General Hospital Psychiatry 36 (2014) 95–98

Contents lists available at ScienceDirect

General Hospital Psychiatry

journal homepage: http://www.ghpjournal.com

The prevalence of depression and anxiety disorders in patients with euthyroid Hashimoto's thyroiditis: a comparative study

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ARTICLE INFO

Article history:
Received 23 June 2013
Revised 28 September 2013
Accepted 1 October 2013

Keywords:
Hashimoto's thyroiditis
Goiter
Depression
Anxiety disorders
Autoimmune thyroiditis

ABSTRACT

Objective: The aim of this study was to examine the current prevalence of major depression and anxiety disorders in patients with euthyroid Hashimoto's thyroiditis (HT) and euthyroid goiter.
Method: The study sample was formed by consecutive 51 and 45 patients who were admitted to the endocrinology outpatient clinic and diagnosed with euthyroid HT and endemic/nonendemic goiter, respectively, and 68 healthy controls. Current diagnoses of psychiatric disorders were determined using the Structured Clinical Interview for DSM-IV. Beck Depression Inventory and Beck Anxiety Inventory were applied to the participants.
Results: There was a statistically significant difference among the three groups in terms of major depression (P=.001), any mood or anxiety disorder (P=.000), any depressive disorder (P=.020), any anxiety disorder (P=.016) and obsessive–compulsive disorder (OCD) (P=.013). In the HT group, the prevalence of depression (P=.000), OCD (P=.005) and panic disorder (P=.041) was significantly higher than that in the control group. In the goiter group, depression (P=.006), any depressive disorder (P=.03), and any mood or anxiety disorder (P=.000) were significantly common in comparison to the control group. No significant difference was found between the HT and goiter groups.
Conclusions: Euthyroid HT and euthyroid goiter increase predisposition to major depression and anxiety disorders, and thyroid autoimmunity and other thyroid pathologies should be investigated in euthyroid patients with chronic and treatment-resistant complaints.

1. Introduction

Hashimoto's thyroid (HT) is the most frequent autoimmune thyroid disease, with a prevalence rate of 2%, which is caused by the autoimmune inflammation of the thyroid gland and has different clinical stages ranging from euthyroiditis to hypothyroiditis. It is the most frequent cause of adult hypothyroiditis in the world [1–3]. It is characterized by elevated levels of antithyroglobulin (Anti-Tg) antibody and antithyroid peroxidase (anti-TPO) and the thyroid gland's typical hypoechogenic pattern in ultrasonography [4]. The disease is also known as chronic autoimmune thyroiditis and affects most commonly women [5,6].

The positivity of anti-TPO in individuals with euthyroid is between 12% and 26%. Anti-TPO positivity (silent autoimmune thyroid disease) is recognized to be a precursor of possible future thyroid deficiency in cases where serum thyroid hormones and thyroid stimulant hormone (TSH) levels are within normal bounds [7,8].

While there are studies that report that psychiatric disorders are seen more frequently in individuals with autoimmune thyroid diseases than the general population [9–15], others have reported that thyroid autoimmunity is not related to depression and anxiety [16–20]. However, previous studies are based on mostly psychiatric symptom scales rather than structured clinical interview, and the relationship between thyroid autoimmunity and anxiety disorders has been investigated only by a limited number of studies.

In this study, we investigated the prevalence of major depression and anxiety disorders in patients with euthyroid endemic/nonendemic goiter and HT without having any thyroid hormone preparation and healthy subjects. Thereby, we aimed to examine whether HT specifically increases risk of depressive or anxiety disorders compared with endemic/nonendemic goiter or controls.

2. Method

The study sample consisted of 51 patients with euthyroid HT and 45 patients with euthyroid endemic/nonendemic goiter who were admitted to the Endocrinology Outpatient Clinic, Meram Faculty of Medicine, Necmettin Erbakan University, in Konya, Turkey, between

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http://dx.doi.org/10.1016/j.genhosppsych.2013.10.002

April 2010 and February 2012. The study sample also included a healthy control group consisting of 68 hospital personnels and their relatives who were matched for sociodemographic characteristics of the patients. All subjects underwent a complete thyroid evaluation including physical examination, thyroid ultrasonography and measure of serum free T4 (FT4), free T3 (FT3), TSH, anti-TPO and anti-Tg.

The diagnosis of euthyroid HT was made on the basis of coexistence of high titers of anti-Tg (0–20 IU/ml) and anti-TPO (0–10 IU/ml), diffuse hypoechogenic pattern in ultrasonography and normal serum levels of FT3 (2.0–4.4 pg/ml), FT4 (0.93–1.7 ng/dl) and TSH (0.27–4.0 mU/L). The diagnosis of endemic/nonendemic goiter was based on the presence of one or more multiple thyroid nodules in a normoechogenic gland in ultrasonography, with the absence of antithyroid autoantibodies and normal serum levels of free thyroid hormones and TSH.

For the report that HT affects especially middle-aged women [21], patients between 20 and 45 years of age were included in the study. All participants were at least elementary school graduates. Cognitive incompetence and illiteracy, which make psychiatric interview difficult; having chronic medical illness (e.g., neurological, cardiovascular, pulmonary, rheumatological and endocrinological diseases); receiving thyroid hormone replacement treatment; using oral contraceptives; being in menopausal stage and having a history of schizophrenia or bipolar disorder were exclusion criteria. The study was approved by the Ethics Committee of Meram Faculty of Medicine of Necmettin Erbakan University.

