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МИКСЕДЕМА – ЗАБОЛЕВАНИЕ ЭНДОКРИННОЙ СИСТЕМЫ

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Аннотация

Введение. Микседема занимает второе место по распространенности в структуре всех заболеваний щитовидной железы. **Цель исследования** – анализ медико-биологических характеристик заболевания микседема и степени осведомленности общественности о нем. **Материал и методы.** Проведено анкетирование, нацеленное на выявление информированности разных категорий людей об эндокринных заболеваниях, в частности о микседеме. В социологическом опросе приняло участие 65 человек. **Результаты.** Итоги опроса продемонстрировали высокую осведомленность участников о заболеваниях щитовидной железы в общем и низкую – о микседеме, в частности. **Выводы.** Полученные результаты демонстрируют необходимость просвещения людей по вопросам заболеваний эндокринной системы.

Ключевые слова: микседема, щитовидная железа анкетирование, анализ, осведомленность.

MYXEDEMA – DISEASE OF THE ENDOCRINE SYSTEM

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Abstract

Introduction. Myxedema ranks second in prevalence in the structure of all thyroid diseases. **The aim of the study** is to analyze the biomedical characteristics of the myxedema disease and the degree of public awareness about it. **Material and methods.** A survey was conducted aimed at identifying the awareness of different categories of people about endocrine diseases, in particular about myxedema. 65 people took part in the sociological survey. **Results.** The results of the survey demonstrated high awareness of participants about thyroid diseases in general and low awareness of myxedema in particular. **Conclusion.** The results obtained demonstrate the need to educate people about diseases of the endocrine system.

Keywords: myxedema, thyroid gland, questionnaire survey, analysis, awareness.

INTRODUCTION

The most common endocrine pathology is thyroid diseases, they occupy the second place in the structure of these diseases [1].

Myxedema is the most severe case of thyroid dysfunction and severe hypothyroidism, in which there is thickening and swelling of the skin caused by metabolic disorders. In most cases, iodine deficiency is the cause of this dysfunction.

Anatomy and histology of the thyroid gland. The thyroid gland (thyroid gland) is the largest gland of internal secretion that produces hormones that regulate metabolism in the body. Iodine also accumulates in tissues.

The main part of the parenchyma of the gland is represented by numerous follicles. The follicles have a rounded shape, and the wall of a typical follicle is formed by a single layer of glandular epithelium. The main follicle cells, thyrocytes, synthesize the iodine-containing hormones thyroxine (T4) and triiodothyronine (T3), which stimulate protein synthesis and improve metabolism.

Etiology. Myxedema develops due to thyroid dysfunction and insufficient production of the hormone thyroxine.

There are several forms of myxedema that depend on its etiology. Primary myxedema is based on primary hypothyroidism, which occurs as a result of surgical intervention on the thyroid gland, exposure to radiation, with a lack or overabundance of iodine, as well as congenital thyroid pathology, benign or malignant tumors, mechanical damage, inflammatory processes.

Secondary myxedema develops as a result of hypothyroidism caused by disorders in the pituitary gland and hypothalamus. The hypothalamic-pituitary system is responsible for the production of thyrotropin and thyrotropin-releasing hormone, which control the secretion of thyroxine and triiodothyronine [2].

Pathogenesis. Due to the long-term lack of iodine-containing hormones, protein synthesis slows down, and their decomposition processes intensify. Albumins, hyaluronic acid and other mucopolysaccharides accumulate in the intercellular space, which have the property of retaining water in tissues. A large amount of liquid binds to the tissue colloid, forming a mucin-like compound. Its accumulation is externally manifested by thickening of tissues – edema [2].

Clinical conclusion. Thyroid hormones affect the functioning of the body as a whole, so myxedema is a disease with many symptoms. The characteristic symptoms of myxedema, the combination of which is a diagnostic sign of this disease, are mucous edema of the skin and subcutaneous tissue. Hair becomes brittle, thin, falls out easily, nails are brittle, flaky, which is caused by dystrophic changes in the skin and subcutaneous tissue that occur due to swelling of the mucous membrane. A rough, hoarse voice is characteristic due to swelling of the vocal cords, and speech may become slurred due to swelling of the tongue [3].

Methods of diagnosis and treatment. Diagnosis of myxedema is carried out by endocrinologists and is based on a comprehensive examination, which includes examination of the patient, as well as laboratory blood tests, such as general, biochemical analysis. Also, the study of hormones in the blood helps to find out the level of thyroxine, triiodothyronine, thyroid-stimulating hormone.

Myxedema is treated with hormone replacement therapy, which normalizes thyroid hormone levels and, in most cases, is lifelong [2].

In the case where myxedema is caused by iodine deficiency hypothyroidism, a diet with iodine-rich foods is prepared.

Myxedema can threaten women, people over the age of 50, and patients with any autoimmune disorders. At an early age, this disease is also associated with depression or thyroid dysfunction, as well as the possible development of cretinism.

According to statistics from the European Thyroid Association, myxedema is more common in women (2%) than in men (0.2%) [4].

