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Current Practices in Hashimoto's Thyroiditis: Differences in Attitudes Between Pediatric and Adult Endocrinologists in Türkiye: A National Survey

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What is already known on this topic?

Hashimoto's thyroiditis (HT) is a common thyroid disease among adults, and its incidence in children increases over time. There are many published studies on diagnosis, follow-up, thyroid hormone replacement and supportive treatment methods, some with challenging results and findings. The lack of a consensus guideline on the diagnosis and management of HT may lead to different attitudes among endocrinologists. Differences in attitudes and tendencies between pediatric and adult endocrinologists (AEs) regarding the diagnosis and treatment of HT are unclear.

What this study adds?

This study reveals both similarities and differences in the attitudes of pediatric and AEs in Türkiye. Moreover, issues are highlighted that remain unclear to these specialists, which may lead to further investigations.

Abstract

Objective: This study aimed to assess the clinical practices and attitudes towards Hashimoto's thyroiditis (HT) among pediatric (PEs) and adult endocrinologists (AEs).

Methods: The members of Turkish Society for Pediatric Endocrinology and Diabetes (n = 502) and the Society of Endocrinology and Metabolism of Türkiye (n = 910) were invited to participate in an online survey.

Results: Of the respondents (n = 168), 72.6% (n = 122) were PEs and 27.3% (n = 46) were AEs. The response rate was 24% among PEs and only 5% among AEs. Respondents median age was 41 years. The use of "only thyroid peroxidase autoantibodies" was preferred more frequently by AEs (28.3%) than by PEs (4.1%) (p = 0.002). The rate of informing patient/parents at the time of diagnosis that HT

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lasts a lifetime was 91.3% for AEs and 62.3% for PEs (p = 0.001). The rate of beginning treatment in euthyroid cases with goiter was significantly higher in PEs (26.2%) compared to AEs (4.3%) (p = 0.017). Among AEs, 71.7% stated that they would never stop treatment, while among PEs, 33.6% did (p < 0.001). Moreover, 44% of PEs stated that they would attempt treatment discontinuation in euthyroid patients at the end of puberty. The rate of those who were undecided about selenium supplementation was higher amongst PEs (41%) than among AEs (21.7%) (p = 0.007). Although none of the PEs recommended gluten restriction, 6.5% of the AEs indicated that they would recommend gluten-free diet even without Celiac disease (p = 0.015).
Conclusion: There are significant differences between PEs and AEs encompassing aspects of diagnosis, treatment and nutritional supplementation in HT.
Keywords: Adult endocrinology, attitude in management, Hashimoto's thyroiditis, pediatric endocrinology, questionnaire

Introduction

Hashimoto's thyroiditis (HT), also known as autoimmune thyroiditis or chronic lymphocytic thyroiditis, remains the most common thyroid disease group in the general population. In recent years, the reported prevalence of HT in childhood is 1.2%, the prevalence in adults has been reported as 7.5% (1,2). While it is the most common thyroid gland disease in both children and adults, there are no published treatment guidelines on the management of patients with HT. There is no consensus among clinicians on which autoantibodies should be evaluated for diagnosis, whether subclinical hypothyroidism (SH) cases need levothyroxine (LT4) treatment, and how long the treatment period should be in cases where treatment is initiated.

While serum thyroid peroxidase antibodies (TPO-ab) are present in approximately 95% of patients, thyroglobulin antibodies (Tg-ab) are present in 60-80%, therefore the opinion is that the measurement of Tg-ab alone may be less reliable for diagnosis, is getting accepted more commonly (3,4). However, as far as we know, there is no published data on the extent to which clinicians request these antibodies. There are differing opinions on both the diagnosis and treatment of hypothyroidism. While it has been suggested that treatment should be lifelong, long-term follow-up of pediatric cases has shown that 30-50% of individuals with hypothyroidism become euthyroid during follow-up, indicating that lifelong LT4 treatment may not be necessary (5,6,7,8). There is no clear answer regarding when to discontinue the treatment. The presence of goiter is an important factor in starting and continuing treatment for patients with HT. The debate about hormone replacement in HT cases with SH is ongoing. However, LT4 replacement is generally not recommended in euthyroid HT cases.

