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RISK FACTORS AND CLINICAL-PROGNOSTIC FEATURES OF THE COURSE OF HYPERTENSIVE DISEASE IN PERSONS AGED 45–59 YEARS

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Abstract

The article discusses risk factors and features of the course of hypertensive disease in persons aged 45–59 years. It is shown that in this age group, the disease most often develops against the background of a combination of abdominal obesity, physical inactivity, smoking, dyslipidemia, excessive salt intake, chronic stress, and hereditary predisposition. It is noted that hypertensive disease in middle-aged patients often has a minimally symptomatic course, is accompanied by high variability of blood pressure, and is associated with insufficient adherence to treatment. Particular attention is paid to early target-organ damage, including left ventricular hypertrophy, vascular stiffness, microalbuminuria, and decreased renal function. It is concluded that early diagnosis, regular blood pressure monitoring, correction of risk factors, and timely prescription of antihypertensive therapy are necessary.

Keywords: hypertensive disease, arterial hypertension, risk factors, persons aged 45–59 years, cardiovascular risk, target organs, obesity, dyslipidemia, prevention.

Relevance of the Study

Hypertensive disease remains one of the leading medical and social problems of modern clinical medicine, as it is a key risk factor for stroke, myocardial infarction, chronic heart failure, chronic kidney disease, and premature mortality. According to the World Health Organization, arterial hypertension is widely prevalent among the adult population, while a significant proportion of patients remain unaware of elevated blood pressure for a long time or fail to achieve target control levels [1]. This circumstance is especially relevant for people of working age, since it is during this period that stable pathogenetic mechanisms of vascular remodeling, metabolic disorders, and target-organ damage are formed.

The age of 45–59 years occupies a special place in the development of hypertensive disease. On the one hand, this age period still belongs to the socially and professionally active stage of life, when patients often underestimate symptoms, irregularly undergo preventive examinations, and seek medical care late. On the other hand, after the age of 45, the frequency of abdominal obesity, dyslipidemia, carbohydrate metabolism disorders, chronic stress, decreased physical activity, and endothelial dysfunction increases. Modern European guidelines emphasize the need for regular blood pressure measurement in adults, especially beginning from the age of 40 and in individuals with increased risk, including patients with excess body weight, high-normal blood pressure, and an unfavorable metabolic profile [2].

According to current concepts, hypertensive disease is a multifactorial disorder involving genetic predisposition, neurohumoral activation, endothelial dysfunction, increased activity of the sympathetic nervous system, sodium retention, increased peripheral vascular resistance, and remodeling of the vascular wall. However, the clinical significance of these mechanisms increases particularly when they are combined with behavioral and metabolic risk factors. The clinical guidelines of the European Society of Cardiology and the European Society of Hypertension emphasize that assessment of a patient with arterial hypertension should include not only the level of blood pressure, but also the overall cardiovascular risk, the presence of concomitant diseases, and target-organ damage [3].

The relevance of studying hypertensive disease in persons aged 45–59 years is also associated with the fact that in this age group the disease often has a latent or minimally symptomatic course. Patients may complain of headache, fatigue, irritability, decreased work capacity, palpitations, sleep disturbance, and discomfort in the heart region; however, these manifestations are often regarded as consequences of overwork or stress. As a result,

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hypertension is detected accidentally — during a preventive examination, when visiting a doctor for another disease, or already in the presence of complications. The WHO characterizes arterial hypertension as one of the most dangerous chronic conditions precisely because of its long asymptomatic course and high probability of severe vascular complications [1].

The combination of hypertensive disease with obesity, type 2 diabetes mellitus, dyslipidemia, and chronic kidney disease is of particular importance. In patients aged 45–59 years, these conditions often form a single cardiometabolic continuum, in which elevated blood pressure accelerates atherosclerosis, while metabolic disorders enhance vascular stiffness, endothelial dysfunction, and inflammatory processes in the vascular wall. The 2023 guidelines of the European Society of Hypertension emphasize that the presence of hypertension-mediated organ damage significantly increases the risk of cardiovascular events even with moderate blood pressure elevation [2].

Thus, the study of risk factors and features of the course of hypertensive disease in persons aged 45–59 years has high scientific and practical significance. Early identification of risk factors, assessment of the patient's clinical profile, detection of initial signs of target-organ damage, and timely lifestyle correction make it possible to reduce the probability of stroke, myocardial infarction, heart failure, and renal dysfunction. This determines the need for a systematic approach to the prevention, diagnosis, and treatment of hypertensive disease in this age group[13].

