



**TOSHKENT TIBBIYOT AKADEMIYASI URGANCH FILIALI**  
**JANUBIY OROLBO‘YI TIBBIYOT JURNALI**  
**2 - TOM, MAXSUS SON. 2026**  
**14.00.00 - TIBBIYOT FANLARI ISSN: 3093-8740**

**UDK: 618.314-002-003.231+577.153.7**

**STUDYING THE FORMATION OF METABOLIC SYNDROME, ITS CLINICAL COURSE  
AND ITS IMPACT ON SERVICE ACTIVITIES, DEVELOPING EFFECTIVE  
TREATMENT AND PREVENTION MEASURES AMONG MILITARY PERSONNEL.**



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**ABSTRACT**

This article presents the relevance of studying the course of metabolic syndrome among military personnel and modern approaches to its treatment and prevention, and provides information on factors such as high physical and mental workload, long-term stress, service in conditions of uncertainty, and repeated training without full recovery. It is urgent to further deepen research on the course of metabolic syndrome among military personnel, identify its risk factors, and implement modern treatment and prevention methods.

**Keywords:** Chronic stress, metabolic syndrome, abdominal obesity, arterial pressure, glucose metabolism, lipid profile assessment, blood glucose, insulin, HOMA IR, triglycerides, HDL/LDL, total cholesterol.

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Buxoro davlat tibbiyot instituti

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**“Harbiy xizmatchilar orasida metabolik sindromning shakllanishi, klinik kechishi va uning xizmat faoliyatiga ta’sirini o’rganish holda, samarali davo profilaktika chora tadbirlarini ishlab chiqish”**

**ANNOTATSIYA**

Ushbu maqolada harbiy xizmatchilar orasida metabolik sindromning kechishi va uning davo profilaktikasiga qaratilgan zamonaviy yondashuvlarni o’rganishning dolzarbligi keltirilgan bo‘lib, jismoniy va ruhiy jarayonlar yuklamasining yuqoriligi, uzoq muddatli stress, nomuayyanlik sharoitida xizmat qilish, to‘liq tiklanmasdan turib takroriy mashg‘ulotlar olib borish kabi omillar haqida ma’lumot keltirilgan. Harbiy xizmatchilar orasida metabolik sindromning kechishi, uning xavf omillarini aniqlash va zamonaviy davo profilaktika usullarini tadbir etish bo‘yicha izlanishlarni yanada chuqurlashtirish dolzarb hisoblanadi.

**Kalit so‘zlar:** uzoq muddatli stress, metabolik sindrom, abdominal semizlik, arterial bosim, glyukoza almashinuvi, lipid profilini baholash, qonda glyukoza, insulin, HOMA IR, triglitseridlar, HDL/LDL, umumiy xolesterin.



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**«Изучение формирования метаболического синдрома, его клинического течения и влияния на служебную деятельность, разработка эффективных мер лечения и профилактики среди военнослужащих»**

**АННОТАЦИЯ**

В данной статье рассматривается актуальность изучения течения метаболического синдрома среди военнослужащих и современные подходы к его лечению и профилактике, а также приводятся сведения о таких факторах, как высокая физическая и умственная нагрузка, длительный стресс, служба в условиях неопределенности и многократные тренировки без полного восстановления. Необходимо срочно углубить исследования течения метаболического синдрома среди военнослужащих, выявить факторы риска и внедрить современные методы лечения и профилактики.

**Ключевые слова:** Длительный стресс, метаболический синдром, абдоминальное ожирение, артериальное давление, метаболизм глюкозы, оценка липидного профиля, уровень глюкозы в крови, инсулин, HOMA IR, триглицериды, HDL/LDL, общий холестерин.

The relevance of studying the course of metabolic syndrome among military personnel and modern approaches to its treatment and prevention is determined by a number of important factors. Firstly, modern military service is characterized by a high load of physical and mental processes. Factors such as long-term stress, service in conditions of uncertainty, repeated training without full recovery have a negative impact on the body's metabolic processes. Secondly, improper formation of the diet in military personnel, consumption of high-calorie and unbalanced food, sleep disorders, and improper organization of physical activity create the basis for the development of metabolic syndrome. These, in turn, increase risk factors such as arterial hypertension, dyslipidemia, type 2 diabetes, overweight and obesity[1,4,7].

