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INCREASING THE QUALITY OF LIFE AGAINST THE BACKGROUND OF HYPOTERIOSIS IN CLIMATERIC WOMEN

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Annotation. The authors conducted a study among women of fertile age in menopause, where they identified a pathological state of health against the background of a lack of the hormone TSH and free T4. A condition survey was conducted consisting of 15 questions, examination of the skin, muscle tone, swelling in the extremities, BMI, palpation and ultrasound of the thyroid gland. Characteristic pathological conditions for this age were identified, and therefore the authors suggest early prevention of this disease in order to improve the quality of life of patients.

Key words: hypothyroidism, menopause, health conditions, TSH and free T4, quality of life.

Relevance of the topic: The incidence of thyroid disease in the world as of 2020 is 30%. Among thyroid diseases, primary hypothyroidism in adults, as of 2017, was 65%. Thyroid function has been studied in various populations.

An inverse relationship between TSH and age is observed in iodine-deficient populations, in which the most common pathology of the thyroid gland is the presence of nodules, and the function of the thyroid gland also increases with age.[1]

Today, menopausal women make up 10% of the world's population. Of these, 10-75% of women have a pathological menopause.

Hypothyroidism is characterized by elevated serum TSH levels and can be subclinical or clinically active. The diagnosis of hypothyroidism is often untimely, since in its initial stage the symptoms detected are extremely nonspecific. In addition, hypothyroidism syndrome can imitate various non-thyroid diseases, which is associated with multi-organ lesions found in conditions of

[1] Volzke H, Alte D, Kohlmann T, Reference intervals of serum thyroid function tests in a previously iodine-deficient area. Thyroid 2015; 15: 279–85.

thyroid hormone deficiency. Indeed, symptoms such as dry skin, alopecia, loss of appetite, weakness, dementia, etc., are similar to the manifestations of the menopause process. Typical symptoms of hypothyroidism are detected only in 25-50% of women of fertile age during menopause, while the rest have either extremely mild symptoms or hypothyroidism is clinically realized in the form of some kind of monosymptom.

The impact of the pathological trajectory of menopause on the manifestations of cutaneous aging during this physiological phase remains inadequately investigated. While it is acknowledged that the diminishing levels of estrogen concurrent with menopause exert an influence on skin condition, the broader implications of thyroid gland function alterations in this context have not been comprehensively explored. Notably, hypothyroidism frequently manifests with dermopathic alterations, encompassing features such as dryness, coarseness, pallor with a waxy or yellowish hue, and a perceptible coolness to the touch.

Additionally, dermal manifestations may include keratoderma, the emergence of diminutive papular elements, and the development of pronounced edema in the extremities. Furthermore, it is noteworthy that the diminution in thyroid function tends to occur more prevalently with advancing age, particularly in regions characterized by endemic thyroid disorders.

Objective: The aim of this study is to illuminate research endeavors focused on elucidating the impact of hypothyroidism on the quality of life among women in the climacteric period. Our endeavor encompasses the comprehensive analysis of the influence of hypothyroidism across various dimensions of physical, emotional, and social well-being. Additionally, our objective is to furnish contemporary diagnostic, therapeutic, and supportive methodologies geared towards enhancing the quality of life for women grappling with the dual challenges of climacterium and hypothyroidism.

Materials and Methods: A retrospective approach was employed to identify 50 patients under the care of the endocrinological dispensary in Bukhara city. The patients were categorically stratified by age into three groups: premenopausal, menopausal, and postmenopausal. Comprehensive evaluations were conducted, including analysis of thyroid-stimulating hormone (TSH), free thyroxine (T4), thyroid ultrasound imaging, palpation of the thyroid gland, body mass index (BMI) assessment, examination for peripheral edema, skin condition, muscle tone, and surveys addressing mood swings, memory impairments, attention deficits, diminished libido, sleep disturbances or insomnia, weakness, fatigue, drowsiness, and depressive states.

