

# The Level of Awareness on Thyroid Disorder

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## ABSTRACT:

The level of awareness on thyroid disorders

**Objective:** To evaluate the level of awareness among patients with thyroid disorders presenting to our hospital and determine patient profiles.

**Material and Method:** The present study was conducted using a survey technique on patients aged between 18 and 75 years, who were admitted to our hospital for follow-up for thyroid disease between December 1, 2014 and December 31, 2014. The pregnant women and those with a thyroid malignancy and patients who did not consent for the study were excluded. Demographic data such as age, gender, educational level, disease duration, control frequency as well as drug usage pattern, dose, duration and whether or not the patient received fixed dose drug regimen and food/drugs that are not to be taken with the drug were recorded. Type of salt used by the patients was also recorded.

**Results:** An interview was conducted with a total of 107 patients (4 males [3.7%] and 103 females [96.3%]) with a mean age of 46 years. Of these patients, 85 (79.4%) attended follow-up visits for more than a one-year period and most patients (n=56) were seen at least three times in the last year (52.4%). Of these patients, 69 (64.5%) had hypothyroidism, 11 (10.3%) had hyperthyroidism, and the remaining 27 patients (25.2%) had euthyroid nodular goitre. It was found that 78 patients (72.9%) were inaccurately or incompletely informed about their disease. Of the patients, 54 (50.4%) were aware that they needed to use iodized salt and 41 patients (38.4%) were not aware of what kind of salt they had to use. When the patients in the study were asked whether they were aware of food and drugs interacting with levothyroxine, 55 patients (86%) were not aware of these food and drugs. Approximately 30% of patients used iron supplements and proton pump inhibitors together with levothyroxine.

**Conclusion:** The patients with thyroid disorders had a low level of awareness and low level of knowledge about their disease, follow-up data and their treatments. The physicians must make an endeavor to increase the level of awareness among the patients.

**Keywords:** Awareness, drug interaction, iodine deficiency, thyroid disease

## ÖZET:

Tiroid hastalıklarında bilinç düzeyi

**Amaç:** Tiroid hastalığı nedeniyle hastanemize başvuran hastaların profili ve hastalıkları ile ilgili farkındalığın değerlendirilmesi

**Gereç ve Yöntem:** Çalışmamız 1-31 Aralık 2014 tarihleri arasında tiroid hastalığı nedeniyle takipli olan 18-75 yaş arası hastalar ile anket çalışması yapılarak gerçekleştirildi. Gebe, tiroid maligniteli ve onam vermeyen hastalar çalışmaya dahil edilmedi. Hastaların yaş, cinsiyet, eğitim durumu, hastalık süresi, kontrol sıklığı gibi demografik özellikleri, ilaç kullanım şekli, dozu, süresi, ilacı sabit dozda alıp almadığı, ilaçla birlikte alınmaması gereken gıda/ilaç bilgisi sorgulandı. Hastalara kullandıkları tuz çeşidi soruldu.

**Bulgular:** Yaş ortalaması 46 olan, 4'ü (%3.7) erkek, 103'ü (%96.3) kadın toplam 107 hasta ile görüşüldü. Hastaların 85'inin (%79.4) bir yıldan fazla süredir takip edildiği, çoğu hasta (56, %52.4) ile bir yıl içinde en az 3 kez karşılaştığı görüldü. Hastaların 69'u (%64.5) hipotiroidi, 11'i (%10.3) hipertiroidi ve geri kalan 27'si (%25.2) ötiroid nodüler guatr tanılı idi. 78 (%72.9) hastanın tanısını yanlış ya da eksik bildiği tespit edildi. İyotlu tuz kullanması gerektiğini bilen hasta sayısı 54 (%50.4) olarak saptanmış olup, hastaların yaklaşık 41'i (%38.4) nasıl tuz kullanması gerektiğini bilmediğini söyledi. Çalışmamızda hastalara levotiroksin ile etkileşen yiyecekler ve ilaçlardan haberdar olup olmadıkları sorulduğunda 55 hasta (%86) haberdar olmadığını ifade etti. Demir preparatı ve proton pompa inhibitörlerinin %30'a yakın oranlarda levotiroksinle birlikte kullanıldığı tespit edildi.

