients with CU and in a matched control group of 56 subjects without CU. ATAs were positive in 28.5% of all patients. Thyroid function was normal in 52 patients. TG and TPO antibodies and thyroid function results were always normal in control group.

Farid et al. (15) examined 60 patients for evaluation of CU. Twenty-two (36.6%; 19 women, 3 men) had increased levels of TPO antibodies ($n = 3$), anti-TG antibodies ($n = 9$),