Extensive screening studies conducted in the United States have delineated significant disparities in the frequencies of thyroid dysfunction and serum antibody concentrations across diverse ethnic groups. Concurrently, investigations conducted in Europe have illuminated the impact of iodine consumption on the development of thyroid dysfunction.[2] Studies on the prevalence of autoimmune thyroid disorders have been undertaken in several developed countries. This represents the most comprehensive systematic review of thyroid disorders conducted in the past two decades, revealing an annual incidence of 350/100,000 for hypothyroidism in women and 80/100,000 in men, while hyperthyroidism exhibited an annual incidence of 80/100,000 in women and 8/100,000 in men.[3]

[2] Schouten BJ, Brownlie BE, Frampton CM, Turner JG. Subclinical thyrotoxicosis in an outpatient population — predictors of outcome. Clin Endocrinol (Oxf) 2011; 74: 257–61. / Rosario PW. Natural history of subclinical hyperthyroidism in elderly patients with TSH between 0.1 and 0.4 mIU/l: a prospective study. Clin Endocrinol (Oxf) 2010; 72: 685–8.

[3] Das G, Ojewuyi TA, Baglioni P, Geen J, Premawardhana LD, Okosieme OE. Serum thyrotrophin at baseline predicts the natural course of subclinical hyperthyroidism. Clin Endocrinol (Oxf) 2012; 77: 146–51.

Global morbidity has been on the rise in recent years, with its etiology influenced by a diverse array of factors such as dietary habits, iodine deficiency, selenium consumption, environmental pollutants, ionizing radiation, thyroid-stimulating hormone (TSH) levels, among others.[4]

The escalating incidence of hypothyroidism, a thyroid gland disorder prevalent across most regions of Kazakhstan, is primarily attributable to the confluence of endemic factors and the increasing impact of anthropogenic elements. This phenomenon is underscored by heightened industrial production, urbanization, and contamination of the environment with technogenic toxic substances. The unique amalgamation of endemic goiter and internal irradiation of the thyroid gland in the Semey region has, as indicated by prior research findings, markedly altered the landscape of thyroid pathology.[5678]

Charles Land's data reveals a thyroid pathology prevalence of 18% and 39% among men and women, respectively, in the northeastern region of Kazakhstan near the Semipalatinsk Nuclear Test Site. In this region, a direct correlation has been established between thyroid neoplasms, ionizing radiation,[9] gene polymorphism,[10] and chromosomal aberrations.[11]

Currently, numerous studies conducted in the northeastern region of Kazakhstan provide compelling evidence of the heightened prevalence of thyroid disorders resulting from radiation pollution of the territory. However, certain aspects remain contentious, and ongoing research endeavors persist in the region.

International scholars are actively investigating diverse facets, including risk factors, clinical features, ethnic and regional variations, characteristics specific to children and pregnant women, and complications affecting other organs and systems, among other considerations. The medicosocial significance of iodine deficiency disorder is underscored by the widespread occurrence of endemic goiter in most regions of Russia on the one hand, and the adverse impacts of hypothyroxinemia on the physical health and intellectual capabilities of the population on the other.[12]

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[4] Bahn RS, Burch HB, Cooper DS, et al. Hyperthyroidism and other causes of thyrotoxicosis: management guidelines of the American Thyroid Association

and American Association of Clinical Endocrinologists. Endocr Pract 2011; 17: 456–520.

[5] Papaleontiou M, Haymart MR. Approach to and treatment of thyroid disorders in the elderly. Med Clin North Am 2012; 96: 297–310.

[6] Volzke H, Alte D, Kohlmann T, Reference intervals of serum thyroid function tests in a previously iodine-deficient area. Thyroid 2015; 15: 279–85.

[7] Surks MI, Hollowell JG. Age-specific distribution of serum thyrotropin and antithyroid antibodies in the US population: implications for the prevalence of subclinical hypothyroidism. J Clin Endocrinol Metab 2017; 92: 4575–82.

[8] Boucai L, Hollowell JG, Surks MI. An approach for development of age-, gender-, and ethnicity-specific thyrotropin reference limits.Thyroid 2011; 21: 5–11.

