Annals of Medical Research

DOI: 10.5455/annalsmedres.2019.10.651 2020;27(3):977-9

Original Article

The frequency of thyroid autoimmunity in behcet's disease in mid-anatolian region of Turkey

Gulcan Saylam Kurtipek[1], Fatma Tuncez Akyurek[1], Huseyin Kurku

[1]Selcuk University, Faculty of Medicine, Department of Dermatology, Konya, Turkey
[2]Konya Training and Research Hospital, Clinic of Biochemistry, Konya, Turkey

Abstract

Aim: Behcet's disease is considered a vasculitis triggered by immunological mechanisms; however its pathogenesis has not been elucidated. The thyroid autoimmune disease frequently coexists with various autoimmune conditions. Studies on the effect of Behcet's disease on this gland are limited. The present study aimed to examine the presence of thyroid autoimmunity in Behset's Disease, which has been recently regarded as an autoimmune disease.

Material and Methods: The study included 45 patients diagnosed with Behcet's disease according to the criteria of the International Study Group, and 42 healthy individuals. The levels of FT3, FT4, TSH, thyroglobulin autoantibody (anti-TG) and anti-thyroid peroxidase antibody (anti-TPO), and results of thyroid ultrasonography were examined in all patients and healthy individuals.

Results: No significant difference was found in the levels of FT3, TSH and thyroid autoantibodies (anti-TG, anti-TPO) of thyroid function tests between the two groups. FT4 levels were significantly higher in patients with Behcet's disease compared to the control group (p=0.029).

Conclusion: The present study showed that there was no concomitant autoimmune thyroid disease in patients with Behcet's disease. However, we believe that the vasculitis process might have an impact on parenchyma of the thyroid since FT4 levels were significantly higher in patients, and thus parenchyma of the thyroid should be examined thoroughly in patients with Behcet's disease.

Keywords: Autoimmunity; behcet's disease; thyroid

INTRODUCTION

At present, Behçet's Disease (BD) is described as a systemic vasculitis characterized by evidence of oral and/or genital ulcerations, skin lesions and ocular inflammations, but it may have a clinical course of chronic, recurrent attacks involving multiple organ systems (1,2). Behçet's disease is considered a vasculitis triggered by immunological mechanisms; however its pathogenesis has not been elucidated. It has been recently classified within the group of immune-mediated inflammatory diseases (IMID) such as ulcerative colitis, Chron's disease, rheumatoid arthritis, ankylosing spondylitis, and psoriasis (3). The thyroid gland is a highly vascular organ with frequent autoimmune diseases. Studies on the impact of BD on this organ are rare. The present study aimed to investigate the presence of autoimmune thyroid disease in patients with BD.

MATERIAL and METHODS

It was designed as a prospective controlled study, and approval was obtained from the local ethical committee. The study included 45 patients aged 18 years and older (mean age 36.44 ±10.30 years; 25 female and 20 male) who presented to our outpatient dermatology clinic between January 2013 and August 2013, and diagnosed with BD, and 42 healthy individuals (mean age 37.311 ±0.66 years; 21 female and 21 male). We made power analysis and determined the power analysis = %74.1 for α=0.05. Patients with clinical thyroid disease, Cushing's disease, pregnancy, bromocriptine, interferon, somatostatin, oral contraceptives, oral steroids, dopamine, lithium, antithyroid drugs and sulphonamide use, and who underwent thyroid gland surgery were excluded. Written and verbal consent were obtained from all participants. A 5 mL venous blood sample was drawn from each subject in patient and

Received: 21.10.2019 **Accepted:** 29.01.2020 **Available online:** 13.03.2020
Corresponding Author: Gulcan Saylam Kurtipek, Selcuk University, Faculty of Medicine, Department of Dermatology, Konya, Turkey
E-mail: gsaylamkurtipek@yahoo.com

control groups into vacuum tubes (with gel, vacuum) used for routine biochemical analysis between 08:00 and 12:00 hours in the morning after approximately 12 hours of fasting. The venous blood samples were centrifuged at 3000g to separate serum. Serum samples were used to measure levels of free triiodothyronine (FT3), free thyroxine(FT4), and thyroid stimulating hormone (TSH)by chemiluminescence immunoassay method, thyroglobulin autoantibody (anti-TG) by ADVIA Centaur XP Siemens Healthcare Diagnostics, Camberley, UK), andanti-thyroid peroxidase antibody (anti-TPO)byIMMULITE 2000 XPI immunoassay system(Siemens Healthcare Diagnostics, Camberley, UK).

