

ASIAN JOURNAL OF PHARMACEUTICAL  
AND BIOLOGICAL RESEARCH

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## A NEW VIEW ON THE PROBLEM OF SUBCLINICAL HYPOTERIOSIS OF PREGNANT WOMEN

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**Summary.** In the clinical practice of doctors of absolutely any specialty, hypothyroidism remains relevant, since with a deficiency of thyroid hormones (TH), which are necessary for the normal functioning of almost every cell of the human body, severe changes develop in all organs and systems without exception. The role of thyroid hormones of the thyroid gland is especially great in the period of intrauterine and early postnatal life. During the period of intrauterine life, under the control of TH, the processes of embryogenesis are carried out, almost all organs and systems are differentiated and mature. TH has an exceptional effect on the formation and maturation of the brain. No other hormones have a similar effect. Deficiency of thyroid hormones leads to the fact that the brain stops in development, undergoes degenerative changes. It should be borne in mind that the principles of diagnosis and treatment of thyroid diseases in pregnant women differ significantly from the general principles. This is primarily due to the fact that during pregnancy there is a change in the metabolism of thyroid hormones and a dynamically changing interaction between the pituitary-thyroid systems of the mother and fetus.

**Relevance.** Hypothyroidism is a fairly common pathology. Subclinical hypothyroidism usually presents with high levels of pituitary thyroid stimulating hormone (TSH) and extremely common symptoms, especially in older patients. Abroad, during laboratory screening of the population for thyroid hormones, 7.5% of women and 2.8% of men found elevated concentrations of TSH, including subclinical hypothyroidism in 10–15% of older people [3,7]. At a TSH concentration < 10 mIU/l, hypothyroidism is usually asymptomatic, so the main argument in favor of treatment in this category of patients is the improvement of the lipid profile to reduce the risk of cardiovascular disease. Recently, a group of experts noted that the existing data on the role of subclinical hypothyroidism in the development of various diseases is extremely insufficient. In particular, no studies have been conducted among large population groups to identify the relationship between subclinical hypothyroidism and diseases of the cardiovascular and other body systems [1,4]. However, it has been found that the progression of subclinical hypothyroidism to overt hypothyroidism averages 2–5% per year, and the presence of autoantibodies to thyroid tissue plays a huge role in this process [2,5]. High titers of autoantibodies indicate the process of immunogenic destruction of thyroid tissue, and their presence is a leading indicator of a decrease in the hormone-producing activity of the gland and, probably, one of the main prognostic markers of the course of hypothyroidism [1,6].

Modern ideas about subclinical hypothyroidism indicate that it is far from such a harmless disease that does not require treatment. Several studies have shown that untreated subclinical hypothyroidism is a risk factor for vascular disease because it increases LDL cholesterol and thickens the inner and middle linings of the carotid

arteries. In patients with subclinical hypothyroidism, an increase in the level of insulin and C-reactive protein was found, which also indicates a high risk of developing heart and vascular diseases in this category of patients [8]. It is described that the disorders associated with insufficient treatment of subclinical hypothyroidism during pregnancy are not severe, but significant for the fetus [9]. It has been proven that polychlorinated biphenides, pesticides widely present in the environment, contribute to a decrease in the content of thyroid hormones in both humans and animals, and affect the transcription of genes of the nervous system that are under the influence of thyroid hormones [10]. In a meta-analysis by Prummel and Wirsing, a close relationship was found between the presence of antibodies to thyroid tissue and spontaneous abortion [11,12].

**Research objectives.** Determine the prevalence of subclinical hypothyroidism in different age groups and categories of patients and healthy people; to assess the frequency and laboratory criteria for the progression of subclinical hypothyroidism to clinical hypothyroidism.

**Materials and research methods.** The studies were carried out on the basis of the clinical diagnostic laboratory of the Bukhara State Medical Institute and the endocrinological dispensary of the Bukhara region. Over the course of several years, 69 studies on immunological markers of thyroid diseases were carried out using the enzyme immunoassay (ELISA) method, including the determination of thyroid stimulating hormone (TSH), free thyroxine (T4f), free triiodothyronine (T3f), autoantibodies to thyroid peroxidase (a-TPO) . The survey involved 58 people in the age groups from 25 to 65 years old, suffering from various diseases, and healthy, including pregnant women. The age composition of laboratory screening participants: 25-30 years old - 17 people, 30-50 years old - 31 people over 50 years old - 21 people. Patients with diseases of the cardiovascular system amounted to 15 people, digestive organs - 10 people, endocrine diseases - 35 people, other diseases - 2 people, healthy - 16 people, including pregnant women - 42 people.

When conducting immunological screening, diagnostic test kits of Alkor Bio Companies LLC, St. Petersburg, were used. The studies were carried out by competitive solid-phase ELISA. The final concentration of hormones and autoantibodies was determined by the enzyme immunoassay analyzer "UNIPLAN" according to the optical density in the wells with the analyzed serum samples by constructing calibration curves with standard calibration sera included in the kit. The limit of the coefficient of variation of the results was 8%. The accuracy of the studies was additionally checked by the "discovery" test - checking the obtained hormone values against the calculated value obtained by mixing equal volumes of control serum and standard calibration samples. For each type of study, taking into account the territorial factor, the range of expected reference indicators was determined.