[9] Peeters RP, Wouters PJ, Kaptein E, et al. Reduced activation and increased inactivation of thyroid hormone in tissues of critically ill patients. J Clin Endocrinol Metab 2013; 88: 3202–11.

[10] Abdullatif HD, Ashraf AP. Reversible subclinical hypothyroidism in the presence of adrenal insufficiency. Endocr Pract 2006; 12: 572.

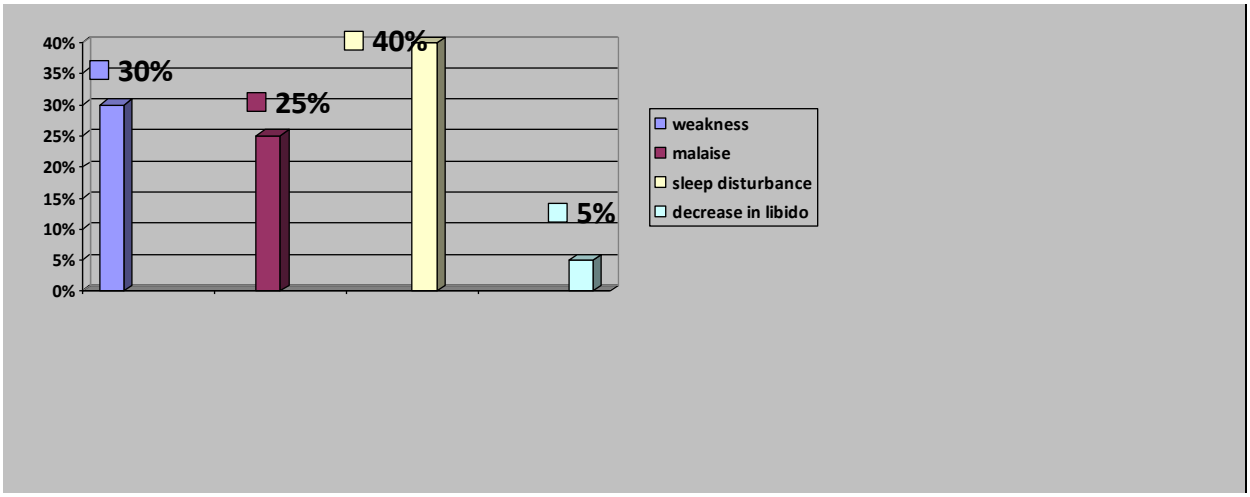
[11] Caufriez A, Leproult R, L'Hermite-Bal_eriaux M. Progesterone prevents sleep disturbances and modulates GH, TSH, and melatonin secretion in postmenopausal women. J Clin Endocrinol Metab 2011; 96: E 614–23.

[12] Faggiano A, Del Prete M, Marciello F, et al. Thyroid diseases in elderly. Minerva Endocrinol 2011; 36: 211–31.

The escalating incidence of iodine deficiency disorders necessitates an intensified preventive approach within the healthcare system to address iodine deficiency in our population. Over the past decade, measures have been implemented to prevent harm to the physical and cognitive development of children, women in the climacteric period, and the economic and social potential of the present and future generations of our republic.