There are also different opinions about nutrition, supplements, and additional treatment methods for adult and pediatric cases of HT. Recently, certain nutritional recommendations have gained popularity for preventing HT in individuals predisposed to autoimmunity and treating individuals with HT. Some studies, which form the basis of these recommendations, have shown that the frequency of HT increases in regions where iodine prophylaxis is performed (9,10). Indeed, the role of iodine in triggering thyroid autoimmunity is strongly supported by animal models (11). As a result of these studies, the need for iodine restriction in HT patients has become a topic of discussion, and some experts have even raised concerns about the potential harms of iodine prophylaxis in HT patients and individuals at risk for HT (12).

Another recent and debatable recommendation for individuals with HT is a gluten-free diet. Some experts advocate this based on the close relationship between celiac disease and autoimmune thyroid diseases and numerous studies that have suggested that people with HT may benefit from a gluten-free diet, even in the absence of celiac disease (13). Similarly, selenium supplementation in HT has recently become a hot topic and the subject of numerous studies. Seleno-proteins play a crucial role in thyroid hormone deiodination, and selenium deficiency may be considered a predisposing factor for HT as a dietary environmental element (14). However, the results of studies investigating the effect of selenium supplementation in HT cases are contradictory, and there is no compelling evidence supporting selenium supplementation in individuals without selenium deficiency (13).

Many studies on the attitudes of clinicians in the management of HT have focused on adults, yet there is still a lack of consensus among adult endocrinologists (AEs). There have been very few studies involving pediatricians. The absence of a unified guideline for diagnosing and managing HT may result in differing approaches among endocrinologists. The aim of this study was to assess the clinical practices and attitudes towards the diagnosis, treatment, and follow-up of HT among pediatric endocrinologists (PEs) and compare them with those of AEs.

Methods

The questionnaire was developed by six PEs from the TSPED Thyroid Working Group, and its content validity was

ensured through expert review. A pilot study was conducted with a small group of specialists, and revisions were made based on their feedback. Due to the descriptive nature of the survey, advanced statistical validation methods were not applied. A web-based survey was constructed with Google Forms (Google, Mountain View, CA, USA). The questionnaire was e-mailed to 502 members of the TSPED and 910 members of the Society of Endocrinology and Metabolism of Türkiye. An initial e-mail including an electronic link to the questionnaire was sent, followed by two reminders. The inclusion criteria were: (i) having practiced in Türkiye; (ii) being a pediatric or adult endocrinology fellow or attending physician; and (iii) voluntarily filling out the survey. The study protocol was approved by the University of Health Sciences Türkiye, Şişli Hamidiye Etfal Training and Research Hospital Health Practices and Research Centre Local Ethics Committee (protocol no: 4449, date: 25.06.2024). The questionnaire consisted of a total of 41 questions. These included eight questions evaluating the demographic characteristics and 33 multiple-choice questions about the attitude on diagnosis, follow-up, treatment, nutrition and nutritional supplements. The entire survey is available as an online supplement (Supplementary Survey 1).

Statistical Analysis

The resulting data were analyzed using IBM Statistical Package for the Social Sciences, version 28.0 (IBM Corp., Armonk, NY, USA). The Kolmogorov-Smirnov test was used for evaluating the distribution of data. Descriptive statistics are presented as mean ± standard deviation for normally distributed variables, and as median (minimum-maximum) for non-normally distributed variables. The Mann-Whitney U test was used to compare differences between continuous variables with non-normal distribution. The chi-square test was used to compare categorical variables. The Bonferroni correction was used for post-hoc analysis. A p value less than 0.05 was considered statistically significant.

