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CLINICAL IMPACT OF AGE, GENDER, AND METABOLIC RISK FACTORS ON ARTERIAL HYPERTENSION IN METABOLIC SYNDROME

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Abstract: Arterial hypertension is a major component of metabolic syndrome and an important contributor to cardiovascular morbidity and mortality. This study evaluated the influence of age, sex, and metabolic characteristics on the clinical course of arterial hypertension in patients with metabolic syndrome. A total of 79 patients aged 35–65 years underwent comprehensive clinical, anthropometric, and laboratory assessment. Increasing age, male sex, and higher body mass index were associated with more severe arterial hypertension and an unfavorable metabolic profile. These findings highlight the importance of considering demographic and metabolic factors when developing individualized treatment strategies to reduce cardiovascular risk.

Keywords: arterial hypertension, metabolic syndrome, obesity, body mass index, age, cardiovascular risk.

КЛИНИЧЕСКОЕ ЗНАЧЕНИЕ ВОЗРАСТНЫХ, ГЕНДЕРНЫХ И МЕТАБОЛИЧЕСКИХ ФАКТОРОВ ПРИ АРТЕРИАЛЬНОЙ ГИПЕРТЕНЗИИ У ПАЦИЕНТОВ С МЕТАБОЛИЧЕСКИМ СИНДРОМОМ

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Аннотация: Артериальная гипертензия является одним из основных компонентов метаболического синдрома и существенно повышает риск сердечно-сосудистых осложнений. Цель исследования — изучить влияние возраста, пола и метаболических факторов на клиническое течение

артериальной гипертензии у пациентов с метаболическим синдромом. В исследование были включены 79 пациентов в возрасте 35–65 лет, которым проведено комплексное клинико-лабораторное и антропометрическое обследование. Установлено, что увеличение возраста, мужской пол и высокий индекс массы тела ассоциированы с более тяжелым течением артериальной гипертензии и выраженными метаболическими нарушениями. Полученные результаты подтверждают необходимость учета демографических и метаболических факторов при выборе индивидуальной тактики лечения и снижении сердечно-сосудистого риска.

Ключевые слова: артериальная гипертензия, метаболический синдром, ожирение, индекс массы тела, возраст, сердечно-сосудистый риск.

Introduction: Metabolic syndrome (MetS) has become one of the most significant public health challenges worldwide because of its rapidly increasing prevalence and its strong association with cardiovascular disease. The syndrome is characterized by the coexistence of central obesity, arterial hypertension, dyslipidemia, and impaired glucose metabolism, all of which contribute to chronic low-grade inflammation and increased cardiovascular risk. According to international epidemiological data, excess body weight and obesity affect billions of adults and continue to rise among both middle-aged and younger populations. Arterial hypertension is a major clinical manifestation of metabolic syndrome, and its severity is influenced by multiple demographic and metabolic factors. Previous studies have demonstrated that obesity, age, sex, and metabolic disturbances play important roles in the progression of hypertension and the development of cardiovascular complications. Identification of these predictors may facilitate earlier diagnosis, improve risk stratification, and support individualized treatment strategies. Therefore, investigation of age-related, sex-related, and metabolic determinants of arterial hypertension in patients with metabolic syndrome remains an important step toward optimizing prevention, treatment, and long-term cardiovascular outcomes.

Aim of the study: To investigate the influence of age, sex, and metabolic characteristics on the clinical course and severity of arterial hypertension in patients with metabolic syndrome and to identify the main predictors associated with increased cardiovascular risk for optimizing individualized treatment strategies.

Materials and methods. A total of 79 patients with arterial hypertension and metabolic syndrome aged between 35 and 65 years were enrolled in this observational study. The mean age of the participants was 51.8 ± 6.4 years. The study population consisted of 39 women (49.4%) and 40 men (50.6%). According to age, participants were classified into three groups: 35–44 years, 45–54 years, and 55–65 years to evaluate age-related differences in the clinical course of arterial hypertension.

Patients with malignant diseases, tuberculosis, HIV infection, severe psychiatric disorders, acute or chronic inflammatory diseases, or current hormonal therapy were excluded from the study. All participants underwent a comprehensive clinical examination, including medical history assessment, physical examination, and review of medical records. Anthropometric measurements, blood pressure evaluation, and laboratory investigations were performed using standardized methods.