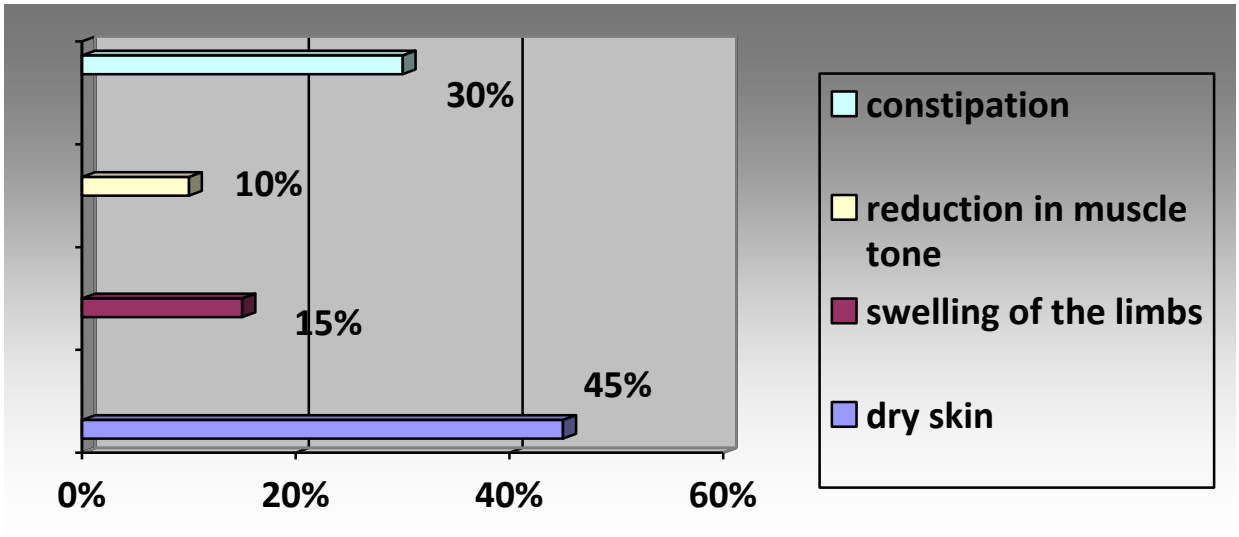
Study Findings: In the survey of women in the fertile age group undergoing the climacteric period through structured questionnaires, the following symptomatology was identified: weakness was reported by 30% of respondents, malaise by 25%, sleep disturbances or difficulty initiating sleep by 40%, and diminished libido by 5%.

Figure 1. The Symptomatology in Women of Fertile Age during the Climacteric Period.



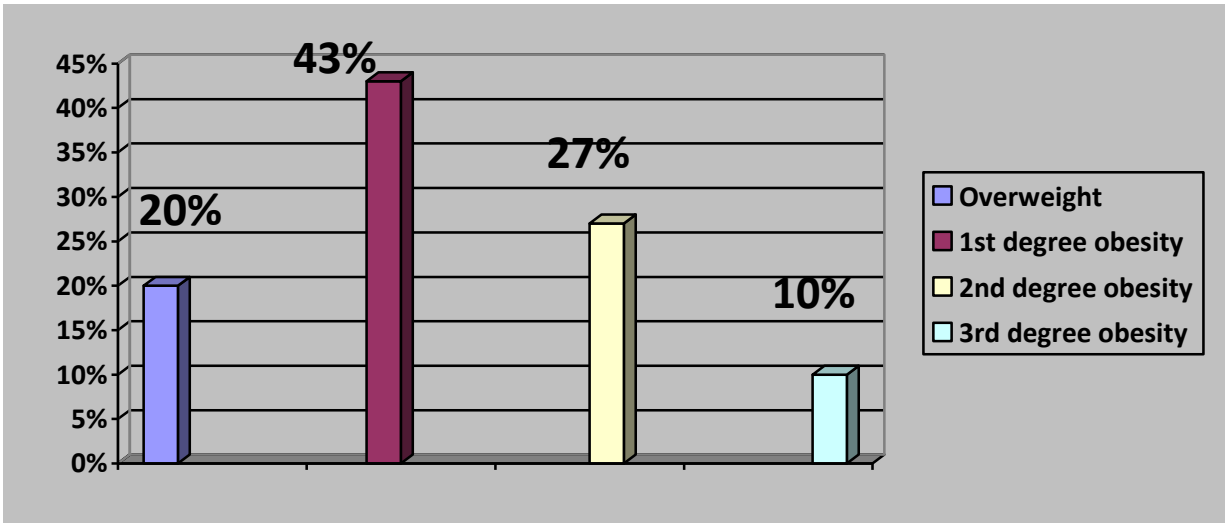
When examining women of fertile age and menopause, the following was revealed: dry skin - 45%, swelling of the limbs 15%, decreased muscle tone - 10%, constipation -30%.

Figure 2: Clinical Manifestations in Women of Reproductive Age during the Climacteric Period.