**Sonuç:** Tiroid hastalarının tanı, takip ve tedavileri ile ilgili farkındalıkları ve bilgi düzeyleri düşük seviyelerdedir. Hastaların farkındalıklarının artırılması ile ilgili hekimlerin daha fazla çaba sarf etmeleri gerekmektedir.

**Anahtar kelimeler:** Farkındalık, ilaç etkileşimi, iyot eksikliği, tiroid hastalıkları

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## INTRODUCTION

Thyroid diseases are among the common diseases in the community with a prevalence of 30% (1,2). Since thyroid hormones have metabolic activity in various organs, thyroid function disorders are manifested with many symptoms through the body and affected quality of life (3). One of the most important factors in the maintenance of normal thyroid functions and its anatomy is the adequate level of iodine in the body. The impact of advanced iodine deficiency on the population emerges as the results of thyroid function disorders such as endemic goiter, hypothyroidism, cretinism, decreased fertility rate, increased infant mortality and mental retardation. In regions in which we are present, the recent studies show that despite the precautions taken, the iodine deficiency continued (4). These studies emphasize that the continuation of prophylaxis is extremely important to prevent the iodine deficiency (5). This condition raised the question whether we, the physicians, inform the patients with thyroid disease enough about iodine supplementation in addition to the medical treatment.

In our country, there are extremely limited studies present on the awareness about their diseases of the patients themselves. We believe that there is need for more awareness of thyroid diseases, which is an important public health concern, affecting all parts of the community. As we know, there is no other study in our country regarding the awareness of thyroid patients. We aimed to determine the awareness of patients who were admitted to our hospital because of thyroid disease, on their disease and the deficiency of iodine.

## MATERIAL AND METHOD

A total of 107 patients who were admitted to the internal medicine outpatient clinics for thyroid disease between December 1-31, 2014 were examined, and a survey study containing 30 questions was performed. The consecutive female and male patients between the age 18-75 years, with hypothyroidism, euthyroidism or hyperthyroidism, and using drugs or under follow-up without drugs were included in the study. The patients with thyroid malignancies who are under the follow-up of endocrine clinics, who are pregnant and who didn't consent were excluded from the study. The survey questions included demographic characteristics such as age, gender, educational level, disease duration, control frequency, as well as questions related with drug usage pattern, dose, duration and whether or not the patient received fixed dose drug regimen and food/drugs that are not to be taken with the drug. The medical diagnoses of the cases were recorded. The patients were asked which type of salt they were using. Thyroid function tests and ultrasound data were obtained from the hospital records.

## RESULTS

An interview was conducted with a total of 107 patients (4 males [3.7%] and 103 females [96.3%]) with a mean age of 46 years (Table-1). Of these patients, 85 (79.4%) were detected to attend follow-up visits for more than a one-year period and 56 (52.4%) were detected to be seen at least three times in a year. Of these patients, 69 (64.5%) had hypothyroidism, 11 (10.3%) had hyperthyroidism, and the remaining 27 patients (25.2%) had euthyroid nodular goitre. The medical diagnoses of the patients

**Table-1: Demographic data**

|                                   |                              |                          |                            |
|-----------------------------------|------------------------------|--------------------------|----------------------------|
| <b>Age</b>                        | 46                           |                          |                            |
| <b>Gender M/F</b>                 | 4 (3.7%) / 103 (96.3%)       |                          |                            |
| <b>First diagnosis</b>            | Hypothyroidism 69 (64.5%)    | Nodular goiter 27(25.2%) | Hyperthyroidism 11 (10.3%) |
| <b>Educational level</b>          | Primary education 58 (54.2%) | Other 21 (19.6%)         | Illiterate 28 (26.2%)      |
| <b>Period of disease</b>          | ≤ 3 months 6 (5.5%)          | 4 - 12 months 16 (14.9%) | > 1 year 85 (79.4%)        |
| <b>Control frequency</b>          | ≤ 3 months 56 (52.4%)        | 4 - 12 months 41 (38.3%) | > 1 year 10 (9.3%)         |
| <b>Awareness of the diagnosis</b> | True 29 (27.1%)              | False 44 (41.1%)         | Lacking 34 (31.8%)         |
| <b>Used salt</b>                  | Iodized salt 54 (50.4%)      | Rock salt 12 (11.2%)     | Unknown 41 (38.4%)         |