Metabolic syndrome was diagnosed according to the recommendations of the Russian Society of Cardiology, requiring the presence of central obesity together with at least two additional metabolic abnormalities, including arterial hypertension, hypertriglyceridemia, reduced high-density lipoprotein cholesterol, elevated low-density lipoprotein cholesterol, impaired fasting glucose, or impaired glucose tolerance. The severity of arterial hypertension was classified according to the 2017 ACC/AHA Hypertension Guidelines. Statistical analysis was performed using Statistica for Windows 10.0 software, and differences were considered statistically significant at $p < 0.05$.

Results. A total of 79 patients with arterial hypertension and metabolic syndrome were analyzed. The prevalence of severe arterial hypertension increased with

advancing age and was more frequently observed among men than women. Male patients aged 45–54 years demonstrated the highest proportion of severe hypertension, whereas among women the greatest frequency was identified in the 55–65-year age group. Moderate and severe forms of hypertension became progressively more common in older age groups, indicating a significant influence of age on disease severity.

Body mass index was strongly associated with the clinical course of arterial hypertension. Patients with obesity had a higher prevalence of advanced hypertension than those with lower body mass index values. The highest frequency of severe arterial hypertension was observed in individuals with a body mass index of 40 kg/m² or greater, where approximately 78% of patients experienced severe disease. Statistical analysis confirmed a significant positive correlation between increasing body mass index and hypertension severity ($p < 0.001$).

Combined analysis of demographic and metabolic factors demonstrated that age and obesity were the strongest predictors of severe arterial hypertension. Male sex was associated with a greater risk of severe hypertension after adjustment for age and obesity. Correlation analysis further indicated that increasing age and excess body weight acted synergistically, contributing to more pronounced cardiovascular impairment and unfavorable clinical outcomes. These findings suggest that the severity of arterial hypertension in patients with metabolic syndrome is determined by the interaction of demographic and metabolic characteristics and highlight the importance of comprehensive cardiovascular risk assessment for individualized patient management.

Conclusions: The severity of arterial hypertension increased with advancing age, particularly among male patients with metabolic syndrome. Women were more likely to develop severe hypertension after the age of 55 years. Obesity and older age were identified as the strongest predictors of severe arterial hypertension. The combination of male sex, increasing age, and elevated body mass index significantly increased the probability of disease progression. Comprehensive assessment of demographic and metabolic risk factors may improve individualized

treatment strategies and reduce cardiovascular complications in patients with metabolic syndrome.

References.

1. Ziyadullaev, S. K., Sultonov, I. I., Dushanova, G. A., & Akbarovna, K. S. (2021). The Effectiveness Of Pharmacotherapy For Dmards With Ra Depending On The C3435t Polymorphism Of The Mdr1 Gene. *Int. J. of Aquatic Science*, 12(3), 2908-2916.
2. Islomovich, S. I. (2024). GENDER CHARACTERISTICS OF THE CURRENT RHEUMATOID ARTHRITIS. *International journal of medical sciences*, 4(10), 3-8.
3. Ilkhom, S. (2023). CAJAM–VOLUME 1. ISSUE 1. 2023. *Central Asian Journal of Advanced Medicine*, 1(01), 16-19.
4. Kireev, V. V., Sultonov, I. I., Ziyadulaaev, S. K., Suyarov, A. A., Aripova, T. U., Usmanbekova, K. T., & Nasretdinova, M. T. (2021). Genetic Engineered Preparations-An Innovative Approach in the Treatment of Rheumatoid Arthritis. *Annals of the Romanian Society for Cell Biology*, 25(3), 4114-4119.
5. Sultonov, I. I., Xasanov, F. S., Eshmuratov, S., Uralov, R. S., Shukurova, D., & Ziyadullayev, S. X. Predictors of Systemic Lupus Erythematosus: A Case-control Study. *International journal of health sciences*, 6(S10), 175-182.
6. Khusainova, M. A., Vakhidov, J. J., Khayitov, S. M., & Mamadiyorova, M. M. (2023). Cardiac arrhythmias in patients with rheumatoid arthritis. *Science and Education*, 4(2), 130-137.
7. Yarmatov, S., Khusainova, M., & Djabbarova, N. (2023). STUDY OF QUALITY OF LIFE INDICATORS IN PATIENTS WITH CORONARY HEART DISEASE USING THE SF-36 QUESTIONNAIRE. *Бюллетень студентов нового Узбекистана*, 1(7), 58-64.