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ASSESSMENT OF SOCIAL-HYGIENIC FACTORS, DIETARY PATTERNS, AND PHYSICAL ACTIVITY IN WOMEN WITH METABOLIC SYNDROME

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Abstract
Metabolic syndrome (MetS) is a fundamental factor in cardiometabolic risk and reproductive dysfunction among women. This review article analyzes the impact of socio-hygienic environments, dietary habits (alimentation), and hypodynamia (physical inactivity) on the development of MetS. Research findings indicate that chronic psychosocial stress and unfavorable social conditions significantly escalate the risk of MetS. While the prevalence of high-calorie foods in the diet increases the risk, a diet rich in fruits and vegetables combined with regular physical exercise serves as an effective protective measure. The article highlights the necessity of a comprehensive approach to promoting a healthy lifestyle and reducing MetS risks in women.

Keywords: Metabolic syndrome, women's health, socio-hygienic factors, alimentation, hypodynamia, reproductive dysfunction, cardiometabolic risk, healthy lifestyle.

Introduction

AYOLLARDA METABOLIK SINDROM BILAN BOG'LIQ IJTIMOIY-GIGIYENIK OMILLAR, OVQATLANISH TARTIBI VA JISMONIY FAOLLIKNI BAHOLASH

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Annotatsiya

Ayollar salomatligida metabolik sindrom (MetS) kardiometabolik xavf va reproduktiv disfunksiyalarning asosiy omili hisoblanadi. Mazkur sharx maqolada ijtimoiy-gigiyenik muhit, alimentatsiya (ovqatlanish) va gipodinamiya (kam harakatlilik) kabi omillarning MetS rivojlanishidagi o'rni tahlil qilingan. Natijalar shuni ko'rsatadiki, surunkali psixofiziologik stress va noqulay ijtimoiy muhit MetS xavfini sezilarli darajada kuchaytiradi. Ratsionda yuqori kaloriyali mahsulotlarning ustunligi xavfni oshirsa, meva-sabzavotlarga boy parhez va muntazam jismoniy yuklamalar himoya funksiyasini bajaradi. Maqolada xotin-qizlar o'rtasida sog'lom turmush tarzini targ'ib qilish bo'yicha kompleks profilaktik chora-tadbirlar zarurligi asoslab berilgan.

Kalit so'zlar: metabolik sindrom, ayollar salomatligi, ijtimoiy-gigiyenik omillar, alimentatsiya, gipodinamiya, reproduktiv disfunksiya, kardiometabolik xavf, sog'lom turmush tarzi.

ОЦЕНКА СОЦИАЛЬНО-ГИГИЕНИЧЕСКИХ ФАКТОРОВ, РЕЖИМА ПИТАНИЯ И ФИЗИЧЕСКОЙ АКТИВНОСТИ У ЖЕНЩИН С МЕТАБОЛИЧЕСКИМ СИНДРОМОМ

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Аннотация

Метаболический синдром (МетС) является ключевым предиктором кардиометаболических рисков и репродуктивных дисфункций у женщин. В данной обзорной статье проанализирована роль социально-гигиенических условий, характера питания (алиментарных факторов) и гиподинамии в генезе МетС. Результаты исследований указывают на то, что хронический психосоциальный стресс и неблагоприятная социальная среда существенно детерминируют риск развития МетС. Преобладание в рационе высококалорийных продуктов коррелирует с повышением риска, в то время как диета, богатая овощами и фруктами, в сочетании с регулярной физической активностью, оказывает выраженный протективный эффект. В статье обоснована необходимость комплексного подхода к формированию здорового образа жизни для минимизации рисков МетС у женщин.

Ключевые слова: метаболический синдром, женское здоровье, социально-гигиенические факторы, алиментация, гиподинамия, репродуктивная дисфункция, кардиометаболический риск, здоровый образ жизни.

Relevance of the problem

According to the World Health Organization (WHO), elevated blood pressure, overweight, obesity, high blood glucose, and increased lipid levels are major risk factors for noncommunicable diseases and are collectively classified as metabolic risk factors. Analysis of deaths associated with these risk factors shows that, globally, the most significant metabolic risk factor is elevated arterial blood pressure, which accounts for approximately 25% of deaths caused by noncommunicable diseases.

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This is followed by elevated blood glucose, as well as overweight and obesity. According to WHO estimates, strategies aimed at preventing noncommunicable diseases and strengthening disease prevention may avert up to 39 million deaths by 2030.

According to recent statistical data, the prevalence among women has reached approximately 31%, meaning that nearly every third woman is at risk of metabolic syndrome. In 2023, about 1.54 billion adults worldwide were living with metabolic syndrome, with the number of women exceeding that of men. The increasing prevalence of metabolic syndrome among women has been associated with urbanization, unhealthy dietary patterns, and low levels of physical activity [6].

Literature review. Metabolic syndrome is currently considered one of the most pressing metabolic health problems, manifesting as a complex of several interrelated disorders in the body. This condition is primarily characterized by dyslipidemia, that is, an increase in the levels of “bad” cholesterol (LDL) and triglycerides in the blood, along with a decrease in the level of “good” cholesterol (HDL). At the same time, arterial hypertension and impaired glucose tolerance, meaning the body’s reduced ability to adequately regulate blood glucose, are also regarded as key components of metabolic syndrome.

However, a number of epidemiological studies and several clinical trials have emphasized that individuals with metabolic syndrome may derive substantial benefit from intensive lifestyle modification, including improvement of dietary habits and increased physical activity [7].

