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FUNCTIONAL FEATURE OF THE THYROID GLAND IN METABOLIC SYNDROME (OBESITY).

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Abstract:

Metabolic syndrome (MS) is a very serious pathological condition encountered in the work of doctors of various specialties. Often the presence of MS aggravates the normal functioning of the thyroid gland, as well as the occurrence of a number of diseases, while various diseases can serve as a risk factor for its development. The relevance of MS determines the need for its early diagnosis for timely correction and prevention of its long-term complications.

Keywords: Metabolic syndrome, thyroid gland, diagnosis

PURPOSE OF THE STUDY: To substantiate the clinical significance and feasibility of early diagnosis of patients with metabolic syndrome.

INTRODUCTION:

Metabolic syndrome (MS) is a combination of impaired carbohydrate metabolism, abdominal obesity, dyslipidemia, and arterial hypertension. MS is associated with the development of type 2 diabetes mellitus (DM) and cardiovascular diseases, the pathogenesis of which is complex and multifaceted and includes various mechanisms, including the influence of oxidative stress, mitochondrial DNA mutations, mitochondrial dysfunction, etc. [1, 2]. The prevalence of MS has been of interest since the term first entered clinical practice. It has been shown that when using different diagnostic criteria, the frequency of MS in the population varies significantly even within the same territory. Until now, there are no unified approaches to diagnosing MS, taking into account the ethnicity and race of the subjects, which is also reflected in the prevalence rates. Accordingly, the development of differentiated criteria for diagnosing MS and its components in various populations remains relevant [3, 4, 5].

However, despite the existence of various approaches to diagnosing metabolic syndrome, none of the consensuses took into account the race of patients. Only the IDF (2005) document proposed assessing OT according to race [9]. Thus, according to the American Association of Clinical Endocrinologists (AACE, American Association of Clinical Endocrinology, 2003), waist circumference was not assessed [10]; The criterion for MS, according to the American Heart Association/National Heart, Lung, and Blood Institute of the United States (AHA/NHLBI, American Heart Association/National Heart, Lung, and Blood Institute, 2005), was a WC of more than 35 inches in women and more than 40 inches in men. [11], and the 2009 revision of the AHA/NHLBI consensus suggested WC assessment based on country of residence [12]. In Qatar, the National Health Survey was conducted in 2012, the purpose of which was to determine diagnostically significant indicators of abdominal obesity and identify the prevalence of metabolic syndrome in the population. During the study, 2,496 citizens aged 18 to 64 years were examined. IDF diagnostic criteria were established to make the diagnosis.

MATERIALS AND RESEARCH METHODS:

This work was carried out on the basis of the Republican Endocrinological Center of Tashkent. The number of patients studied was 70 people (50 women and 20 men). The age of the patients ranged from 40 to 65 years. The average age of the patients was 52.17±2.53 years. Inclusion criteria were the presence of signs of metabolic syndrome in patients. To diagnose metabolic syndrome, criteria were used that corresponded to the 2005 "global consensus on metabolic syndrome criteria", in which central obesity is considered the main one, confirmed by a waist circumference (WC) of 94 cm for men and 80 cm for women, plus any two of the following criteria:

- Serum triglycerides from 1.7 mmol/l or special treatment for hypertriglyceridemia;
- HDL (high-density lipoprotein) cholesterol is less than 1.03 mmol/l for men and less than 1.29 mmol/l for women or special treatment for hypoalphalipoproteinemia;
- Systolic blood pressure from 130 mmHg. or diastolic blood pressure from 85 mmHg. or special treatment for arterial hypertension;
- Fasting serum glucose from 5.6 mmol/l or a previously established diagnosis of type 2 diabetes mellitus.

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At the screening stage, anamnesis data was collected, an objective examination, blood pressure measurement, anthropometry - determination of height, weight, WC, body mass index (BMI). When studying lipid metabolism, the level of cholesterol, triglycerides, low-density lipoproteins, high-density lipoproteins was determined, and the atherogenic coefficient in the blood serum was calculated. The lipid spectrum of blood serum was determined in venous blood plasma taken after a 12-hour fast.

Ultrasound examination of the thyroid gland was carried out in 5 standard sensor positions. During the study, the volume of the thyroid gland (PTG) was assessed (calculated using the formula AxBxCx0.524, where A, B and C are the height, depth and width of each lobe), the homogeneity and echogenicity of the gland parenchyma, the size of nodules or cysts, their echogenicity, presence of calcifications, halo rim, presence of enlarged regional lymph nodes.

RESULTS AND ITS DISCUSSION:

In our study, patients were divided into 2 groups. Group 1 consisted of 35 people - people who have metabolic syndrome with impaired thyroid function, and group 2 was the control group. The vast majority of patients in group 1 (16 patients (88.57%)) had abdominal obesity, even though they did not have the MS symptom complex as such. In group 1 of patients, other components of MS were also common. Arterial hypertension was in second place in prevalence (after abdominal obesity); it was observed in half of the cases (8 patients (51.42%)). A third of patients had a decrease in HDL levels – 6 patients (34.29%). Disorders of carbohydrate metabolism were also common - 3 patients (22.85%) and hypertriglyceridemia - 2 patients (11.43%). Considering the high occurrence of the leading components of MS in patients with hypothyroidism, it can be assumed that the latter may have a high risk of developing MS. Among the examined patients there were patients with normal weight, overweight and obesity. The degree of obesity was assessed by BMI = body weight (kg)/height (m^2). BMI was calculated as the ratio of body weight in kg to the square of height in m2. Body weight was assessed as normal with a BMI not exceeding 25 kg/m2, overweight with a BMI of 25–30, and obesity was diagnosed with a BMI of more than 30 kg/m2. 1st degree obesity was assigned to patients with BMI=30.0-34.9; 2nd degree of obesity – for patients with BMI=35.034.9. There were no patients with grade 3 obesity among those examined. In group 1, the incidence of obesity was 57%.

CONCLUSIONS:

In patients suffering from metabolic syndrome in combination with thyroid dysfunction, multicomponent variants of the metabolic syndrome were more common. With an increase in the number of components of the metabolic syndrome, the severity of its clinical manifestations increased and the functional activity of the thyroid gland decreased. Considering the high prevalence of thyroid pathology and metabolic syndrome in the population, studying the relationship between these diseases is relevant in order to improve diagnosis and treatment. It is necessary to develop strategies to recognize the high risk of developing these conditions [Mustafina S.V., 2019; World Health Organization, 2018].

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