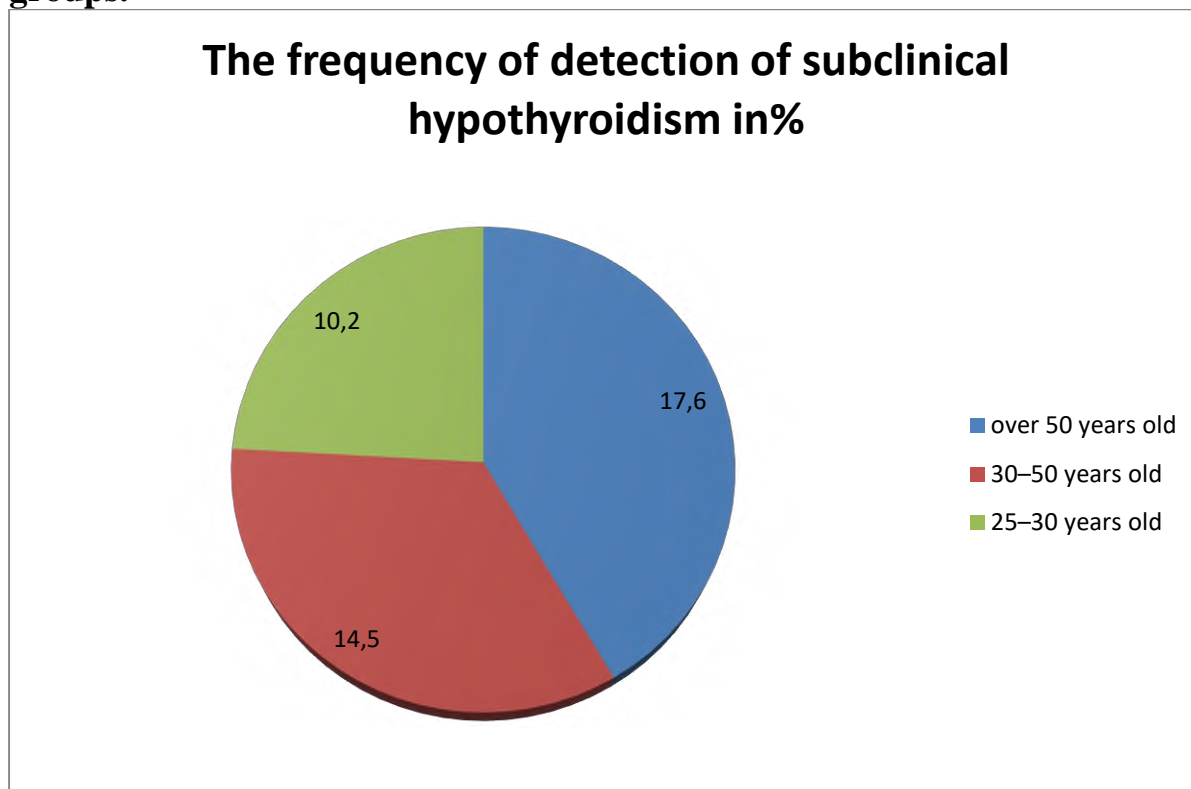
**Results and discussion.** Subclinical hypothyroidism is a condition of underactive thyroid gland in which there is an increased concentration of TSH and thyroid hormone levels are within the normal range. The most sensitive to a decrease



or increase in the content of thyroid hormones in the body are the cardiovascular and nervous systems. According to the results of laboratory screening in the city of Bukhara for markers of thyroid disease, the proportion of subclinical hypothyroidism was 10.9%, which is almost 2 times higher than the detection of clinical forms of hypothyroidism. The frequency of detection of subclinical and clinical hypothyroidism according to the results of laboratory screening for markers of thyroid diseases in Bukhara.

The highest frequency of detection of subclinical hypothyroidism was registered in the age group over 50 years and amounted to 17.6%, in the age group of 30-50 years - 14.5%, in the group of 25-30 years - 10.2%. The data is shown in Figure 1.

**Figure 1. Frequency of detection of subclinical hypothyroidism in different age groups.**



The highest percentage of subclinical hypothyroidism among patients was found in patients with cardiovascular pathology - 14%, among the healthy category - in pregnant women - 9.7%.

Thus, in the structure of laboratory screening participants from the "healthy" category, pregnant women with laboratory-confirmed subclinical hypothyroidism accounted for 9.7%. According to foreign literary sources, there is a clear relationship between subclinical hypothyroidism and pregnancy complications. The question of the effect of autoantibodies to thyroid tissues on the progression of subclinical hypothyroidism is the subject of numerous discussions and is being studied by many researchers.

According to the results of our studies, in the majority of patients with laboratory-confirmed subclinical hypothyroidism, in whom autoantibodies to thyroid

peroxidase ( $\alpha$ -TPO) were detected in titers of  $> 350$  U/ml, laboratory signs of clinical hypothyroidism were detected after 3–5 years, which were manifested by a decrease in T4 free. Of 57 constantly observed patients with laboratory markers of subclinical hypothyroidism in the presence of autoantibodies to TPO  $> 350$  IU/ml, in 64.9% of cases, a decrease in free T4 was determined in a few years.

The data obtained in our laboratory do not disagree with the data obtained by other researchers: the presence of high titers of anti-TPO autoantibodies can be considered an absolute marker of the progression of subclinical hypothyroidism to overt hypothyroidism.

**Conclusions.** Thus, the results of our studies allow us to conclude that subclinical hypothyroidism is a fairly common pathology in our territory. The highest prevalence of subclinical hypothyroidism occurs in the age group of the population over 50 years of age, and especially among those suffering from cardiovascular diseases.

Pregnant women are also an increased risk group for the development of subclinical hypothyroidism and, therefore, require mandatory screening during pregnancy for markers of thyroid disease (and after pregnancy, those with positive markers), including mandatory screening for antibodies to TPO. The absolute laboratory criterion for the progression of subclinical hypothyroidism to clinical is the presence of autoantibodies to TPO. In the conditions of our territory, this indicator in the antibody titer is 350 IU / ml and above.

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