Tyroid US scanning was performed by the same radiologist using a Siemens Acuson Antares 5-13 mHz linear probe. The patients were held in supine position with hyperextension of the neck. A three dimensional image of the thyroid gland was obtained. The parenchymal and bleeding patterns of the thyroid gland were evaluated.

The data were statistically assessed using the t-test for groups with a normal distribution, and the Mann-Whitney U test for groups without a normal distribution. The relationship between qualitative variables was assessed with Pearson ki-square test. All values were provided as mean ±standard deviation (SD), and a p value <0.05 were considered statistically significant.

RESULTS

Of 45 patients with BD, 25 (55.6%) were female, and 20 (44.4%) were male. The control group comprised of 42 subjects, including 21 (50%) healthy female, and 21 (50%) healthy male. The mean age of patients and controls were 36.44±10.30 years and 37.31±10.66 years, respectively. No statistically significant difference was found in age and gender between the groups (p>0.05).In the patient group, 20 patients (44.4%) had active lesion. Of these patients, 9 (36.0%) were female, and 11 (55.0%) were male.

Table 1. Thyroid hormone levels in the Behcet's disease patient and control groups

	Patients	Controls	P value
FT3 (pg/mL)	3.26 ± 0.39	3.17 ±0.32	0.19
FT4 (ng/dL)	1.22±0.21	1.13±0.19	0.03
TSH (µIU/ml)	1.92±1.33	2.03±1.08	0.45

*Student's t-test was used. P < 0.001

A comparison of mean levels of FT3, TSH, anti-TG and anti-TPO showed no statistically significant difference between the two groups. The patients with Behçet's disease had statistically significant difference in FT4 levels compared to the control group (p=0.029) (Table-1). The result of ultrasonographic examination in patients

Table 2. The findings of thyroid USG examinations in Behcet's disease Patients and control groups

	Normal USG examinations (n)	Nodül (n)	Troidit (n)	Troidit+Nodül (n)	P
Behçet Patients	33	10	1	1	NS
Controls	34	5	0	3	NS

* NS: Nonsignificant

DISCUSSION

BD is described as a systemic vasculitis characterized by oral and genital ulcerations, ocular inflammations, and skin lesions including erythema nodosum and acneiform eruptions, potentially involving many organ systems and manifesting chronic, recurrent attacks(4). It was first described by Hulusi Behçet, a Turkish professor of dermatology, in 1937 as a distinct disease with three symptoms consisting of oral and genital ulcerations and hypopyon uveitis. The etiopathogenesis of BD still remains unknown. Some viruses such as the Herpes virus, infectious agents including some streptococci, some toxins, heat shock protein, chemicals and environmental factors which may disturb regulation of the immune system have been implicated in the etiology of BD (5). Recently, BD has been considered as an autoimmune disease with reference to some of its features including its response to traditional immunosuppressive agents similar to various autoimmune diseases, and its course with spontaneous remissions and relapses (6,7). The coexistence of autoimmune diseases such as vitiligo, alopecia areata, autoimmune rheumatic disease, and chronic urticaria with autoimmune thyroid disease has been well recognized, however their immunopathogenic mechanisms remain unclear (9-16). Based on this, since autoimmunity is implicated in its etiology and thyroid gland is an organ with a high blood supply, it is believed that it can be influenced by Behçet's disease, which may result in increased incidence of autoimmune thyroid disease. Studies on the effects of BD on this organ are very rare.

A study by Aksu et al. showed no difference in thyroid functions of the patients with BD compared to the control group, and found positive thyroid antibodies in 5 patients and nodular goiter in 3 patients (17).

In a study by Özkan et al. no difference was found in thyroid function tests and auto-antibodies between patients with Behçet's disease and control group, but USG examination of both groups showed a high rate of nodular goiter, which was attributed to the iodine deficiency in the region of the study (18).

Similar to other studies, a study by Ersoy et al.showed no difference in the assessment of thyroid function

tests, thyroid antibodies and thyroid volumes between 50 patients with Behçet's disease and 50 controls (19).

In a study by Cebeci et al. 124 patients with Behçet's disease had no thyroid autoimmunity, but lower free T4 levels compared to the control group (20). In the present study, FT4 levels were significantly higher than in control group, but there was no significant difference in the levels of thyroid antibodies, FT3 and TSH between the two groups.

The association between BD and other autoimmune diseases has not been clearly documented in the literature. There are only case reports showing the coexistence of BD with autoimmune diseases such as Sjögren's syndrome and diabetes insipidus (21).There is only one study in the literature, which examined the relationship between BD and vitiligo, but it failed to demonstrate any relationship (22). Cho et al. investigated the coexistence of BD with various autoimmune diseases in 473 patients with BD, and found autoimmune thyroid disease only in 4 patients (23).