Results

Survey Respondents

A total of 168 participants completed the questionnaire. Of the respondents 72.6% (n = 122) were PEs, and 27.3% (n = 46) were AEs. The response rate to the survey was 24% among PEs (n = 502) and 5% among AEs (n = 910). Of the participants, 72% (n = 121) were female. The median age was 41 years. The median duration of clinical experience was longer amongst AE than for PE (overall median = 8 years; for AEs 10.5 vs. 7 for PEs, p = 0.005). There was a significant difference between AEs and PEs regarding their titles, the proportion of professors was higher among AEs than PEs. The main clinical practice centers were the Ministry of Health Training and Research Hospitals (45.9%) in the PEs group and state university hospitals (32.6%) in the AEs group (p < 0.001). The characteristics of the respondents are summarized in Table 1.

Attitude Regarding the Diagnosis, Follow-up and Treatment

As a diagnostic tool, the most preferred thyroid autoantibody test option in both PEs (86.1%) and AEs groups (58.7%) was "the combination of TPO-ab and Tg-ab". However, the use of "only TPO-ab" was preferred more frequently in AEs

Table 1. The characteristics of the respondents

	All the participants (n = 168)	PEs (n = 122)	AEs (n = 46)	p value
Median age (year)	41 (8)	41 (8)	42 (10.5)	0.441
Gender				
Female (%)	121 (72%)	91 (74.6%)	30 (65.2%)	0.25
Median duration of speciality practice (year)	8 (10)	7 (10)	10.5 (15)	**0.005**
Having > 5 years of experience (%)	62	57	73	0.067
Title				**0.03**
Fellow	37 (22%)	31 (25.4%)	6 (13%)	
Consultant	68 (40.5%)	52 (42.6%)	16 (34.8%)	
Assistant professor	8 (4.8%)	7 (5.7%)	1 (2.2%)	
Associated professor	21 (12.5%)	14 (11.5%)	7 (15.2%)	
Professor*	34 (20.2%)	18 (14.8%)	16 (34.8%)	
Clinical practice center				**< 0.001**
Ministry of health training and research hospital	63 (37.5%)	56 (45.9%)	7 (15.2%)	
State university hospital	56 (41.1%)	41 (33.6%)	15 (32.6%)	
State hospital	16 (9.5%)	12 (9.8%)	4 (8.7%)	
Private university hospital	10 (6%)	7 (5.7%)	3 (6.5%)	
Private hospital†	15 (8.9%)	3 (2.5%)	12 (26%)	
Private center	8 (4.8%)	3 (2.5%)	5 (11%)	

*Significant in relation to "Professor", †Significant in relation to "Private Hospital".
PEs: pediatric endocrinologists, AEs: adult endocrinologists

(28.3%) than in PEs (4.1%) (p = 0.002). The rate of request for thyroid ultrasound (US) at the time of diagnosis was not significantly different between PEs (94.2%) and AEs (82.6%) (p = 0.061). However, the frequency of the respondents who request thyroid US at the follow-up was higher amongst PEs than AEs (95.9% vs. 76.1%, p < 0.001). There was no significant difference between PEs and AEs in terms of the frequency of outpatient visits (p = 0.051), the use of fT3 levels alongside thyroid stimulating hormone (TSH) and fT4 levels (p = 0.35), or the ranges at which autoantibody levels are regarded as positive (p = 0.08). Among AEs, 91.3% informed the patient/parents at the time of diagnosis that HT lasts a lifetime, which was significantly more frequent than PEs (62.3%) (p = 0.001). There was no significant difference between PEs and AEs in providing information about the possibility of changes in thyroid function status (p = 0.562).

In cases of SH without goiter, both PEs and AEs mostly stated they would start LT4 treatment when TSH levels were above 10 IU/L (p = 0.287). However, the rate of beginning treatment in euthyroid cases with goiter was significantly higher in PEs (26.2%) compared to AEs (4.3%) (p = 0.017). There were no significant differences in terms of experience period, age and title between the PEs (n = 32) who indicated that they would start treatment in this condition and those who would not (n = 85) (p = 0.11, p = 0.406, and p = 0.393, respectively). Among AEs, 71.7% stated that they would never stop treatment, which was significantly higher than the rate among PEs (33.6%) (p < 0.001). In the whole-group analysis, there was no significant difference in the propensity to discontinue treatment between participants who recommended initiating treatment at lower TSH levels and those who favored a higher threshold (TSH > 10 IU/L). Among the participants, 38% of who recommended treatment for TSH > 10 IU/L, 48% of who recommended treatment for TSH > 5 IU/L, and 57% of who recommended treatment for TSH above the reference range indicated that they would never discontinue treatment (p = 0.461). Among the PEs, no significant difference was noted between those who stated that they would never stop the treatment (n = 41) and those who stated that they would stop the treatment at a certain time (n = 81) in terms of experience period, age, and title (p = 0.326, p = 0.358, and p = 0.242, respectively). Additionally, 44% of PEs stated that they would try to discontinue treatment in euthyroid cases when puberty was completed. The attitudes of PEs and AEs regarding the diagnosis, follow-up and treatment are summarized in Table 2.

