



The Prevalence of Signs of Thyroid Pathology among Students of the Karaganda Medical University According to the Survey

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Abstract

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AIM: The objectives of the study were to study the signs of thyroid dysfunction in students at the Karaganda Medical University.

MATERIALS AND METHODS: The survey was conducted among students of the Karaganda Medical University in the amount of two hundred people. Statistical methods were used for comparison among students of different courses.

RESULTS: Among junior students, signs of thyroid dysfunction were more pronounced than among senior students. More than half of the examined students had a diagnosed thyroid pathology, which was more pronounced in students of one and two courses.

CONCLUSION: Undergraduates are more likely to exhibit signs of stress-related thyroid dysfunction.

Introduction

The thyroid gland is an endocrine organ located in the front of the lower part of the neck and extending from the level of the fifth cervical vertebra to the first thoracic region. The gland varies from H to U-shaped and is formed by two elongated lateral lobes with an upper and lower poles connected by a median isthmus, with an average height of 12–15 mm, lying above the second and fourth tracheal rings, consists of 2 lobes, the mass of which is 25–40 g. When viewed from the front, it has, rather, the shape of a butterfly, however, in all European languages (German Schilddrüse, English Thyroid, etc.) it received an incorrect name “thyroid,” etymologically derived from the Greek word thyreos. Probably, the gland owes its name to a large extent to its topographic proximity with the thyroid cartilage of the

larynx, which in its outlines really resembles the Greek “oblong shield.” The thyroid tissue is extremely actively supplied with blood: The level of blood flow in its tissue is about 50 times higher than the level of blood flow in the muscles. In the immediate vicinity of the surface of the thyroid gland, there are extremely important anatomical structures: Large vessels (common carotid artery, internal jugular vein), nerves (recurrent laryngeal nerve and superior laryngeal nerve), trachea, esophagus, and parathyroid glands. It is the proximity of these formations that makes it difficult to perform operations on the thyroid gland - damage to any of them leads to serious, sometimes life-threatening complications.

There are several types of disorders in the function and structure of the thyroid gland:

Goiter: A common name for a swollen thyroid gland. Goiter can be either iodine deficiency or a

disease associated with inflammation of the thyroid gland called thyroiditis, with various variations.

Thyroiditis: An inflammation of the thyroid gland, usually caused by a viral infection or autoimmune disease. Thyroiditis can be symptomatic or asymptomatic.

Hyperthyroidism: Overproduction of thyroid hormones. Most often hyperthyroidism is caused by Graves' disease

Hypothyroidism: Low production of thyroid hormone. Thyroid damage caused by an autoimmune disease is the most common cause of hypothyroidism.

Thyroid nodule: A small abnormal mass or lump in the thyroid gland. Thyroid nodules are very common. Some of them are cancerous. They may release excess hormones, causing hyperthyroidism, or they may not cause any problems.

A thyroid cyst: A cavity formation in one of the most important glands of the human body -- the thyroid - is a benign, very small tumor that has colloidal contents inside.

Thyroid cancer: An unusual form of cancer.

Thyroid storm: A rare form of hyperthyroidism in which extremely high levels of thyroid hormones cause severe illness.

In recent years, the problem of treatment and prevention of autoimmune thyroiditis (AIT) has acquired special social significance in connection with the consequences of the progression and outcome of this disease: The onset of insufficient thyroid function. Persistent loss of thyroid function, hypothyroidism, dictates the need for lifelong thyroid hormone replacement therapy. The presence of such a condition in a patient as subclinical hypothyroidism regulates the appointment of low doses of levothyroxine for a long period. At the same time, one of the factors contributing to the development of AIT is long-term intake of iodine-containing preparations or consumption of iodized food products [1], [2], [3], [4] due to the effect of iodine preparations on the immune system [5], [6], [7]. According to a number of researchers [8], [9], [10], unjustified prescription of iodine-containing drugs, as well as justified, but long-term, leads to an increase in the content of antibodies to TPO. Chronic administration of high doses of iodine was accompanied by activation of oxidative stress in the thyroid gland, as evidenced by an increase in the concentration of thiobarbiturate acid and the activity of antioxidant enzymes [10], [11], [12], [13], [14].

At the same time, iodine deficiency states contribute to the emergence of nodes, or benign neoplasms of the thyroid gland, which are very important to distinguish with the oncological process.

AIT with normal thyroid function (euthyroidism) often becomes the subject of medication intervention, especially if it is hypertrophic or has nodules in the

thyroid tissue. The latter can be fairly regarded as a combination of AIT with nodular goiter in areas of iodine deficiency endemic (according to the ICD-10 classification, E04.1 Non-toxic single-nodular goiter, E04.2 - Non-toxic multinodular goiter). In such cases, we meet with the practice of prescribing potassium iodide preparations (iodomarin, iodine-balance, potassium iodide, etc.) [9], [15], [16], [17], [18] despite the fact that the National Clinical Protocol does not recommend its application. In this case, the main argument is the reasoning about the endemic lack of iodine in water and food.

In terms of the prevalence of endocrine pathology in the population, AIT takes the 2nd place, second only to diabetes mellitus [5], [19], [20]. According to statistics [19], [21], [22], [23], [24], about 50% of women aged 30 to 50 years suffer from autoimmune thyroiditis. Among the patients who turned to endocrinologists, almost half suffer from autoimmune thyroiditis - both as an independent disease and in combination with another thyroid pathology [4], [21], [22], [25].

The aim of our work was to conduct a comparative analysis of the presence of symptoms of thyroid pathology among junior and senior students.

