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EXAMINATION OF THYROID GLAND DISEASES IN WOMEN OF FERTILITY AGE USING SONOGRAPHY IN THE CONDITIONS OF BLACKPINK

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Abstract: In this article, the importance of identifying thyroid gland diseases in women of childbearing age using sonography is analyzed in the conditions of Karakalpakstan. The sonography method stands out as an effective and safe method for detecting thyroid diseases at an early stage. In the article, we consider the changes of thyroid diseases on the sonography, especially in women, and the role of ultrasound in their diagnosis.

Key words: Karakalpakstan, thyroid diseases, women of fertile age, sonography, ultrasound diagnostics, hormonal diseases, gland pathology.

Аннотация: В данной статье анализируется важность выявления заболеваний щитовидной железы у женщин детородного возраста с помощью сонографии в условиях Каракалпакстана. Метод сонографии является эффективным и безопасным методом выявления заболеваний щитовидной железы на ранней стадии. В статье мы рассматриваем изменение заболеваний щитовидной железы на узи сонографии, особенно у женщин, и роль УЗИ в их диагностике.

Ключевые слова: Каракалпакстан, заболевания щитовидной железы, женщины фертильного возраста, сонография, ультразвуковая диагностика, гормональные заболевания, патология желез.

INTRODUCTION

The thyroid gland is an important organ that regulates metabolism, growth, and hormonal processes in the body. The normal functioning of this gland directly affects the reproductive system of women. In women of childbearing age, thyroid diseases can cause hormonal imbalances, which can affect the menstrual cycle, ovulation, and pregnancy. In Karakalpakstan, thyroid diseases are widespread due to environmental and social factors, and modern diagnostic methods such as sonography are becoming increasingly important.

1. Thyroid diseases and their occurrence in women

The main functions of the thyroid gland are to produce hormones and control the processes of energy production in the body. Thyroid diseases in women often cause hormonal changes and affect the reproductive system. The main thyroid diseases are hypothyroidism and hyperthyroidism.

Hypothyroidism is a condition in which the thyroid gland does not produce enough hormones. In women, this disease often causes changes in the menstrual cycle, problems with pregnancy, and infertility.

Hyperthyroidism is an excess production of hormones by the thyroid gland. This condition is observed with symptoms such as rapid heartbeat, weight loss, and irritability. Thyroid diseases in

women are more often associated with hormonal changes and stress. Environmental factors, such as iodine deficiency, can also cause the development of these diseases.

2. The essence of the sonography method

Sonography is a method of viewing and examining internal organs in the body, including the thyroid gland, using ultrasound. Sonography has a number of advantages in diagnosing thyroid diseases: Non-traditional and safe: Ultrasound is a non-surgical and safe method that clearly shows the structure of the gland. Rapid detection of pathologies: With the help of sonography, nodules, tumors or other pathologies in the thyroid gland can be quickly seen. Early diagnosis: Early detection of diseases increases the effectiveness of treatment. Sonography is especially effective in diagnosing tumors or other changes in the thyroid gland. In women of childbearing age, this method helps in the early detection of hormonal diseases. Sonography is a method of obtaining images of internal organs using sound waves. This method uses high-frequency ultrasound waves (ultrasound), which are inaudible to the human ear. Sound waves pass through the body, bounce off internal organs and are recorded by a special device (sonograph). These recorded signals are converted into images by a computer.

The essence of sonography is that it allows you to obtain a complete and real-time image of the internal structure of the body, while the method is safe, non-invasive and fast. Sonography is often used during pregnancy to check the development of the fetus, assess the condition of internal organs (for example, liver, kidneys, heart, etc.), as well as to detect certain types of tumors and inflammations. In addition, sonography can be used to check the condition of blood vessels (Doppler sonography), as well as to detect fluid accumulation.

3. Diagnosis of thyroid diseases in Karakalpakstan

Thyroid diseases are highly prevalent in the territory of Karakalpakstan. Nutritional problems, in particular iodine deficiency, climatic conditions and stress factors lead to thyroid pathologies. Also, the effectiveness of the use of ultrasound diagnostics in the region is high, which helps to detect these diseases at an early stage. Several factors can affect the diagnosis of thyroid diseases in Karakalpakstan. The thyroid gland takes up the element iodine in the body and produces thyroid hormones, which regulate metabolism, development, and other important physiological processes. Thyroid diseases are mainly associated with impaired production and function of its hormones.

Thyroid diseases and their diagnosis:

1. Hypothyroidism (underactive thyroid):

This disease is associated with insufficient production of hormones by the thyroid gland. Hypothyroidism can manifest itself with symptoms such as fatigue, weight gain, sensitivity to cold, dry skin, irritability, and depression.