Materials and Methods

The study was conducted in the format of a scientific-analytical review with elements of clinical and preventive interpretation of current data on hypertensive disease in persons aged 45–59 years. The materials included data from international and national clinical guidelines, epidemiological reports, scientific publications, and reviews devoted to arterial hypertension, cardiovascular risk, factors of disease progression, and target-organ damage.

The inclusion criteria for sources were: publication in peer-reviewed scientific journals or official clinical guidelines; availability of information on the prevalence of arterial hypertension, risk factors, diagnosis, course, and prevention of complications; relevance of data to the adult population, especially middle-aged persons; and compliance with modern principles of evidence-based medicine. Priority was given to sources published between 2018 and 2025, as well as fundamental manuals and guidelines that retain clinical significance.

The following groups of risk factors were assessed within the analysis: non-modifiable factors, including age, sex, and hereditary predisposition; behavioral factors, including smoking, low physical activity, excessive salt intake, irrational nutrition, and alcohol abuse; metabolic factors, including obesity, dyslipidemia, hyperglycemia, insulin resistance, and hyperuricemia; psychosocial factors, including chronic stress, sleep disorders, anxiety, and occupational overstrain; and clinical factors, including concomitant ischemic heart disease, diabetes mellitus, chronic kidney disease, and signs of target-organ damage.

To assess the features of the course of hypertensive disease, clinical manifestations, the pattern of blood pressure elevation, the frequency of hypertensive crises, the presence of morning blood pressure surge, blood pressure variability, adherence to treatment, the frequency of comorbid conditions, and early signs of damage to the heart, vessels, kidneys, brain, and retina were considered. The importance of home blood pressure monitoring and ambulatory blood pressure monitoring was analyzed separately as methods for detecting latent, masked, and insufficiently controlled hypertension.

The methodological approach included comparative analysis of literature data, clinical interpretation of risk factors, and generalization of practical conclusions for preventive work with patients aged 45–59 years. Statistical processing of original data was not performed, since the work is of a review-analytical nature. The conclusions obtained are based on comparison of current scientific sources and clinical guidelines.

Results and Discussion

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Analysis of modern sources shows that in persons aged 45–59 years, hypertensive disease rarely develops in isolation. In most cases, it is formed against the background of a combination of several risk factors that mutually reinforce each other and accelerate the progression of cardiovascular disorders. The most common clinical variant is the combination of elevated blood pressure with excess body weight, abdominal obesity, dyslipidemia, physical inactivity, and chronic psychoemotional tension.

One of the leading risk factors is age. After 45 years, the elasticity of large arteries gradually decreases, vascular stiffness increases, peripheral vascular resistance rises, and the role of endothelial dysfunction becomes stronger. These changes create preconditions for persistent elevation of blood pressure. Unlike elderly patients, persons aged 45–59 years often maintain an increase in both systolic and diastolic blood pressure, reflecting a combination of increased vascular tone and early remodeling of the arterial bed. Therefore, in this group it is especially important to identify not only absolute blood pressure levels but also the pattern of its daily dynamics.

Hereditary predisposition plays a significant role in the formation of hypertensive disease. The presence of arterial hypertension, stroke, myocardial infarction, or sudden cardiac death in close relatives increases the probability of early disease development. However, genetic predisposition is mainly realized in the presence of an unfavorable lifestyle. In patients with a family history who maintain normal body weight, adequate physical activity, and rational nutrition, the risk of hypertension progression may be significantly lower than in individuals with a combination of hereditary and behavioral factors.

Abdominal obesity is one of the most important modifiable risk factors. An increase in waist circumference is associated with insulin resistance, chronic low-grade inflammation, activation of the renin-angiotensin-aldosterone system, and increased sympathetic activity. These mechanisms contribute to sodium retention, increased circulating blood volume, elevated vascular tone, and myocardial remodeling. In persons aged 45–59 years, obesity is often combined with dyslipidemia, impaired glucose tolerance, and fatty liver infiltration, which increases overall cardiovascular risk.

Irrational nutrition, especially excessive consumption of salt, saturated fats, and easily digestible carbohydrates, has a direct effect on the course of hypertensive disease. Increased sodium intake contributes to an increase in extracellular fluid volume and enhances vascular sensitivity to pressor influences. Insufficient consumption of vegetables, fruits, potassium-rich foods, and dietary fiber reduces the protective potential of the diet. In the age group of 45–59 years, these factors are often combined with occupational workload, irregular meals, frequent consumption of semi-finished products, and insufficient body weight control.