After the thyroid evaluation, relevant subjects were referred to psychiatry outpatient clinic. The subjects' sociodemographic information was recorded in the information form. Current mood and anxiety disorders were ascertained by means of the Structured Clinical Interview for DSM-IV (SCID-I) [22]. The levels of anxiety and depression were screened using Beck Depression Inventory (BDI) and Beck Anxiety Inventory (BAI) [23–26]. Psychiatric examinations were conducted by psychiatrists with at least 4 years of experience about psychiatric disorders. In addition, the psychiatrists had a formal training about SCID-I. In the present study, we performed modules of affective and anxiety disorders of SCID-I.

2.1. Statistical analysis

Data analysis was conducted using SPSS (version 15.0). The χ^2 test was used for categorical variants, and Fisher's Exact χ^2 Test was used when necessary. One-way analysis of variance (ANOVA) was used for continuous variables among the groups. Tukey's honestly significant difference test was used in the binary group comparisons of variables seen to be significant in ANOVA. Statistical significance was accepted as $P<.05$.

3. Results

The study included 164 participants aged 20–45 years. The mean age of the sample was 34.67±6.82 years. Fifty-one subjects of all the cases were in the HT group, 45 were in the goiter group, and 68 were in the control group. There was no significant difference among the groups with regard to sex, age, marital status, educational level and number of children (Table 1).

While 27 (52.9%), 17 (37.8%) and 11 (16.2%) subjects were diagnosed with a current psychiatric disorder in the HT, goiter and control groups, 17 (33.3%), 11 (24.4%) and 4 (5.9%) subjects were diagnosed with a current depressive disorder in the HT, goiter and control groups, respectively. Moreover, 19 (37.3%), 11 (24.4%) and 10 (14.7%) people were diagnosed with an anxiety disorder in the HT, goiter and control groups, respectively. There was a statistically significant difference between three groups for these disorders (P=.000, P=.001 and P=.018, respectively). Twenty-eight subjects, 15 cases (29.4%) from the HT group, were diagnosed with major depression. There was a statistically significant difference among the three groups regarding the existence of major depression (P=.001) (Table 2).

Table 1
Sociodemographic characteristics of the HT, goiter and control groups

	Hashimoto's group (n=51)	Goiter group (n=45)	Control group (n=68)	P value
Sex (n, %)				.595*
Female	49 (96.1)	41 (91.1)	64 (94.1)	
Male	2 (3.9)	4 (8.9)	4 (5.9)	
Marital status (n, %)				.645*
Married	38 (74.5)	37 (82.2)	52 (76.5)	
Single	13 (25.5)	8 (17.8)	16 (23.5)	
Education (n, %)				.737*
Elementary school	25 (49.0)	26 (57.8)	40 (58.8)	
High school	15 (29.4)	11 (24.4)	19 (27.9)	
College	11 (21.6)	8 (17.8)	9 (13.2)	
Occupation (n, %)				.902*
Unemployed	35 (68.6)	29 (64.4)	46 (67.6)	
Employed	16 (31.4)	16 (35.6)	22 (32.4)	
Mean age (mean±SD)				.396**
	35.10±7.75	35.47±6.74	33.82±6.07	
Number of children (mean±SD)				.482**
	1.61±1.328	1.91±1.164	1.78±1.208	

* χ^2 test.
** ANOVA test.

Among the anxiety disorders, the prevalence of panic disorder was found to be 11.8% in the HT group, 6.7% in the goiter group and 1.5% in the control group (P=.066). There was no significant difference among all groups regarding the prevalence of panic disorder according to the χ^2 test. The most frequent diagnosis concerning anxiety disorders was obsessive–compulsive disorder (OCD) (7.3%) in the general sample. Eight (15.7%) subjects were diagnosed with OCD in the HT group. There was a statistically significant difference among the three groups in terms of OCD (P=.013) (Table 2). Table 2 also shows scores of BDI and BAI in each study group. The average scores of the scales were consistent with the diagnoses of the subjects.

When the HT and the control groups were compared, any psychiatric disorder (P=.000), any depressive disorder (P=.000), any anxiety disorder (P=.005), major depression (P=.000), OCD (P=.005) and panic disorder (P=.041) cases were found to be more common in the HT group than the control group. There was no significant difference between the HT and control groups in terms of dysthymic disorder (P=.576), generalized anxiety disorder (GAD) (P=.650) and phobic disorder (P=1.000) (Table 2).

Major depression (P=.006), any depressive disorder (P=.009) and any disorder (P=.014) cases were significantly more common in the goiter group than the control group. However, there was no significant difference regarding dysthymic disorder (P=.081), OCD (P=.299), panic disorder (P=.299), GAD (P=1.000) and phobic disorder (P=.681). There was no significant difference between the HT and goiter groups regarding all the depressive and anxiety disorders evaluated [major depression (P=.489), dysthymic disorder (P=.414), OCD (P=.209), panic disorder (P=.495), GAD (P=.620), phobic disorder (P=.663), any anxiety disorder (P=.194), any depressive disorder (P=.375), any psychiatric disorder (P=.155)] (Table 2).

4. Discussion

In this study, we found the current prevalence of any depressive disorder to be 29.4% and 33.3% in the HT group and 22.2% and 24.4% in the goiter group, respectively. This percentage was only 5.9% in the control subjects. The rates seem to be very high in patients with HT and goiter compared to healthy subjects.