Attitude Regarding Nutritional Modifications and Supplements

The attitudes regarding nutritional modifications and supplements are given in Table 3. There were no significant differences between PEs and AEs in terms of indications for performing urinary iodine analysis (p = 0.29), recommending or eliminating iodized salt in the diet (p = 0.434). The rate of those who were undecided about selenium supplementation was higher among PEs (41%) than among AEs (21.7%) (p = 0.007). Although none of the PEs recommended gluten restriction, 6.5% of the AEs indicated that they would recommend gluten-free diet, even for patients without celiac disease (p = 0.015).

Discussion

The findings of this study reveal that there was no consensus among clinicians regarding the management of HT in Türkiye. Furthermore, there were significant differences in HT management between PEs and AEs. These differences encompass aspects of diagnosis, treatment initiation and continuation, and nutritional supplementation, reflecting variations in clinical practices.

A notable difference in the diagnostic approach was the preference for thyroid autoantibody testing. PEs overwhelmingly prefered a combination of TPO-ab and Tg-ab, whereas a significant proportion of AEs were content with TPO-ab alone. This might suggest a more cautious approach among PEs, who perhaps seek a comprehensive antibody profile for better diagnostic accuracy. Although both antibodies have been shown to be positive at rates up to 20-25% in the normal population, there is a known relationship between TPO-ab positivity and TSH levels (15). Despite differing recommendations in various sources regarding the testing for TPO-ab and/or Tg-ab antibodies, there are no definite recommendations for measuring thyrotropin receptor antibodies (TRAb or TSHR-Ab) levels (15,16,17). The prevalence and functional significance of TSHR-blocking autoantibodies (TBAb) in autoimmune hypothyroidism have been investigated less than TSHR-stimulating antibodies, but it is known that there is a low rate of TBAb positivity in HT cases (18). Interestingly, in our study, the rate of those who requested TRAb in addition to the other two antibodies for the diagnosis of HT was approximately 10% among PE and 13% among AEs, which was not significantly different. The increasing evidence showing that TBAb is important in the diagnosis and management of autoimmune thyroiditis cases, facilitated by recently developed laboratory techniques (19), may be the reason behind this approach.

