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ORIGINAL PAPER

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Reasons for Referring Patients for Determining the Hormonal Status of the Thyroid Gland From the Level of Primary Health Care in Sarajevo Canton

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ABSTRACT

Background: Thyroid dysfunction includes hyper- and hypofunction of the thyroid gland (hyperthyroidism and hypothyroidism). The spectrum encompasses both subclinical and clinical disease presentation. The etiology is vast and varied, as are the risk factors and symptoms. **Objective:** The main aim of the research is to indicate the leading symptom for initial thyroid hormone status evaluation, as well as to identify the distribution of positive and negative test results, and specific disorders according to sex and age groups. **Methods:** The research is designed as a retrospective, clinical, descriptive study. There were 500 participants included, 355 female and 145 male. Patients were referred to the Department of endocrinology by their primary care physicians. The data was collected through patient documentation. **Results:** The study included 500 participants, 71% of diagnostic requests made were for women. 80% of subjects had normal thyroid hormone status, $p < 0.001$. Most requests were made for the 41-60 age group, $p < 0.001$. Women had similar number of positive and negative test outcomes, as well as men. When it comes to the age groups, outcomes were similar in all of them, 15-23% positive and 77-85% negative. There were significant differences in the type of symptom expressed in both men and women, as well as all the age groups. Men reported high blood pressure as the most common symptom (30.3%), while women reported weight gain (22.3%). In the 18-25

and 26-40 age groups most common symptom belongs to the category of other. Age group of 41-60 reported weight gain as the most common symptom, while in participants older than 60, high blood pressure is proven to be the most common. Hypothyroidism is the most common disorder in both men and women, as well as in all age groups. **Conclusion:** It is statistically proven that there were more requests made for women, and older age groups. Leading symptom for initial thyroid hormone status evaluation is high blood pressure. There is no statistically significant difference in distribution of thyroid disorders according to sex or age groups.

Keywords: hypothyreosis, hyperthyreosis, symptoms of the thyroid diseases.

1. BACKGROUND

Thyroid dysfunction includes hyper- and hypofunction of the thyroid gland (hyperthyroidism and hypothyroidism). The spectrum encompasses both subclinical and clinical disease presentation. The etiology is vast and varied, as are the risk factors and symptom of the disorders. This is the reason why a large number of patients are referred to determine the hormonal status of the thyroid gland.

2. OBJECTIVE

The main aim of the research is to indicate the leading symptom for initial thyroid hormone status evaluation, as well as to identify

the distribution of positive and negative test results, and specific disorders according to sex and age groups.

3. MATERIAL AND METHODS

The research is designed as a retrospective, clinical, descriptive study. There were 500 participants included, 355 female and 145 male. Patients were referred to the Department of endocrinology by their primary care physicians. The data was collected through patient documentation.

4. RESULTS

From the total number of requests (N=500) for thyroid hormone analysis, there are statistically significantly more negative results (normal hormone values) than positive ones, $p < 0.001$. Out of a total of 500 (100%) requests for thyroid hormone analysis, 355 (71%) requests were made for female patients and 145 (29%) for male patients.

From the total number of requests (N=500) for thyroid hormone analysis, there are statistically significant more requests for female patients compared to male patients, $p < 0.001$. Out of a total of 500 (100%) requests for thyroid hormone analysis, 65 (13%) requests are in the 18-25 age group, 120 (24%) in the 26-40 age group, 178 (36%) in the 41-60 years, and 137 (27%) in the age group >60 years. age. Of the total number of requests (N=500) for thyroid hormone analysis, there are statistically significantly more requests for older age groups compared to younger ones, $p < 0.001$. The most requests are in the age group of 41-60 years, then in the group >60 years. The fewest requests are in the age group of 18-25 years age. In the group of male subjects, 22 (15.2%) men had positive test results (pathological values), and 123 (84.8%) men had negative test results (normal values). In the group of female subjects, 78 (22.0%) women had positive test results, and 277 (78.0%) women had a negative test result. In relation to the test results, there are no statistically significant gender differences ($p = 0.085$) between men and women. Female subjects have a similar number of positive and negative test outcomes as male subjects.