Materials and Methods

To identify signs of thyroid pathology, a questionnaire was used, consisting of 16 questions. The study involved 200 respondents: The number of them revealed signs of thyroid gland pathology 141 people, just with clinical manifestations - 59 people.

The analysis of qualitative features was used. The contingency table for an independent sample.

$$\chi^2 = \frac{(ab - bc)^2 * n}{(a + b)(c + d)(a + c)(b + d)}$$

Data analysis was carried out using MS Excel programs and statistical software R.

Results and Discussion

Among the respondents, sleep disorders were found only in 75 out of 141, of which among 2nd and 3rd-year students with sleep disorders it was 38.67% each, while the same indicator for 4th-year students was 10.67% and 5th-year students 12% (Figure 1).

Irritability according to the questionnaire out of 141 people was 44, of which 2-year students 31%, respectively, 43% of 3-year students, 12% of 4-year

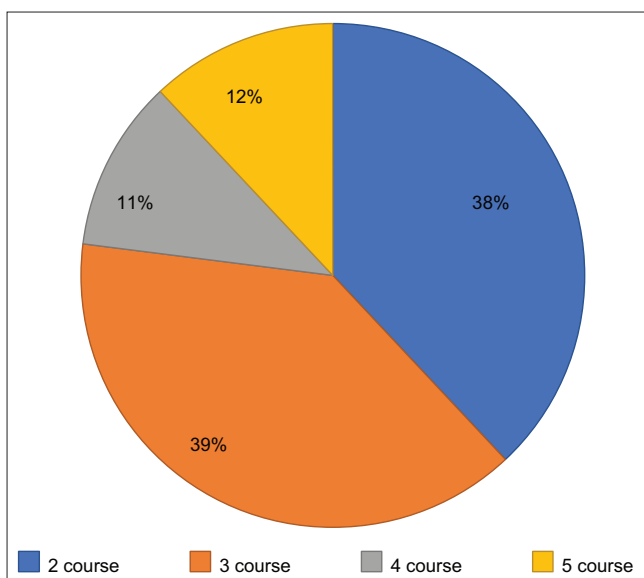


Figure 1: The frequency of occurrence of sleep disorders among students of the courses

students, and 14% of 5-year students. The presence of fatigue among the surveyed 141 students 96 people (68%), of whom 40% were found among 2nd-year students, 44% and 4-year students - 6%, as well as 5th-year students 10% (Figure 2).

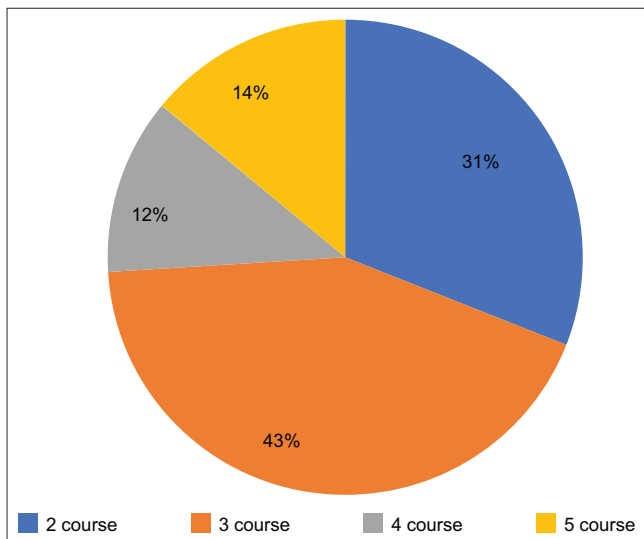


Figure 2: The frequency of occurrence of irritability among students of the courses

As shown in Table 1, among 141 respondents, hair loss was 102 among 141, 36.27% in 2 courses, 42.16% in 3 courses, 8.82% among 4-year students, and 12.75% in 5 courses.

Table 1: Other symptoms of chronic fatigue identified during the survey

No	Questionnaire	% stated answers
1.	Loss of hair in 102 out of 141	72,34
2.	Gaining or loss of the weight with no reasons in 40 out of 141	28,37
3.	Stool dysfunction in 31 out of 141 Diarrhea (9) Constipation (22)	6,38 15,60
4.	Appetite changes in 62 out of 141	43,97

The presence of weight gain or weight loss for unexplained reasons among the powder was 40 out of 141, of which 2-year students accounted for 45%,

3-year students - 42.5%, 4-year students - 2.5%, and 5-year students - 10%, respectively.

Violation of stool in the form of constipation (22 people) or diarrhea (9 people) out of 141, respectively, in the 2nd course constipation occurred 22.73%, diarrhea 44.44% (further C/D), in the 3rd course - 36.36%/33.33%, for the 4th course - 13.64%/0%, for the 5th course - 27.27%/22.22%. Changes in appetite were observed in 62 respondents among 141 respondents: in the 2nd course -37.10%, the 3rd course-41.94%, the 4th course-4.84%, the 5th course-16.13%.

Conclusion

In 2nd and 3rd year students, the manifestations of AIT intensified, since clinical disciplines were introduced into the educational process and the GPA was raised from course to course. In senior students, the signs of AIT decreased, taking into account the beginning of cyclic lessons, which made it possible to have more free time for preparation and practice with patients, which allows us to conclude that the adaptation mechanisms of the body were activated against the background of a respite, but by the 5th year, the level of AIT signs slightly increased, which associated with the choice of the future direction.

Proceeding from this, stress-induced signs of AIT are more pronounced in the younger years, since the period of adaptation begins, and they are less pronounced already in the senior years since the adaptation mechanisms are enhanced due to the stabilization of the psycho-emotional state.

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