Smoking remains one of the most dangerous risk factors, as it causes vasospasm, endothelial damage, increased oxidative stress, platelet activation, and acceleration of the atherosclerotic process. In smoking patients, hypertensive disease is more often associated with ischemic heart disease, cerebrovascular disorders, and reduced exercise tolerance. Even with moderate blood pressure elevation, smoking significantly increases overall cardiovascular risk; therefore, tobacco cessation should be considered an obligatory component of complication prevention.

Low physical activity contributes to increased body weight, reduced tissue sensitivity to insulin, worsening of the lipid profile, and increased tone of the sympathetic nervous system. In persons aged 45–59 years, physical inactivity is often associated with office work, prolonged sitting, and lack of regular aerobic exercise. Regular moderate-intensity physical activity helps reduce blood pressure, improve vascular function, reduce body weight, and increase adherence to a healthy lifestyle.

Psychoemotional stress is of particular importance for middle-aged persons. Occupational burden, social responsibility, sleep disturbance, anxiety, and chronic nervous tension lead to prolonged activation of the sympathoadrenal system. This is manifested by tachycardia, increased vascular tone, episodes of blood pressure elevation, and high blood pressure variability

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throughout the day. In some patients, hypertensive disease initially manifests precisely as stress-induced increases in blood pressure, which over time turn into persistent arterial hypertension.

Sleep disorders, including chronic insomnia and obstructive sleep apnea syndrome, also have an unfavorable effect on the course of hypertensive disease. Insufficient sleep duration increases sympathetic nervous system activity, disrupts cortisol regulation, promotes insulin resistance, and increases the likelihood of nocturnal hypertension. Obstructive sleep apnea syndrome is especially common in patients with obesity and is accompanied by episodes of hypoxia, morning blood pressure elevation, daytime sleepiness, and increased risk of cardiovascular complications.

Metabolic disorders are an important feature of hypertensive disease in persons aged 45–59 years. Dyslipidemia contributes to the accelerated development of atherosclerosis, while hyperglycemia and insulin resistance worsen endothelial function and increase vascular stiffness. The combination of hypertension with type 2 diabetes mellitus significantly increases the risk of damage to the kidneys, retina, coronary arteries, and cerebral vessels. Therefore, examination of a patient with hypertensive disease should include assessment of the lipid profile, blood glucose, glycated hemoglobin if indicated, creatinine level, glomerular filtration rate, and albuminuria.

The clinical course of hypertensive disease in persons aged 45–59 years has a number of features. First, the disease often begins gradually and remains minimally symptomatic for a long time. Patients may not feel elevated blood pressure or may associate nonspecific complaints with fatigue. Second, this group is characterized by a high dependence of blood pressure level on stress, physical activity, sleep, nutrition, and salt intake. Third, insufficient adherence to therapy is often observed: patients discontinue medications after blood pressure normalization, independently change doses, or use treatment only when their well-being worsens.

Masked arterial hypertension is a particular problem, when blood pressure readings in the doctor’s office may be normal, but at home or during the working day blood pressure remains elevated. In persons aged 45–59 years, this variant is especially important, since occupational stress and high daily workload may lead to episodes of significant blood pressure elevation outside a medical institution. Conversely, some patients have “white coat” hypertension, when blood pressure rises mainly during a visit to the doctor. To clarify the diagnosis and assess the effectiveness of therapy, home monitoring and ambulatory blood pressure monitoring should be used.

Target-organ damage in persons aged 45–59 years may develop already in the early stages of the disease. The most significant manifestation is left ventricular hypertrophy, which reflects chronic pressure overload of the heart. Myocardial hypertrophy increases the risk of rhythm disturbances, myocardial ischemia, diastolic dysfunction, and heart failure. Even in the absence of pronounced clinical symptoms, detection of left ventricular hypertrophy by electrocardiography or echocardiography requires more active correction of risk factors and blood pressure control.

Renal involvement in hypertensive disease is manifested by microalbuminuria, decreased glomerular filtration rate, and gradual development of nephroangiosclerosis. In patients aged 45–59 years, early detection of microalbuminuria is of great importance, since this indicator reflects generalized damage to the vascular endothelium and is associated with an increased risk of cardiovascular events. Therefore, assessment of kidney function should be an obligatory component of examination of patients with arterial hypertension.