In our country, targeted and practical measures are being taken to reform the healthcare system and bring it into line with global requirements, including measures to improve the effectiveness of complex treatment and develop effective methods of prevention and early diagnosis of metabolic syndrome among military personnel. In this regard, in Part 4, Goal 56 of the 7 priority areas outlined in the Strategy for the Development of New Uzbekistan for 2022-2026, tasks such as "...implementation of complex measures aimed at protecting the health of the population, increasing the potential of medical workers and implementing the program for the development of the healthcare system for 2022-2023" are set. It is indicated that the implementation of the practice of improving the treatment of metabolic syndrome among military personnel is considered one of the relevant scientific directions[5,9].

**Tasks of the research:**

to assess the manifestation of metabolic syndrome in military personnel by assessing abdominal obesity, blood pressure, glucose metabolism and lipid profile, as well as by examining the main laboratory parameters of blood glucose, insulin, HOMA IR, triglycerides, HDL/LDL, total cholesterol;

to determine the results of immunological indicators (blood CRP, IL 6, IL 1 $\beta$ , TNF  $\alpha$ , leptin, adiponectin, fibrinogen) before and after treatment in the development of the main disease background among military personnel;

for the first time, to identify and assess the clinical and epidemiological characteristics of the development of metabolic syndrome among military personnel



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to further improve medical preventive measures aimed at preventing metabolic syndrome among military personnel

**As the object of the study**, was 150 military patients with metabolic syndrome who were admitted to the Bukhara Military Hospital on an outpatient basis.

**Research methods.** The study used anamnestic data, clinical, questionnaire, laboratory and statistical (t-Student and Pearson test) methods.

**Material and methods.** Since enamel is underdeveloped in problem areas, it does not perform its protective function. Caries-causing bacteria easily attack it, penetrating through it into the dentin. Therefore, caries develops rapidly in young patients. This manifests as spots on the enamel—at first yellowish, then darker. Areas severely affected by caries have a brownish tint and the presence of cavities.

Metabolic syndrome is a complex of abdominal obesity, hypertension, insulin resistance and dyslipidemia, aimed at reducing cardiovascular risk through early diagnosis and lifestyle changes (diet, physical activity). Metabolic syndrome is a concept that combines a number of risk factors for the cardiovascular system (arterial hypertension, abdominal obesity, dyslipidemia, insulin resistance), which is a serious threat to modern society.

The urgency of this problem is determined by the fact that the prevalence of obesity among the population of economically developed countries of the world is 20%, as well as impaired carbohydrate metabolism, which leads from insulin resistance to the development of type 2 diabetes mellitus. The prevalence of MS is 2 times higher than the prevalence of diabetes mellitus (DM), and its growth rate is expected to increase by 50% in the next 25 years. MS can be considered a medical and social problem, and the role of primary care physicians in finding a solution is crucial. Patients with MS have a 3-4 times higher risk of developing cardiovascular disease (CVD), and patients with MS have a four times higher risk of death than patients without the syndrome.

The study of cardiovascular pathologies in people with MS is an important problem due to the need to develop adequate medical care at all stages of medical care. Over the past decade, at the initiative of the World Health Organization (WHO), epidemiological studies have been conducted in different countries to determine the place and frequency of the main vascular diseases, to clarify their causes, and the importance of various factors in their development. A similar study was conducted in Uzbekistan at the Institute of Cardiology, where some risk factors, such as arterial hypertension (AH), obesity, and coronary heart disease (CHD), were studied. In 2002, M.L. Saipova studied the dynamics of the spread of MS and conducted a comparative assessment of the importance of certain components of MS in the development of CHD. The prevalence of MS was studied by O.A. Ruziev (2008) at the Department of Preparatory Medical Sciences of the Bukhara Medical Institute according to the diagnostic criteria recommended by the WHO, which was 22%. However, there is no consensus among specialists on where and by what criteria to identify individuals with MS.