**Table-2: Medical diagnoses**

|                   |                                                                                |
|-------------------|--------------------------------------------------------------------------------|
| <b>34 (31.9%)</b> | Hypothyroidism following thyroiditis                                           |
| <b>27 (25.2%)</b> | Nodular goiter                                                                 |
| <b>28 (26.2%)</b> | Hypothyroidism following thyroiditis + nodular goiter                          |
| <b>5 (4.6%)</b>   | Hypothyroidism developing following surgery                                    |
| <b>2 (1.8%)</b>   | Hypothyroidism following the radioactive iodine therapy (1 Graves+1 Toxic MNG) |
| <b>11 (10.3%)</b> | Hyperthyroidism (6 subacute thyroiditis + 5 Toxic MNG)                         |

**Table-3: Data on replacement therapy**

|                                             |                              |                           |                      |
|---------------------------------------------|------------------------------|---------------------------|----------------------|
| <b>Period of levothyroxine use</b>          | ≥ 3 months 10 (14.2%)        | 4 - 12 months 9 (12.9%)   | > 1 year 51 (72.9%)  |
| <b>Dose of levothyroxine</b>                | <100 mcg 20 (31.2%)          | 100 mcg 26 (40.6%)        | > 100 mcg 18 (28.2%) |
| <b>Dose of daily replacement</b>            | Fixed dose 51 (78.4%)        | Different dose 14 (21.5%) |                      |
| <b>Time of levothyroxine intake</b>         | On an empty stomach 52 (80%) | On a full stomach 8 (20%) |                      |
| <b>Information on food/drug interaction</b> | Present 10 (14%)             | Absent 55 (86%)           |                      |
| <b>Use of iron preparations</b>             | Yes 20 (30.7%)               | No 45 (69.3%)             |                      |
| <b>Use of PPI</b>                           | Yes 18 (27.6%)               | No 47 (72.4%)             |                      |

were as classified in Table-2. The most common diagnosis was autoimmune thyroiditis in 34 (31.9%) patients, followed by nodular goiter in 27 (25.2%) patients, and nodular goiter with autoimmune thyroiditis in 28 (26.2%) patients. Five patients (7.2%) were admitted with apparent hypothyroidism, and 64 (92.8%) with subclinic hypothyroidism. Sixty-five (91.5%) of 71 (66.3%) patients who were taking drug therapy were on replacement therapy, while 6 (8.5%) were taking antithyroid medication. Fifty-one (78.4%) patients were receiving their daily replacement dose as a fixed dose, and 14 (21.5%) patients as different daily doses. Of the 65 patients who were receiving levothyroxine, 46 (70.7%) were euthyroid, 16 (24.6%) were subclinical hypothyroidism, and 3 (4.7%) were subclinical hyperthyroidism. Of 6 patients who were receiving antithyroid agents, only 2 were euthyroid, 3 had subclinical hyperthyroidism and 1 had clinical hyperthyroidism.

In this study 29 (27.1%) patients were found to know their diagnosis about the thyroid disease correctly. The remaining 78 (72.9%) patients had wrong information about which thyroid disease they had or had no knowledge. When asked about which salt was used, 54 (50.4%) patients stated that they were using iodized salt, 12 (11.2%) patients were using rock salt, and 41 (38.3%) patients stated they didn't know which type of salt they were using.

Ten (15.4%) patients were aware of levothyroxin and food/drug interaction, while 55 (84.6%) patients

were not. When the patients were asked if they were receiving iron preparations while they were using levothyroxine for at least 1 month any time during their replacement therapy, "i used" response was received from 20 (30.7%) patients and "i didn't use" response was received from 45 (69.3%) patients. When the proton pump inhibitor (PPI) use for at least 1 month was questioned, 18 (27.6%) patients were found to use PPI with levothyroxine and 47 (72.4%) patients didn't. Of 6 patients receiving antithyroid treatment, 4 were receiving methimazole, 2 were receiving propylthiouracil; of these patients, the treatment period of 4 cases was over 2 years (Table-4).