A dangerous complication of myxedema is myxedematous coma, which often occurs in elderly patients, especially in women, whose average age is 70-75 years (mortality is at least 20%) [5].

Treatment of patients should be carried out throughout their lives, since it is impossible to restore thyroid function due to this disease [3]. In the course of the study, a hypothesis was put forward about the low awareness of the population about the disease, its forms and its consequences.

The aim of the study is to find main biomedical characteristics of myxedema as a disease of the endocrine system and the degree of public awareness about the diagnosis and prevention of this disease.

To achieve this goal, the following tasks were set:

1. To study the histology and anatomy of the thyroid gland;
2. Analyze this disease according to the following characteristics: etiology, pathogenesis, clinical picture, methods of diagnosis and treatment;
3. Conduct a survey among people of different age categories;
4. Analyze the results of the survey, on the basis of which draw conclusions about people's awareness of the topic under study.

MATERIAL AND METHODS

During the 1st semester (11.09.23-11.01.24), the information was analyzed and the practical part of the study was carried out. The analysis of relevant information was carried out on the basis of publications on the websites of ilive, eLibrary, PubMed, official websites of the Ministry of Health of the Russian Federation, Rosstat, WHO. 3 criteria were used to select information sources:

1. Anatomy of the thyroid gland.
2. Diseases of the endocrine system.
3. Myxedema and its complications.

14 sources of information were reviewed, of which 5 were selected, as they met the selection criteria.

To determine the awareness of USMU 1-2 course students about the disease of the endocrine system - myxedema, a remote survey was conducted compiled on the Google Forms platform. The analysis and design of the results, as well as confirmation of the calculations, were carried out using the MS Office 2021 package.

Analytical (analysis of scientific literature on the research topic), questionnaires, quantitative and qualitative processing of data obtained during the survey.

RESULTS

The practical part of the study included conducting a sociological survey, which was attended by 65 students of the 1st-2nd year of USMU, 15.4% of whom were men, 84.6% were women. The age distribution of participants is as follows: 61.5% are 18 years old, 23.1% are 19 years old, 3.1% are 20 years old, 10.8% are 21 years old and 1.5% are 28 years old. The respondents were asked 5 questions. (Table 1).

Table 1.

Survey results

The wording of the question	Results
Do you know what the thyroid gland is? Select the characteristic corresponding to this organ.	90,8% - chose the correct characteristic of the thyroid gland 1,5% - selected the characteristic of the thymus 4,6% - chose a characteristic of the pancreas 3,1% - chose a pituitary gland characteristic
Are you familiar with a disease like Myxedema? Select the characteristic that corresponds to this disease.	53,8% - chose the description of the mixedema 40% - chose the description of the underlying disease 4,6% - chose the description of diabetes insipidus 1,5% - chose a description of diabetes mellitus
What methods of preventing diseases of the endocrine system do you take?	35,4% - I'm not doing anything 29,2% - I am regularly checked by an endocrinologist (at least 1 time a year) 30,8% - I follow a healthy lifestyle 47,7% - I include iodine-containing foods in my diet every day: cabbage, seafood, berries, meat 26,2% - I try to reduce the number of stressful situations 23,1% - Special biologically active additives are used
How do you think the Mixedema is life-threatening?	53,8% - Needs constant treatment 27,7% - It is necessary to undergo periodic examination by a doctor 16,9% - It leads to a fatal outcome

	1,5% - Does not need treatment
Do you think that health is the most important factor of human happiness and well-being?	95,4% - Yes 4,6% - No

We reviewed 14 sources of information, from which 5 resources were selected in accordance with the criteria.

DISCUSSION

We analyzed five suitable sources of information that talk about the anatomy and histology of the thyroid gland. Etiology, pathogenesis, clinical findings, treatment methods and complications of myxedema.

The first questions of the questionnaire determined whether the respondents knew what the thyroid gland was and its characteristics. The results show that the majority of respondents know what the thyroid gland is, but also a significant proportion of respondents do not have basic information about this organ.

To get an idea of whether respondents have information about a disease such as "myxedema", a question was included in the questionnaire with the choice of the correct definition of this disease. Many respondents have an idea about this disease, but a significant part is completely unaware.

The results of the answers to the question about the danger of myxedema showed that a significant part of the respondents do not have complete information about the severity of the disease.

The final questions of the questionnaire were supposed to determine how well the respondents are aware of the situation with thyroid diseases in the region in which they live, and what kind of lifestyle they follow. The answers of the majority of respondents show that people have an idea of the unfavorable situation in the Ural region with regard to thyroid diseases and iodine deficiency. The best half of the respondents (95.4%) identify health as the main factor of human well-being.

CONCLUSION

The analysis of the data obtained during the survey showed that myxedema is a recognizable disease for many people, but also a significant number of respondents are not familiar with the features of this disease. The results demonstrate the need to educate people about diseases of the endocrine system, since most of the respondents are not indifferent to their health, in particular, the health of their endocrine system.

The results of the study can be used in biology lessons when studying the section "Endocrine system", during class hours and parent-teacher meetings with the educational purpose of attracting public attention to the problems of attentive attitude to one's own health and the health of others.

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