Due to the need to implement preventive programs, there is a need to assess the structure of vascular complications, analyze risk factors, identify age-related characteristics of the onset of the disease, hereditary predisposition, clarify the coexistence of various types of vascular complications in individuals of different sexes, and develop targeted prophylaxis aimed at preventing the identified risk factors in individuals with MS, which was the subject of this study [1,4,6].

When analyzing lipid spectrum indicators, depending on the type of stroke and the level of glycemia, the highest values of total cholesterol ( $8.8 + 1.0$  mmol / l), TG ( $4.9 + 0.6$  mmol / l) were recorded in the group of men who had a hemorrhagic stroke with GD. In the group of women who had an ischemic stroke, the values of atherogenic lipoproteins were significantly lower than in all other comparison groups. Depending on the type of stroke, gender and TVI, the highest values of total cholesterol ( $8.6 + 1.0$  mmol / l), TG ( $5.2 + 0.4$  mmol / l) were recorded in the group of men who had a hemorrhagic stroke in the impaired state. In the group of women who had an ischemic stroke,



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the values of atherogenic lipoproteins were significantly lower than in the group of hemorrhagic stroke [3,7].

Thus, atherogenic fractions of lipoproteins were increased in men who had hemorrhagic stroke. In women who had ischemic stroke, significantly lower values were noted. In men, the number of hemorrhagic strokes increases due to increased TVI and the addition of HDL; in the female group, there is no such tendency. Factors such as body weight, HDL, and increased atherogenic fractions of lipoproteins contribute to the increased risk of hemorrhagic strokes in men. The incidence of stroke was also affected by hereditary predisposition to hypertension, diabetes, and obesity. This was mainly expressed in men [3,5].

A study of BP values in stroke survivors (Table 4) showed that the highest BP values, mainly related to systolic pressure, were observed in men who had hemorrhagic stroke in the setting of UA dysfunction. Analysis of the results showed that with increasing TVI and AS values, the maximum BP values in hemorrhagic stroke survivors increased, which was more pronounced in men: BP – 203.1±3.3 mmHg. A similar, but less significant, trend was observed in women: BP – 202.2±9.8 mmHg[3,7].

Thus, the use of this scale at the primary level of the healthcare system allows general practitioners to assess the risk of developing vascular pathology, identify the most significant risk factors and, based on them, dynamically monitor a contingent of individuals in order to carry out timely prevention of CVD. To assess the effectiveness of the preventive measures being implemented, we selected 53 people at the primary level of the healthcare system (using the integral scale), aged 33 to 59 years, with a low (range 7.09-21.1) and medium (range 21.2-35.2) risk of developing vascular diseases. The first group included 20 people with low risk, who were only treated with non-drug therapy. The second group included 33 people with moderate risk, who received non-drug treatment along with drug correction[2,7].

**Conclusions.** Dynamic monitoring of patients with MS symptoms with lifestyle changes for three months allowed for a short-term improvement in TVI, AI indicators and a significant reduction in cholesterol levels. The second group consisted of individuals with increased arterial pressure in addition to obesity and dyslipidemia. Among those examined, grade I arterial hypertension was observed in 15 (45.5%) patients, grade II - in 18 (54.5%) patients. In general, the average values of SAB in 17 groups were 155.3 ± 1.75; DBP - 97.7 ± 1.36 mm.s.m. The number of individuals with excess body weight was 4 (12.2%), grade I obesity - in 21 (63.6%), grade II obesity - in 8 (24.2%); on average, TVI was equal to 33.7±0.51. Different types of dyslipidemia were detected in 24 (72.7%) patients, in which total XS was 6.8±0.37mmol/l; UG – 2.5±0.33 mmol/l; PZLP – 3.8±0.29 mmol/l; YuZLP – 1.1 ±0.06 mmol/l; The atherogenic coefficient of cholesterol (ACR) was equal to the average values of 5.7±0.39.

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