## DISCUSSION

This study was aimed to evaluate the awareness of thyroid disease in patients admitting to our clinic with thyroid dysfunction.

For this, patients were questioned initially about their own diseases and their treatments and 78 (72.9%) patients have been found to know their diagnoses as inaccurate or incomplete. There is extremely limited study on awareness of diseases of the patients of their own in our country. As far as we know, there is no other study regarding the awareness of thyroid diseases in our country, while in a study regarding the awareness of patients with diabetes, the rate of awareness was found as 54.5%, and in the other, it was found as 87.7% (6,7). In accordance

with our data, the awareness rate of thyroid patients in our country was found to be quite low, with being lower than the rate of awareness of patients with diabetes. In addition to the high frequency and the progressive complications of diabetes, diabetes to be kept up to date and to be mentioned in written and oral media is one of the possible factors for this condition. However, thyroid diseases are among the common diseases with the almost 30% prevalence in the community and they may have a significant impact on the quality of life with their symptoms (1,2). It is essential for the physicians to raise the awareness of the patients and to use the written/oral media in increasing the patients' awareness related with the disease, which has a great importance in providing the compliance to the follow up and the treatment of the thyroid patient.

The long-time compulsory sale of iodized salt in our country has been an important step in preventing the thyroid diseases. However, various recent studies show that the iodine deficiency continues (8). In other studies, supporting these findings, 15% of the patient population stated that they didn't use iodized salt (9). This rate may drop to 10% in urban areas, while in rural areas may be up to 30%. Furthermore, even in studies in which 91% of the population stated that they used iodized salt, the urinary iodine levels were not determined as adequate (10). Although the evaluation of the frequency of iodine deficiency in the community is out of the scope of our study, the rate of patients who were supposed to know that they should use iodized salt was detected as 50.4%, and nearly 38% of the patients stated that they didn't know what kind of salt they had to use, in our study. Even though our study was conducted in Istanbul, the rates of awareness of iodized salt are similar to the rates in the rural areas in the previous study. The prevention of inadequate iodine intake, which is the most important cause of iodine deficiency, will prevent a number of health problems such as fetal anomalies up to the thyroid diseases in adults (11,12). The physicians are the most important mainstay in the solution of this problem. However, in a recent study from our country, the 67.1% of the physicians stated that there is no need of iodine replacement in pregnancy. This condition shows that the awareness

about the thyroid diseases and the iodine deficiency of the physicians as well as the patients should be raised (13). In Barutçugil et al.'s study in 2005, 13.4% of the families of the children were detected to be advised by their physicians to use iodized salt, and the families who didn't use iodized salt were detected to not have any suggestions from their physicians (14). In Demircan et al.'s study, to the questioning of "are you recommended to use iodized salt by any doctor?", only 8% of the cases responded with the answer "yes, recommended" (15).

Another important point in this study is the food consuming and drug interaction that may affect the levothyroxine dose. The interaction of levothyroxine with food and the other drugs is a long known issue. In patients receiving levothyroxine replacement, in a recent study, it was shown that the food intake may disrupt the regulation of TSH (16). Particular medications which are prescribed commonly such as oral iron preparations, antacids, calcium tablets, proton pump inhibitors reduce the absorption of levothyroxine (17). Therefore, there must be at least 4 hours interval between the intake of these drugs and levothyroxine intake (18). In our study, the patients were asked whether they were aware of food and drugs that interact with levothyroxine, 55 patients (86%) stated that they were not aware. In addition, in the questioning of iron and proton pump inhibitor usage, which have high rates of prescription in the female population and taken on an empty stomach, both drugs have been found to be used with a rate of approximately 30% with levothyroxine.

In our study, with 85 (79.4%) of the patients being under follow-up for more than a one-year period and most patients (n=56) being seen at least three times in the last year (52.4%), it is thought that it is possible to allocate sufficient time to submit information to suggest appropriate salt levels, diet and drug/food interaction for each patient.

Consequently, this study demonstrates that the awareness and the level of knowledge of thyroid patients related to their diagnosis, follow-up and therapies were at low levels. The physicians are required to make a greater effort to raise the awareness of the patients.

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