In relation to the test results, there are no statistically significant age differences ($p = 0.226$) between age groups. The proportion of positive test results ranged from 15-23%, and the proportion of negative from 77-85%, in all age groups. Fatigue was experienced by 33 (22.8%) male and 71 (20.0%) female respondents. 41 (28.3%) male and 61 (17.2%) female subjects felt shortness of breath. 44 (30.3%) male and 73 (20.6%) female subjects had high blood pressure. Only 27 (18.6%) male respondents had arrhythmias. Weight gain was described only in 79 (22.3%) women. Other symptoms and signs of the disease occurred only in women, in 71 (20.0%).

There are statistically significant differences between male and female subjects in the type of manifested symptoms and signs of the disease, $p < 0.001$. In the age group 18-25 years 20 (30.8%) subjects had fatigue, 10 (15.4%) shortness of breath, 10 (15.4%) high blood pressure, 2 (3.1%) arrhythmias and 23 (35.4%) other symptoms and signs. In the age group 26-40 years 36 (30.0%)

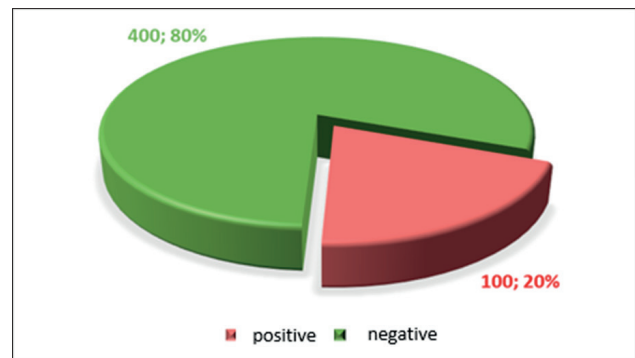


Chart 1. Positive and negative results in the total number of submitted requests

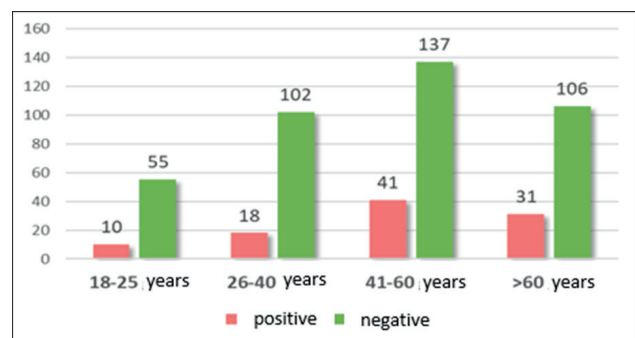


Chart 2. Age distribution of positive and negative results of thyroid hormone testing

subjects had fatigue, 23 (19.2%) shortness of breath, 16 (13.3%) high blood pressure, 5 (4.2%) arrhythmias and 40 (33.3%) other symptoms and signs. In the age group 41-60 years 33 (18.5%) subjects had fatigue, 41 (23.0%) shortness of breath, 39 (21.9%) high blood pressure, 9 (5.1%) arrhythmias, 54 (30.3%) weight gain and 2 (1.1%) other symptoms and signs. In the age group >60 years 15 (10.9%) subjects had fatigue, 28 (20.4%) shortness of breath, 52 (38.0%) high blood pressure, 11 (8.0%) arrhythmias, 25 (18.2%) weight gain and 6 (4.4%) other symptoms and signs.

There are statistically significant differences between the age groups in the type of manifested symptoms and signs of the disease, $p < 0.001$. Of the total number of male subjects with thyroid hormone disorders (N=22), 11 (50%) have hypothyroidism, 6 (27.3%) subclinical hypothyroidism, 2 (9.1%) hyperthyroidism, and 3 (13.6%) subclinical hyperthyroidism. Of the total number of female subjects with thyroid hormone disorders (N=78), 43 (55.1%) of them had hypothyroidism, 23 (29.5%) had subclinical hypothyroidism, 9 (11.5%) had hyperthyroidism, and 3 (3.8%) had subclinical hyperthyroidism. There are no statistically significant differences between male and female subjects in the type of thyroid disorder, $p = 0.400$. In both sexes, hypothyroidism is the most common, followed by subclinical hypothyroidism.