In a cohort study conducted in the Netherlands, women (n = 52,836) were followed for an average of 3.8 years for the development of metabolic syndrome. The findings demonstrated that social and hygienic factors play an important role in the development of metabolic syndrome among women. Women with higher educational attainment and professional status had a lower risk of developing metabolic syndrome. Health literacy and self-management skills partially mediated these educational and occupational differences, thereby contributing to risk reduction. However, income disparities remained an independent risk factor for the development of metabolic syndrome in women and were not reduced through health literacy or self-management skills [4].

In a community-based cross-sectional study conducted in Nanjing, China, in 2023, adult women and men participated, and the results for women were analyzed separately. This Chinese community-based study examined the association between socioeconomic status (education level and household income) and metabolic syndrome and its components, and it also provided clear findings for women. It was found that women with higher levels of education and income had a lower risk of MetS and its adverse components, whereas women with lower socioeconomic status, characterized by older age, lower education, and lower household income, showed worse cardiovascular and metabolic indicators [9].

An epidemiological study conducted in South Korea in 2024, based on data from the Korea National Health and Nutrition Examination Survey (2016–2018), included 2,856 women aged 40–59 years. This study showed that socioeconomic status, particularly older age, lower educational attainment, and lower household income, as well as indicators of women’s reproductive health, including age at menarche and menopause, were associated with the development of MetS in Korean women. In addition, after adjusting for socioeconomic status and reproductive health indicators in both premenopausal and postmenopausal Korean women, current smoking, low physical activity, and obesity were identified as significant contributors to the development of MetS. The results indicate that, in order to prevent and manage MetS, it is important to develop and implement health policies and public health programs targeting modifiable risk factors such as smoking cessation, regular physical activity, and healthy nutrition [3].

The results of a cohort study conducted among women born in 1978–1979 in Ribeirão Preto, Brazil, showed that social and hygienic factors play an important role in the development of metabolic syndrome. The study included 916 women, of whom 31.2% were associated with MetS. Unemployment, absence of a partner, low educational level, and adolescent pregnancy were found to increase the risk of MetS. In particular, the risk was 1.49 times higher in unemployed women, 1.33 times higher in women without a partner, and 1.37–1.72 times higher in women with low educational attainment. At the same time, women who had experienced pregnancy during adolescence were found to have a twofold increased risk of developing MetS [2].

A community-based descriptive cross-sectional study was conducted in the semi-urban communities of Pallikaranai, Thuraipakkam, and Kottivakam in Chengalpet district, Tamil Nadu, India, with the aim of identifying lifestyle-related risk factors. To assess lifestyle risk factors associated with metabolic diseases, 1,200 adult women aged 20–59 years were included in the study. The findings revealed a high prevalence of unhealthy dietary habits, particularly insufficient intake of fruits and vegetables and inappropriate salt consumption. Low physical activity was also among the most common factors observed in adult women living in these communities. Among adult women with unstable attention and lower levels of health awareness, the factors increasing the risk of metabolic diseases were associated with a greater likelihood of chronic illnesses. These findings indicate the need for appropriate preventive measures to reduce metabolic diseases among women [5].

Healthy dietary habits may exert a protective effect against MetS not because of the restriction of any single nutrient, but rather due to the cumulative effect of small dietary modifications. Compared with low-fat or strictly restrictive diets, scientific studies support the use of the Mediterranean diet (MedDiet) as a new approach to the prevention and treatment of MetS. The nutritional composition and quality of the MedDiet allow healthcare professionals to provide practical dietary recommendations that are easier to follow and do not require excessive restriction. At the same time, randomized clinical trials are needed to evaluate the effectiveness of a low-carbohydrate Mediterranean-style diet in encouraging the consumption of whole grains and plant-based protein sources in patients with MetS [1].

A systematic review and meta-analysis published in 2023 by Abbigail Tan and colleagues investigated the effects of physical activity on risk factors for metabolic syndrome in postmenopausal women. The study analyzed data from 39 randomized clinical trials, covering 40 outcomes, involving 2,132 postmenopausal women. The meta-analysis showed that regular physical exercise significantly improved the following MetS parameters: waist circumference, with an average reduction of 2.61 cm; triglycerides, with an SMD of −0.40 mmol/L; high-density lipoprotein cholesterol, with an SMD of +0.84 mmol/L; fasting blood glucose, with an SMD of −0.38 mmol/L; systolic blood pressure, with a reduction of 5.95 mmHg; and diastolic blood pressure, with a reduction of 4.14 mmHg. The results indicate that physical activity lasting more than 8–10 weeks reduces MetS risk factors, with moderate-intensity and combined exercise being the most effective in improving abdominal obesity, dyslipidemia, hyperglycemia, and hypertension [8].

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CONCLUSION

Metabolic syndrome in women is a serious health problem that negatively affects cardiovascular and reproductive health. Research shows that its development is strongly influenced by social and economic conditions, including education, income, employment status, and marital status. At the same time, chronic stress, unhealthy diet, and low physical activity increase the risk, whereas a diet rich in fruits and vegetables and regular physical exercise have a protective effect. Various national and international studies indicate that comprehensive preventive measures are necessary to reduce the risk of MetS, including healthy nutrition, increased physical activity, smoking cessation, and stress management. In addition, ensuring socioeconomic equality may also contribute to lowering the risk of MetS in women. These conclusions provide a foundation for developing effective strategies to promote a healthy lifestyle and prevent metabolic syndrome.

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