Table 2. Attitude regarding the diagnosis, follow-up and treatment

Responses	All of the participants (n = 168)	Pediatric endocrinologists (n = 122)	Adult endocrinologists (n = 46)	p value
'As a diagnostic test, I use the following thyroid autoantibodies'				**0.002**
TPO-ab + Tg-ab	132 (78.6%)	105 (86.1%)	27 (58.7%)	
TPO-ab + Tg-ab + TRAB-	18 (10.7%)	12 (9.8%)	6 (13%)	
Only TPO-ab*	18 (10.7%)	5 (4.1%)	13 (28.3%)	
Thyroid autoantibody positivity				0.08
'I would consider any value above the reference range as positive.'	79 (47%)	50 (41%)	29 (63%)	
'I would consider as positive if it is at least twice the upper limit or higher.'	48 (28.6%)	40 (32.8%)	8 (17.4%)	
'I would consider as positive if it is at least 3 times the upper limit or higher.'	26 (15.5%)	19 (15.6%)	7 (15.2%)	
Other	15 (8.9%)	13 (10.6%)	2 (4.3%)	
Request for T3 and, or free T3 test				0.350
Yes	33 (19.6%)	22 (18%)	11 (23.9%)	
No	130 (77.4%)	95 (77.9%)	35 (76.1%)	
Undecided	5 (3%)	5 (4.1%)	0	
Request of thyroid ultrasound at the time of diagnosis				0.061
Yes	153 (91.1%)	115 (94.2%)	38 (82.6%)	
No	1 (0.6%)	0	1 (2.2%)	
Only in case of suspicious nodule on physical examination	14 (8.3%)	7 (5.8%)	7 (15.2%)	
Request of thyroid ultrasound at the follow-up period#				**< 0.001**
Yes	152 (90.5%)	117 (95.9%)	35 (76.1%)	
No	16 (9.5%)	5 (4.1%)	11 (23.9%)	
'When I give information about the diagnosis of HT, I also inform that it lasts a lifetime'				**0.001**
Agree†	118 (70.2%)	76 (62.3%)	42 (91.3%)	
Disagree	28 (16.7%)	25 (20.5%)	3 (6.5%)	
Undecided	22 (13.1%)	21 (17.2%)	1 (2.2%)	
'When I give information about the diagnosis of HT to the patients and/ or their relatives, I also inform that their thyroid functions may change over time.'				0.562
Agree	165 (98.2%)	119 (97.5%)	46 (100%)	
Disagree	2 (1.2%)	2 (1.6%)	0	
Undecided	1 (0.6%)	1 (0.8%)	0	
The frequency of outpatient visits for HT cases who do not require LT4 treatment				0.051
Every 3 months	16 (9.5%)	14 (11.5%)	2 (4.3%)	
Every 6 months	106 (63.1%)	84 (68.9%)	22 (47.8%)	
Annually	33 (19.7%)	16 (13.1%)	17 (37%)	
Other	13 (7.7%)	8 (6.5%)	5 (10.9%)	
'I start LT4 treatment in a patient with subclinical hypothyroidism without goiter if':				0.287
TSH > 10 IU/L	103 (61.3%)	83 (68%)	20 (43.5%)	
TSH > 5 IU/L	31 (18.5%)	21 (17%)	10 (21%)	
TSH is above the reference ranges.	34 (20.2%)	18 (15%)	16 (34.8%)	
'I start LT4 treatment in a case of HT with Goiter':				**0.017**
Even if the patient is euthyroid‡	34 (20.2%)	32 (26.2%)	2 (4.3%)	
If TSH > 10 IU/L	23 (13.7%)	16 (13.1%)	7 (15.2%)	
If TSH > 5 IU/L	74 (44%)	50 (41%)	24 (52.2%)	
If TSH is above the reference ranges	31 (18.5%)	20 (16.4%)	11 (24%)	
Other	6 (3.6%)	4 (3.3%)	2 (4.3%)	
General approach to discontinue thyroid hormone treatment in a patient who is diagnosed with HT and started treatment#				**< 0.001**
'I do not recommend discontinuing treatment'	74 (44%)	41 (33.6%)	33(71.7%)	
'I try to discontinue treatment if the patient is euthyroid in the follow-up at any time'	94 (56%)	81 (66.4%)	13 (28.3%)	

*Significant in relation to "Only TPO-ab", #Fisher test was used. †Significant in relation to "Agree", ‡Significant in relation to "Even if the patient is euthyroid".
Tg-ab: thyroglobulin antibody, TPO-ab: thyroid peroxidase antibody, TRAB: thyroid stimulating hormone receptor antibody, LT4: levothyroxine, HT: Hashimoto's thyroiditis, TSH: thyroid stimulating hormone