CONCLUSION

In conclusion, the present study found no concomitant autoimmune thyroid disease in BD patients in central Anatolian region of Turkey. However, since FT4 levels were significantly higher in the patient group, we believe that the vasculitic process might have an impact on parenchyma of the thyroid gland, and thus parencyhma of the thyroid gland should be examined thoroughly in patients with BD.

Competing interests: The authors declare that they have no competing interest.

Financial Disclosure: : This study has been supported by Konya Training and Research Hospital, Training Fund.

Ethical approval: This study was approved by the Institutional Ethics Committee and conducted in compliance with the ethical principles according to the Declaration of Helsinki.

Gulcan Saylam Kurtipek ORCID: 0000-0002-3106-4280
Fatma Tuncez Akyurek ORCID: 0000-0002-9339-8331
Huseyin Kurku ORCID: 0000-0002-1083-4151

REFERENCES

1. Barnes C G, Yazici H. Behcet's syndrome. Rheumatology 1999;38:1171-4.
2. Criteria for diagnosis of Behçet's disease. International Study Group for Behcet's Disease. The Lancet 1990;335:1078-80.
3. Yazici H. The place of Behçet's syndrome among the autoimmune disease. Int Rev Immunol 1997;4:1-10.
4. Koç Y, Güllü I, Akpek G. Vascular involvement in Behcet's disease. The J Rheumatology 1992;19:402-10.
5. Lehner T. The role of heat shock protein, microbial and autoimmune agents in the etiology of Behcet's Disease. Int Rev Immunol 1997;14:21-32.
6. Gül A. Behçet's disease as an autoinflammatory disorder. Current Drug Targets: Inflammation and Allergy 2005;4:81-3.
7. Yazici H, Fresko I. Behçet's disease and other autoinflammatory condition: what's in a name? Clin Exp Rheumatol 2005;23:38.
8. Kasumagic-Halilovic E, Prohic A, Begovic B, et al. Association between Vitiligo and Thyroid Autoimmunity. J Thyroid Res 2011;2011:938257.
9. Zauli D, Deleonardi G, Foderaro S, et al. Thyroid autoimmunity in chronic urticaria. Allergy Asthma Proc 2001;22:93-5.
10. Rottem M. Chronic urticaria and autoimmune thyroid disease: is there a link? Autoimmun Rev 2003;2:69-72.
11. Cebeci F, Tanrikut A, Topcu E, et al. Association between chronic urticaria and thyroid autoimmunity. Eur J Dermatol 2006;16:402-5.
12. Bagnasco M, Minciullo PL, Saraceno GS, et al. Urticaria and thyroid autoimmunity. Thyroid 2011;21:401-10.
13. Kurtev A, Iliev E. Thyroid autoimmunity in children and adolescents with alopecia areata. Int J Dermatol 2005;44:457-61.
14. Kasumagić-Halilović E. Thyroid autoimmunity in patients with alopecia areata. Acta Dermatovenerol Croat 2008;16:123-5.
15. Thomas EA, Kadyan RS. Alopecia areata and autoimmunity: a clinical study. Indian J Dermatol 2008;53:70-4.
16. Antonelli A, Fallahi P, Ferrari SM, et al. Incidence of thyroid disorders in systemic sclerosis: results from a longitudinal follow-up. J Clin Endocrinol Metab 2013;98:1198-202.
17. Aksu K, Oksel F, Keser G et al."Thyroid functions in Behçet's disease. Clinical Endocrinology 1999;50:406-7.
18. Ozkan Y, Colak R, Saral Y, et al. Evaluation of the Thyroid gland in patients with Behcet's sydrome. Turkish J Endokrinology and Metabolism 2005;1:1-4.
19. Ersoy R, Ersoy O, Tatlıcan S, et al. The Thyroid in Behcet's disease: Hormonal and ultrasonographic findings. Turk Jem 2007;11:70-2.
20. Cebeci F, Onsun N, Pakdemir A, et al. Thyroid Autoimmunity and Behcet's Disease: I There a Significant Association? The Scientific World J 2013;4.
21. Harifi G, Habib Allah M, et al. Primary Gougerot-Sjögren syndrome and Behcet disease: association or coincidence? Presse Med 2009;38:15-6.
22. Oran M, Hatemi G, Tasli L, et al. Behçet's syndrome is not association with vitiligo. Clin Exp Rheumatol 2008;26:107-9.
23. Cho S B, Chun E Y, Bang D, et al. Coexistence of Behçet's disease and autoimmune disease: clinical features of 11 cases. The Journal of Dermatology 2005;32:614-6.