

Rheumatologic Manifestations in Iranian Patients with Autoimmune Thyroid Diseases

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ABSTRACT

Background: Autoimmune thyroid diseases (ATDs) are the most common endocrine diseases which result in rheumatologic manifestations. Some studies have shown association between rheumatologic disorders and ATDs. Thus, the aim of this study was to assess the frequency of rheumatologic manifestations in patients with ATDs.

Materials and Methods: In this cross-sectional descriptive study during 2010 to 2011, 65 patients with ATDs referred to the Rheumatology clinic of 5 Azar Hospital in Gorgan (North of Iran) were studied via systematic random sampling and patients with positive antithyroid peroxidases (anti-TPO) were included in the study. These patients were examined by a rheumatologist for diagnosis of rheumatologic manifestations and tested for serum

levels of TSH, Free T3 and T4, Anti-Nuclear Antibodies (ANAs) and Rheumatoid Factor (RF). SPSS software (version 16) and descriptive statistics were used for data analysis.

Results: Nine males (14.8%) and 56 females (86.2%) with mean age of 38.81 ± 1.44 years were studied. Overall, Rheumatologic manifestations were seen in 86.2% (n=56). In this study, the most frequent rheumatologic manifestations were Carpal Tunnel Syndrome (36.1%) and Osteoarthritis (23%). Reynaud's phenomenon (RP) (10.7%), Discopathy (8.9%), Fibromyalgia (5.3%), Myopathy (3.6%), Rheumatoid arthritis (3.6%) and trigger finger (3.6%) were other manifestations, respectively.

Conclusion: In this region, there is a high frequency of rheumatologic manifestations in patients with ATDs. Thus, initial evaluation and regular checkings are recommended.

Keywords: Autoimmune thyroid diseases (ATDs), Manifestations, Rheumatologic

INTRODUCTION

Autoimmune thyroid disease (ATD) is the most common category of autoimmune disease in humans [1]. It is a mark of a spectrum of immunological disorders of the thyroid gland which includes Hashimoto and Graves' disease [2]. The prevalence is influenced by environmental factors including iodine, selenium, smoking and medication, but up to 10% is quoted with a higher prevalence in women than men [1].

Studies showed the significant clinical and etiological commonalities between ATDs and rheumatologic disorders, so manifestations of ATDs may mimic rheumatologic disorders [3]. Moreover, systemic lupus erythematosus, rheumatoid arthritis, systemic sclerosis and Sjogren's syndrome were associated with ATDs [4,5] and there is an increased prevalence of anti-thyroid antibodies in patients with Rheumatoid Arthritis (RA) with a low prevalence of hormonal alterations [6].

Boelaert indicated that RA was the most common coexisting autoimmune disorder in patients with ATDs [7] and Roldán showed that ATD was not uncommon in RA patients [8]. Bazzichi indicated the relationship between thyroid autoimmunity and the presence of Fibro Myalgia (FM), too [9]. Soy also showed the high frequency of rheumatic disease in patients suffering from ATDs [10].

As the different studies have shown the higher frequency of rheumatic diseases in patients with ATDs and because of the deficiency of this kind of study in this area and due to the importance of these manifestations in patients with ATDs for further clinical considerations, the aim of this study was to assess the frequency of rheumatologic manifestations in patients with ATDs in Gorgan (North of Iran).

MATERIALS AND METHODS

This was a cross-sectional descriptive study which was conducted over a period of five months from 1st Dec in 2011 to 1st Apr in 2012 in Gorgan (North of Iran). Based on Soy's study (2007), 65 patients with autoimmune thyroid diseases include of Graves' disease and Hashimoto thyroiditis [9] referred to the Rheumatology clinic of 5 Azar Hospital were studied via systematic random sampling. Patients with a positive antithyroid peroxidases (anti-TPO, by radioimmunoassay) were included in the study and exclusion criteria were infectious diseases under the treatment including Tuberculosis (TB) and Brucellosis, history of diabetes, Cerebrovascular Accident (CVA), brain disorders and trauma or accident in the last six months.

The checklist was used for data collection which was designed by researchers and consisting of demographic factors and rheumatologic manifestations. Firstly, rheumatologist asked and examined the patients for following manifestations and disorders: swelling, Raynaud's phenomenon (RP), aphthous stomatitis, photosensitivity, rashes, Carpal Tunnel Syndrome (CTS), Fibromyalgia, myopathy, osteoarthritis, rheumatoid arthritis, lupus, adhesive causalities and Sjogern's syndrome [10].

Second, for assessment of thyroid function status, serum levels of TSH, free T3 and free T4, Anti-Nuclear Antibodies (ANAs, by immune fluorescence), C-Reactive proteins (CRP) and Rheumatoid Factor (RF, by nephelometry) were asked and 10 cc blood sample was obtained from patients included in the study. Moreover, for patients with positive muscular symptoms, electromyography (EMG) and nerve conduction velocity (NCV) were tested.