Table 3. Attitude regarding nutritional modifications and supplements

Responses	All of the participants (n = 168)	Pediatric endocrinologists (n = 122)	Adult endocrinologists (n = 46)	p value
Selenium supplementation				**0.007**
It may be given after measuring blood/urinary level and if necessary and,or if the patient has overt/subclinical hypothyroidism.	53 (31.6%)	31 (25.4%)	22 (47.8%)	
I'm undecided*	60 (35.7%)	50 (41%)	10 (21.7%)	
It is completely unnecessary	55 (32.7%)	41 (33.6%)	14 (30.4%)	
Gluten-free diet†				**0.015**
I state that no restrictions are required	83 (49.4%)	65 (53.3%)	18 (39.1%)	
I don't make suggestions unless asked.	73 (43.5%)	54 (44.3%)	19 (41.3%)	
I recommend.	3 (1.8%)	0	3 (6.5%)	
Other	9 (5.4%)	3 (2.4%)	6 (13.1%)	
Iodine restriction				0.434
I state that no restrictions are required	98 (58.3%)	74 (60.7%)	24 (52.2%)	
I don't make suggestions unless asked.	36 (21.5%)	28 (23%)	8 (17.4%)	
I recommend.	14 (8.3%)	6 (4.9%)	8 (17.4%)	
I decide based on urine iodide level	20 (11.9%)	14 (11.5%)	6 (13%)	

*Significant in relation with 'undecided'. †For the statistical analysis only 2 groups included ('I recommend' and the others)

The information provided about the prognosis at the time of diagnosis also differed significantly between the groups. Almost all AEs (91.3%) informed their patients that the disease would last for life, compared to 62.3% of PEs. Similarly, when LT4 treatment was initiated, a significant proportion of AEs (approximately 72%) stated that they would never attempt to discontinue treatment, whereas this rate was approximately 34% amongst PEs. There is no consensus in the literature regarding the duration of LT4 treatment in HT patients. However, some studies have shown that hypothyroid pediatric patients with HT can become euthyroid in 30-50% of cases during follow-up, indicating that lifelong treatment may not be necessary for these patients (5,6,7,8). Raddetti et al. (8) even suggested that discontinuation of treatment should be attempted in pediatric patients with TSH levels < 10 U/L at diagnosis. Despite these studies in pediatric patients, to the best of our knowledge, there are no similar studies in adults. Thus, the discrepancy could stem from differing perspectives on the natural history of HT in children versus adults, with AEs possibly anticipating a more chronic course based on their patient population.

When it comes to initiating treatment, both groups showed a consensus in starting LT4 therapy in cases of SH when TSH levels exceeded 10 IU/L. However, surprisingly, the proportion of those who recommended LT4 therapy to patients with goiter, even if they were euthyroid, was significantly higher among PEs than among AEs. In two surveys conducted among adult thyroid specialists in the United Kingdom and Australia, only 9% and 11% of the respondents, respectively, would consider using thyroid hormone treatment in euthyroid patients with an enlarging goiter (20,21). Although some studies have shown that LT4 treatment reduces thyroid volume in both pediatric and adult HT patients with goiter, even if they are euthyroid (22,23), a more recent randomized controlled trial demonstrated that this reduction in thyroid volume was not permanent (24). No significant difference was found at the end of 36 months when comparing pediatric patients who were euthyroid at baseline and started on LT4 with those who were not. However, in our study, PEs were more likely to initiate treatment in cases of euthyroid goiter, highlighting a more aggressive approach to goiter in children, which may be driven by concerns about further gland enlargement and the development of thyroid nodules during childhood.

The attitudes of respondents to nutritional modifications in HT management were similar regarding iodine restriction. Only 5% of PEs and 17% of AEs recommended iodine restriction. Although some data suggest that iodine can trigger thyroid-related autoimmunity and that the prevalence of HT increases in areas where iodine prophylaxis is used (9,10,11), studies which report the effect of iodine restriction for the treatment of HT are extremely scarce. To the best of our knowledge, there is no such study in children. Yoon et al. (25) demonstrated that iodine restriction normalized thyroid function in adults with HT. However, it should be taken into consideration that the region where the study was conducted was a region with excessive iodine intake. Given that mild to moderate iodine deficiency is still a problem in Türkiye (26,27), it is not surprising that very few of the participants, especially PEs, recommended iodine restriction in HT.