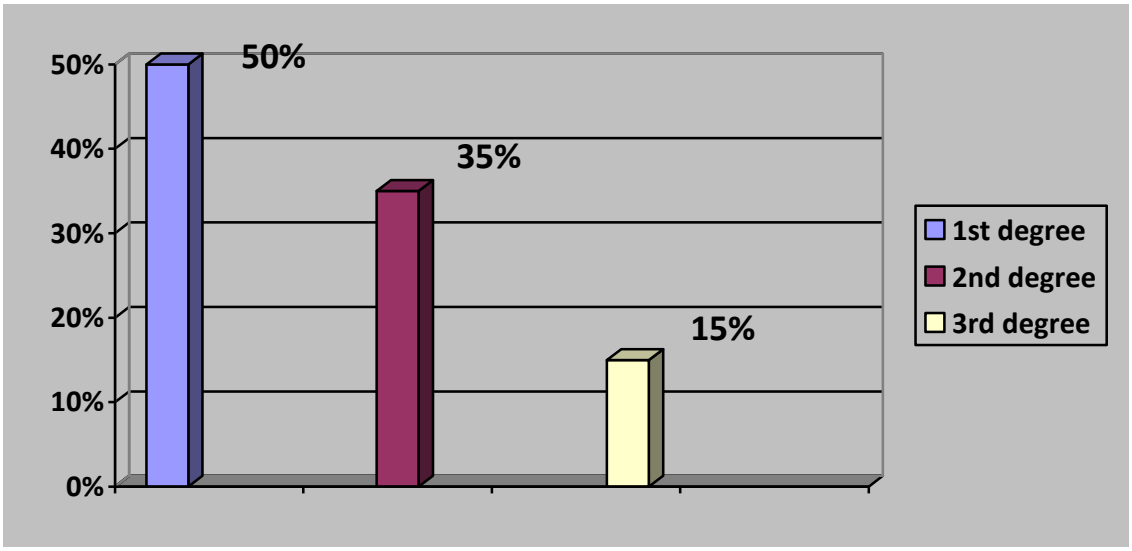
In the assessment of Body Mass Index (BMI), the prevalence of overweight was observed in 20%, while individuals classified with first-degree obesity constituted 43%, those with second-degree obesity accounted for 27%, and individuals characterized by third-degree obesity constituted 10%.

Figure 3: Assessment of Body Mass Index (BMI) in Women of Reproductive Age during the Climacteric Period.



During thyroid gland palpation, the identification of thyroid enlargement was discerned, with first-degree enlargement noted in 50% of women, second-degree in 35%, and third-degree in 15%.

Figure 4: Thyroid Gland Hyperplasia in Women of Reproductive Age during the Climacteric Period.



Thyroid ultrasound imaging revealed thyroid gland hyperplasia in all women of reproductive age, as they were under the endocrinologists' surveillance due to various thyroid-related conditions.

Laboratory Data: Thyroid-stimulating hormone (TSH) levels were distributed as follows: 55% exhibited TSH levels between 5-10 mIU/ml, 35% within the range of 10-15 mIU/ml, and 10% with TSH levels exceeding 16 mIU/ml. Presently, the escalating prevalence of iodine deficiency disorders occurs concomitantly with the rise in the concentration of "non-specific" goitrogenic factors in the environment. These factors impede iodine uptake by the thyroid gland, hinder the synthesis of thyroid hormones, or exert a direct deleterious impact on the thyroid gland.[13]

[13] Mitrou P, Raptis SA, Dimitriadis G. Thyroid disease in older people. Maturitas 2011; 70: 5–9.

Iodine is an essential micronutrient, and its presence in the body primarily hinges upon its concentration in the consumed dietary products. Up to 80% of iodine is derived from plant and animal-based food items, with only a minor fraction obtained from water and air. The concept of "quality of life" has firmly embedded itself in medical terminology today, finding increasingly frequent application in both scientific research and clinical practice.