Hyperthyroidism and subclinical hyperthyroidism are the least common of the mentioned thyroid disorders in both sexes. In the age group 18-25 years there are 3 cases each (30%) of hypothyroidism, subclinical hypothyroidism and hyperthyroidism, and 1 (10%) of subclinical hyperthyroidism. In the group of 26-40 years there are 8 (44.4%) hypothyroidism, 5 (27.8%) subclini-

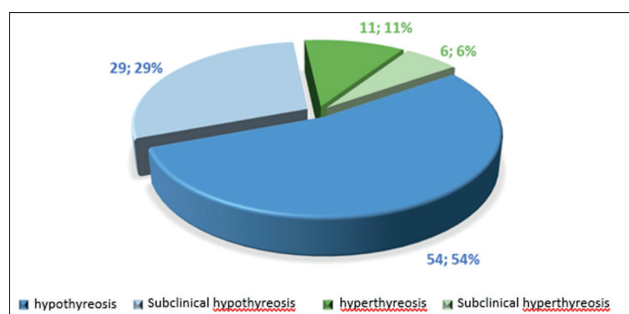


Chart 3. Proportion of type of thyroid disorder in the population with positive (pathological values) of hormones (N=100)

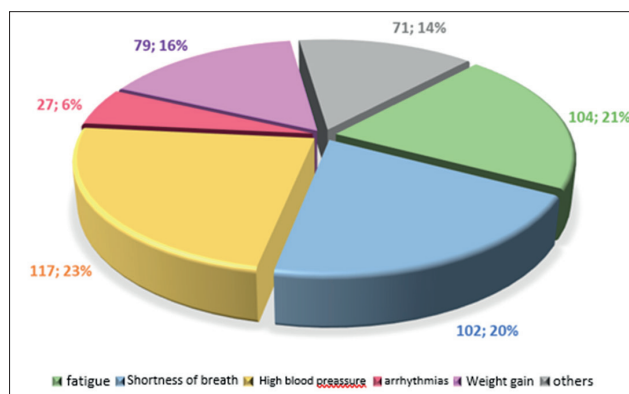


Chart 4. Frequency of symptoms and signs of the disease in the total population (N=500)

cal hypothyroidism, 3 (16.7%) hyperthyroidism, and 2 (11.1%) subclinical hyperthyroidism. In the group of 41-60 years there are 21 (51.2%) hypothyroidism, 14 (34.1%) subclinical hypothyroidism, 4 (9.8%) hyperthyroidism, and 2 (4.9%) subclinical hyperthyroidism. In the group >60 years there are 22 (71.0%) hypothyroidism, 7 (22.6%) subclinical hypothyroidism, 1 (3.2%) hyperthyroidism and subclinical hyperthyroidism. There are no statistically significant differences between age groups in the type of thyroid disorder, $p=0.275$. In all age groups, hypothyroidism is the most common, followed by subclinical hypothyroidism, while hyperthyroidism and subclinical hyperthyroidism are the least common thyroid disorders.

In the total number of established disorders of the thyroid gland (N=100), there is a statistically significant difference in the frequency of individual disorders, $p<0.001$. The most common disorder is hypothyroidism and subclinical hypothyroidism, while the rarest disorders are hyperthyroidism and subclinical hyperthyroidism.

In the total examined population (N=500) there is a statistically significant difference in the frequency of individual symptoms and signs of the disease, $p<0.001$. The most common disorders are high blood pressure, fatigue and shortness of breath, while arrhythmias, weight gain and other symptoms and signs are less common. Arrhythmias are the rarest recorded symptom in the studied population. The frequency of symptoms and signs of the disease is statistically significantly different between positive and negative thyroid hormone test results, $p<0.001$. The most common symptoms and signs in the group with negative results are fatigue, shortness of breath and hypertension, while in the positive group

there is weight gain.

5. DISCUSSION

Thyroid dysfunction encompasses a spectrum of disorders that have numerous effects on the quality of life of affected patients. Due to the variability in the clinical manifestation of the disorder and the intertwining with many other conditions, biochemical testing of the hormonal status of the thyroid gland seems necessary in order to achieve the correct diagnosis and proper treatment of the patient.

6. CONCLUSION

There are statistically significantly more requests for evaluating the hormonal status for women. There are statistically more requests for older age groups. In relation to the test results, there are no statistically significant gender or age differences in the examined population. There are statistically significant differences in the type of manifested symptoms and signs between men and women, as well as the age groups of the respondents. Also, the frequency of symptoms and signs of the disease is statistically significantly different between positive and negative thyroid hormone test results. There are no statistically significant differences between male and female subjects in the type of thyroid disorder. There are no statistically significant differences between age groups in the type of thyroid disorder. In the total sample of subjects diagnosed with thyroid disorders, hypothyroidism is statistically the most common.

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- **Financial support and sponsorship:** None.

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