The attitudes towards gluten restriction showed variability between the two groups. For instance, while none of the PEs recommends gluten restriction without diagnosed celiac disease, a small percentage of AEs do. This may reflect an emerging, albeit controversial, belief among some AEs that gluten could play a role in thyroid autoimmunity even in the absence of celiac disease. Indeed, Pobłocki et al. (28) found that a gluten-free diet decreased TSH levels in patients receiving LT4 treatment. However, studies demonstrating a positive effect of a gluten-free diet on thyroid status are extremely limited. Two systematic reviews, which included three and six studies respectively, showed that a gluten-free diet decreased anti-TPO levels but did not affect TSH levels (29,30). Notably, all of these studies were conducted in adults (28,29,30). To the best of our knowledge, there are no studies examining the effects of a gluten-free diet on HT in children, which may be related to the fact that none of the PEs recommended this dietary modification.

The present study also showed a lack of consensus between PEs and AEs regarding selenium supplementation, a popular recommendation in HT management in recent years. Notably, a higher proportion of PEs remained undecided compared to AEs (41% vs. 21.7%). In a 2018 survey, only 20% of European Thyroid Association members believed that selenium supplementation has evidence-based benefits, yet a significant proportion (67%) reported recommending selenium supplementation to their patients (31). Systematic reviews have shown that selenium supplementation, like iodine restriction and gluten-free diet recommendations, has no favorable effect on thyroid functions, although it does decrease the level of thyroid autoantibodies in HT cases (32,33). In addition, the possible side effects of selenium, such as gastric irritation, hair loss, or skin rash should be considered. There are no evidence-based guidelines that highlight cases that warrant selenium supplementation, or whether selenium levels should be evaluated beforehand, and even the appropriate doses if supplementation is performed (34). Moreover, it is controversial whether the decrease in antibody levels resulting from these nutritional modifications is clinically significant, and it is clear that more evidence is needed for these recommendations to become widely applicable.

Study Limitations

This study is not without limitations. The main limitation is the low response rate for the survey, particularly among AEs. This low response rate may limit the generalizability of the findings to the broader population of endocrinologists in Türkiye. In addition, the attitudes and practices of non-responders might differ significantly from those who chose to participate, which could skew the study results. Nevertheless, we think that the results of our study are important in terms of showing the current problems and contradictions among clinicians in Türkiye in HT management.

Conclusion

In conclusion, while the management of HT shows significant variation between PEs and AEs in Türkiye, these differences highlight the need for continued research and the development of comprehensive, evidence-based guidelines to harmonize practices and optimize patient outcomes in HT. As nutritional and supplementation practices evolve, robust clinical trials are needed to establish the efficacy and safety of interventions, including iodine restriction and selenium supplementation, in HT patients. This will help standardize care and ensure all patients receive the most effective and evidence-based treatments.

Ethics

Ethics Committee Approval: The study protocol was approved by the University of Health Sciences Türkiye, Şişli Hamidiye Etfal Training and Research Hospital Health Practices and Research Centre Local Ethics Committee (protocol no: 4449, date: 25.06.2024).

Informed Consent: It is a survey study filled out voluntarily by participants.

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Presented in: The study has been presented as an oral presentation at National Pediatric Endocrinology and Diabetes Congress in 03.04.2024.

Footnotes

Authorship Contributions

Surgical and Medical Practices: Gül Yeşiltepe Mutlu, Bahar Özcabı, Elif Sağsak, Aydilek Dağdeviren Çakır, Yavuz Özer, Cengiz Kara, Concept: Gül Yeşiltepe Mutlu, Design: Gül Yeşiltepe Mutlu, Bahar Özcabı, Elif Sağsak, Aydilek Dağdeviren Çakır, Yavuz Özer, Cengiz Kara, Data Collection or Processing: Gül Yeşiltepe Mutlu, Bahar Özcabı, Aydilek Dağdeviren Çakır, Analysis or Interpretation: Gül Yeşiltepe Mutlu, Bahar Özcabı, Cengiz Kara, Literature Search: Gül Yeşiltepe Mutlu, Bahar Özcabı, Cengiz Kara, Writing: Gül Yeşiltepe Mutlu, Bahar Özcabı, Cengiz Kara.

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