According to World Health Organization (WHO) recommendations, the quality of life is defined as the individual's subjective appraisal of their position in society, taking into account the culture and value systems of that society, in alignment with the individual's goals, plans, capabilities, and the degree of discontent. In other words, quality of life is a subjective indicator of satisfaction with personal life needs, reflecting the level of comfort experienced by an individual both within themselves and within their societal framework.

Quality of life, in its broadest sense, encompasses various aspects of human life, associated not only with one's health status but also with living conditions, professional abilities, work, education, and domestic environment.

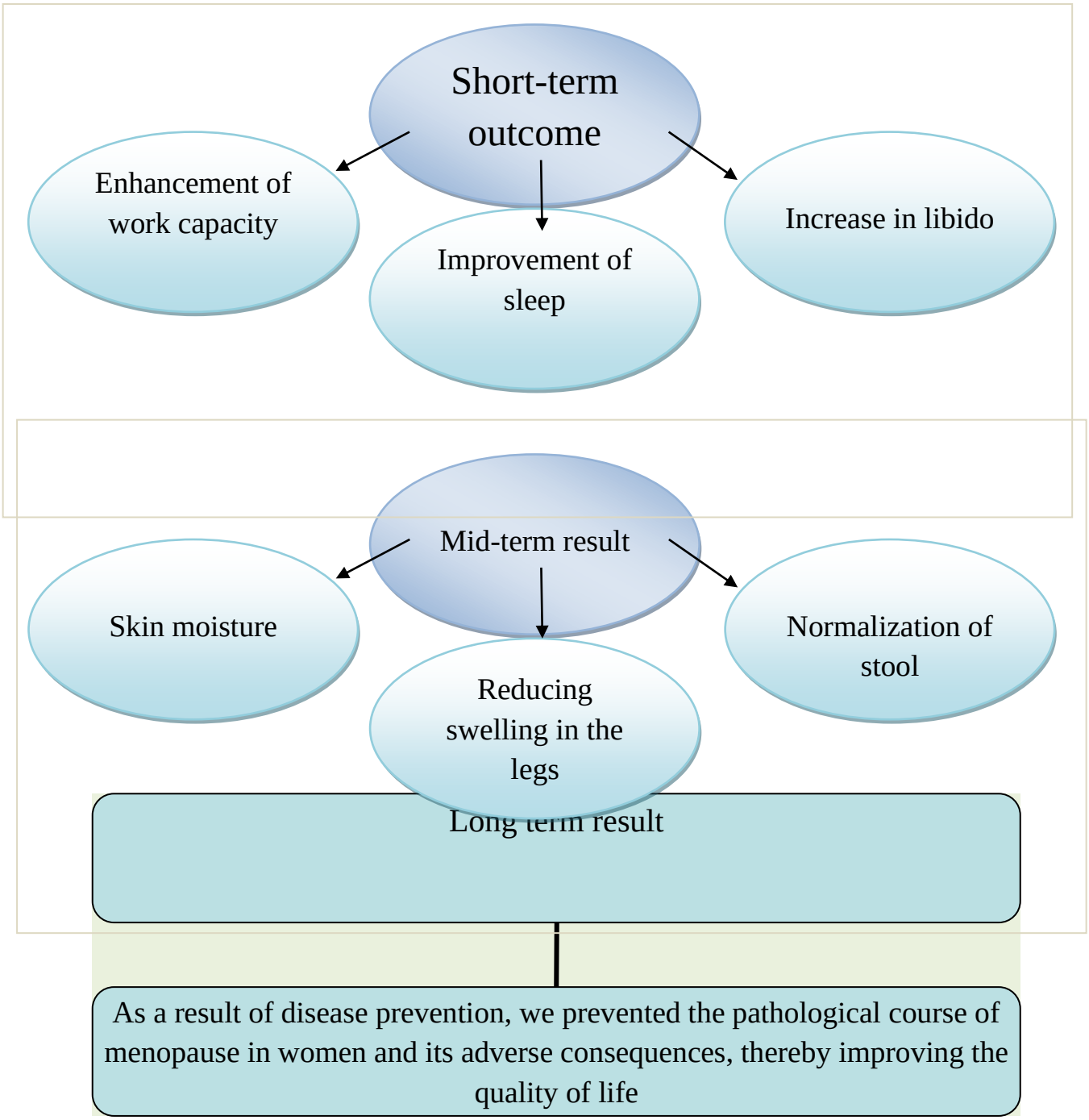
The concept of quality of life, as elucidated by various authors, encompasses an individual's satisfaction with their physical, mental, and social well-being. It denotes the ability of an individual to function within society according to their status and derive satisfaction from life across diverse dimensions. Moreover, it is determined by the extent to which an illness hinders a patient from living as they would desire. The concept also includes the capacity for concentration, decision-making, perceptual acuity, and experiencing emotional comfort. Data on quality of life obtained prior to treatment can furnish valuable insights to healthcare professionals regarding the disease's developmental dynamics, thereby aiding in the selection of appropriate therapeutic strategies.