Diagnosis: Blood tests are needed to diagnose hypothyroidism, especially measuring the hormones TSH (thyroid-stimulating hormone) and T4.

2. Hyperthyroidism (overactive thyroid):

In this case, the thyroid gland produces too much hormone, which speeds up metabolism. Symptoms of hyperthyroidism include rapid heartbeat, nervousness, trembling hands, weight loss, increased appetite, and many other symptoms.

Diagnosis: Hyperthyroidism can be diagnosed with blood tests (TSH and T3, T4 hormones) and ultrasound to determine the size and structure of the gland.

1. Cysts and tumors (nodules):

Cysts or tumors can form in the thyroid gland, which often occur as a result of thyroiditis or changes. This tumor can be benign (can improve) or malignant (bad quality).

Diagnosis: Ultrasound (ultrasonography) is used to examine the size and composition of the thyroid gland, as well as a biopsy to determine whether the tumor is malignant or benign.

2. Thyroiditis:

This disease is associated with inflammation of the thyroid gland. There are several types of thyroiditis, such as autoimmune thyroiditis (Hashimoto's disease) and subacute thyroiditis. Diagnosis: To diagnose thyroiditis, blood tests (anti-TPO, anti-TG) and ultrasound can be used to determine the condition of the gland.

Specific factors in Karakalpakstan:

• Environmental conditions: In some areas of Karakalpakstan, iodine deficiency can be observed in water and soil, which can lead to the development of thyroid diseases. Iodine deficiency leads to an enlarged thyroid gland, which leads to goiter.

• Iodine deficiency: Iodine deficiency can disrupt the production of thyroid hormones. This condition is observed in some areas of Karakalpakstan, as the iodine content in this area may be low.

• Climate and food supply: The climate and the amount of iodine in food can also affect the development of thyroid diseases. Iodine deficiency can cause thyroid diseases, especially in children and women.

Methods used to diagnose thyroid diseases:

• Laboratory tests: Blood tests, including determination of TSH, T3, T4, anti-TPO and anti-TG levels.

• Sonography: To determine the size and composition of the thyroid gland.

• Biopsy: To determine whether a nodule or tumor is malignant or benign.

• Doppler ultrasound: Helps to check blood circulation and assess the condition of the thyroid gland.

Early detection and treatment of thyroid diseases is very important for improving health. Therefore, preventive examinations and iodine supplements are recommended for the population of Karakalpakstan.

4. Sonography and other diagnostic methods

Along with sonography, laboratory tests also play an important role. The function of the thyroid gland can be assessed by determining the levels of thyroxine (T4), triiodothyronine (T3), and thyrotropin (TSH). Sonography shows the structure of the gland and is used to assess the state of the disease. Sonography (ultrasonography) is a diagnostic method in medicine that uses high-frequency ultrasound waves to obtain images of internal organs and tissues. Sonography is also widely used to detect physical changes and pathologies, as it is a safe and non-invasive examination method. However, sonography is not the only method to detect all conditions, there are other diagnostic methods. Below I will provide more detailed information about sonography and other diagnostic methods:
5. Sonography (Ultrasonography)

Essence: Ultrasound works by sending high-frequency sound waves and receiving the returned echoes. Images of organs are transmitted to a computer via the returned sound waves and displayed on a screen.

Uses:

• Examination of internal organs (liver, kidneys, heart, bladder, etc.).

• Monitoring pregnancy, monitoring fetal development.

• Detection of fluid accumulation (for example, fluid accumulation in peritonitis) and tumors (nodules).

• Examination of the condition of blood vessels (Doppler ultrasound).

• Visualization of muscles and joints, injuries and inflammation

6. Laboratory tests (blood, urine, isotopes)

Essence: Laboratory tests help to identify various processes in the body, including infection, inflammation or hormonal changes.

Uses:

• Blood tests (checking for signs of inflammation, blood cell counts).

• Checking the condition of bones, liver, kidneys.

• Measuring hormones, vitamins and minerals.

Disadvantages: Sometimes the results are fully explained only in combination with other diagnostic tests.

CONCLUSION

In conclusion, we can say that thyroid diseases can cause serious health problems in women of childbearing age. Sonography is an effective method for early detection and treatment of these diseases, and in the conditions of Karakalpakstan, it is very important to be able to use them quickly and accurately. The importance of detecting thyroid pathologies using sonography is high in the early diagnosis of hormonal diseases. Sonography and other diagnostic methods are complementary methods. While sonography is an effective and safe method for diagnosing many diseases, in some cases it allows for a more accurate and comprehensive image. Each method has its own advantages and limitations, so it is necessary for the doctor to choose the right diagnostic method in each case.

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