In this study, the reference intervals for serum TSH, FT₃, and FT₄ were 0.25–2.12 mIU/L, 3.8–7.0 pmol/L, and 8.3–18.9 pmol/L, respectively [11] and dilutions of 1/80 or higher were considered positive [10].

Finally, statistical analysis was conducted by SPSS software (version 16) and descriptive statistics (frequency, mean and Standard Error of Mean (SEM)) were used for describing data.

RESULTS

In this study, based on inclusion criteria, 65 patients with autoimmune thyroid disease were studied for different rheumatologic manifestations. 86.2% (n=56) of patients were female and 13.8 % (n=9) were male and the mean age of the patients was 38.81±1.44 years (range 19-69 years).

Overall, Rheumatologic manifestations were seen in 86.2 % (n=56) and CTS with 39.3% was the most frequent rheumatologic manifestations in patients with autoimmune thyroid diseases. Frequency distribution of rheumatologic manifestations is shown in [Table/Fig-1].

Rheumatologic manifestations	Count	Percent
Carpal Tunnel Syndrome (CTS)	22	39.3
Osteoarthritis	14	25
Reynaud's phenomenon (RP)	6	10.7
Discopathy	5	8.9
Fibromyalgia	3	5.3
Myopathy	2	3.6
Rheumatoid arthritis	2	3.6
Trigger finger	2	3.6
Total	56	100

[Table/Fig-1]: Distribution of rheumatologic manifestations

Moreover, mean levels of TSH, FT₃ and FT₄ in the population studied were 11.45±2.23 mIU/L, 21.93±7.5 pmol/L and 24.31±6.35 pmol/L, respectively. Furthermore, ANA was positive in one patient (1.7%), RF was positive in four patients (7.1%) and CRP was positive in 53 patients (94.6%).

DISCUSSION

Despite the opposite results in the literature, there is a greater prevalence of the association between autoimmune thyroid diseases and rheumatic diseases [11,12]. Soy also indicated a high frequency of rheumatic diseases in patients with ATD [10] which were consistent with the results of our study.

Moreover, in the present study, ANA was positive in 1.7% (1/56) of patients, while in Tektonidou's study 58/168 (35%) patients with ATD were ANA positive [13] and in Lazúrová's study patients with ATD had higher prevalence of ANA (45%) [14]. Positivity of ANA in the present study was lesser than last studies.

Cakir (2003) indicated that 9.5% of patients with thyroid disease had CTS and it was more frequent among hypothyroid patients [15]. In Soy's study (2007), the prevalence of CTS was 12% in ATD and 25% in hypothyroid group [10]. While in our study, the frequency of CTS was higher and it was the most frequent rheumatologic manifestation which was detected in 39.3 % of ATD patients. Thus, CTS should be considered for ATD patients.

Musculoskeletal disorders often accompany with thyroid dysfunction [15]. Osteoarthritis was the second most common rheumatologic manifestation which was found in 25% of ATD patients, while in Soy's study (2007) was 15% [10]. Raynaud's phenomenon (RP) is another manifestation which was detected in 10.7% of patients, while in Soy's study (2007) was 8 % [10] and 5.6% in healthy Turkish population [16]. There was little knowledge about ATD and RP in the literature, further investigation needs to be done.

FM was detected in 5.3 % of patients studied and it was reported as 3.6 % in healthy Turkish female population [16]. The frequency

of FM in Cakir's study (2003) was 7.3% in patients with thyroid disease including autoimmune and non-autoimmune etiologies [15] which were consistent with our study, while in Soy's study (2007), FM was the most frequently associated disease which was detected in 31% of patients [10].

Trigger finger was another frequent condition which was detected in 3.6% of patients and was reported as 2.9% in Cakir's study (2003)[15]. Although Discopathy and Myopathy were other manifestations detected in ATD patients, but no relevant studies were found for comparison. Thus, further investigations need to be conducted.

In addition to the manifestations detected in this study, based on last studies, recurrent aphthous stomatitis (20%), keratoconjunctivitis sicca and xerostomia (14%), Adhesive capsulitis (10.9%), Dupuytren's contracture (8.8%) and limited joint mobility (4.4%) were other common musculoskeletal and rheumatoid disorders in patients with thyroid dysfunction [10,15], while they were not detected in our study. Thus, these manifestations should be noticed.

CONCLUSION

due to the high frequency of rheumatic manifestations in patients with ATDs in this region, the co-morbidity of ATDs and rheumatic disorders need to be considered. So, these patients should be checked regularly by a rheumatologist for early detection of these diseases and essential information about musculoskeletal and rheumatic disorders should be given to these patients.

LIMITATIONS

Small sample size due to the time and financial support.

RECOMMENDATIONS

Further long lasting studies with more sample size are recommended.

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