Traditional conservative treatment has historically centered on the administration of thyroxine or radioactive iodine. The objective of conservative treatment for benign nodular formations is to impede the further growth of nodules within the thyroid gland. A more intricate challenge lies in diminishing the size of pre-existing nodules through the use of medications containing thyroid hormones. The widespread application of radioactive iodine has been limited due to the high frequency of complications, notably hypothyroidism, and the cost-intensive nature of the treatment.

It has been established that the rationale for opting for conservative treatment methods is justified when a patient presents with a benign nodule measuring up to 1 cm in diameter, devoid of risk factors, as well as clinical and cytological indications of thyroid cancer absence. The continuation of conservative treatment is warranted in the absence of nodule growth during the treatment and observation period (defined as an increase in diameter by 5 mm from the baseline within 6 months).

Most frequently employed for the suppressive conservative therapy of benign nodular formations in the thyroid gland are combined preparations that include thyroxine and a physiological quantity of iodine. Hormonal therapy, administered at doses inhibiting the secretion of thyrotropin, is advocated as a treatment modality exclusively for small nodules and in younger individuals. To prevent treatment-induced thyrotoxicosis, it is imperative to conduct laboratory monitoring. Unfortunately, conservative treatment of nodular goiter with iodine preparations and thyroid hormones exhibits limited efficacy and is not uniformly well-tolerated by patients. In the best-case scenario, it only manages to restrain the growth rate of the nodule, while complete regression is practically unattainable.

Figure 5: Outcomes of Therapeutic Interventions (a, b, c).



Conclusions: The health of women during the climacteric period necessitates meticulous attention, given the multitude of hormonal changes during this phase, which may entail pathological shifts in health status.

Therefore, there is a pressing need today to integrate new treatment modalities into clinical practice that would enable the achievement of local tissue destruction in the nodular region without exerting an impact on the surrounding parenchyma - thus, being minimally invasive for the patient. Over the past 10-15 years, globally, there has been successful development and application of minimally invasive treatment methods associated with locally targeted and dosed interventions on thyroid tissue or specific segments using chemical substances, pharmaceuticals, or physical factors

(temperature, radiation) under the guidance of modern diagnostic equipment (ultrasound, ultrasound dopplerography). Such methods include percutaneous ethanol injection and other sclerosing agents, laser coagulation, diathermy coagulation, and cryodestruction of nodular tissue.

In recent years, sclerotherapy has gained widespread application, presenting an alternative operative technique for treating certain thyroid gland conditions. Literature documents suggest that the introduction of alcohol into cysts and nodules as a method of treatment was proposed as early as the late 19th century. With the advent of new sclerosants in the arsenal of researchers and physicians, this method is continually evolving and acquiring broader applications each day.

Medical rehabilitation therapy in Uzbekistan constitutes a distinct field of practical and scientific investigation, demanding the application of contemporary models of screening and comprehensive rehabilitation for effective implementation, as substantiated in the source.[14] With the aim of enhancing the quality of life and preventing the development of hypothyroidism in women during the climacteric period, it is judicious to conduct preventive measures during the pre-climacteric phase to counteract the onset of diseases.

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