Vascular changes include thickening of the carotid intima-media complex, increased arterial stiffness, endothelial dysfunction, and early atherosclerotic plaques. These processes are accelerated when hypertension is combined with dyslipidemia, smoking, obesity, and diabetes mellitus. In clinical practice, it is important to remember that in persons aged 45–59 years, the absence of complaints does not exclude high cardiovascular risk. Therefore, examination should be aimed not only at confirming the fact of elevated blood pressure but also at detecting subclinical changes in the vessels and heart.

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The features of the course of hypertensive disease in women aged 45–59 years are associated with the perimenopausal and postmenopausal periods. A decrease in estrogen levels contributes to increased vascular stiffness, redistribution of adipose tissue according to the abdominal type, worsening of the lipid profile, and elevation of blood pressure. In women of this age, hypertension may be combined with hot flashes, anxiety, sleep disturbance, and increased emotional lability, which complicates timely diagnosis and may lead to underestimation of cardiovascular risk.

In men aged 45–59 years, hypertensive disease is often combined with smoking, abdominal obesity, alcohol abuse, high occupational stress, and low rates of seeking preventive medical care. This leads to later detection of the disease and a higher probability of complications. Working-age men often ignore moderate blood pressure elevation and seek medical care only when chest pain, shortness of breath, severe headache, or signs of vascular complications appear.

When discussing prevention of complications, it is necessary to emphasize that in persons aged 45–59 years, the most effective approach is a comprehensive one. It should include regular blood pressure measurement, control of body weight and waist circumference, dietary correction, salt restriction, smoking cessation, increased physical activity, normalization of sleep, and reduction of psychoemotional stress. Drug therapy should be prescribed individually, taking into account the degree of arterial hypertension, overall cardiovascular risk, concomitant diseases, and drug tolerability.

The modern approach to the treatment of hypertensive disease involves achieving stable blood pressure control, rather than only episodic reduction of its level. Patient education is of great importance: it is necessary to explain the chronic nature of the disease, the danger of self-discontinuation of therapy, the importance of home blood pressure monitoring, and the need for regular follow-up. For persons aged 45–59 years, it is especially important to develop motivation for treatment, since timely correction of risk factors at this age can significantly reduce the probability of severe complications in the following decades of life.

Thus, the data obtained allow hypertensive disease in persons aged 45–59 years to be considered a condition with high preventive potential. With early detection of risk factors, active lifestyle modification, and rational drug therapy, it is possible to slow target-organ damage, reduce cardiovascular risk, and preserve patients' working capacity.

Conclusions

Hypertensive disease in persons aged 45–59 years most often develops against the background of a combination of several risk factors, among which the most significant are abdominal obesity, dyslipidemia, physical inactivity, smoking, excessive salt intake, chronic stress, sleep disorders, and hereditary predisposition.

This age group is characterized by a minimally symptomatic onset of the disease, high variability of blood pressure, stress-induced blood pressure elevations, insufficient adherence to treatment, and late seeking of medical care.

The clinical course of hypertensive disease in persons aged 45–59 years is often accompanied by early signs of target-organ damage, including left ventricular hypertrophy, increased vascular stiffness, microalbuminuria, decreased renal function, and initial atherosclerotic changes.

Assessment of a patient with hypertensive disease should include not only blood pressure measurement, but also determination of overall cardiovascular risk, detection of metabolic disorders, and evaluation of kidney function, heart condition, and vascular status.

The most effective strategy for preventing complications is a comprehensive approach that includes lifestyle modification, regular home blood pressure monitoring, body weight correction, smoking cessation, rational nutrition, physical activity, and individually selected antihypertensive therapy.

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References

1. World Health Organization. Hypertension: Fact sheet. Geneva: WHO; 2025. Available at: https://www.who.int/news-room/fact-sheets/detail/hypertension. Accessed: 13.05.2026.
2. Mancia G., Kreutz R., Brunström M. et al. 2023 ESH Guidelines for the management of arterial hypertension: The Task Force for the management of arterial hypertension of the European Society of Hypertension. *Journal of Hypertension*. 2023;41(12):1874–2071. DOI: 10.1097/HJH.0000000000003480.
3. Williams B., Mancia G., Spiering W. et al. 2018 ESC/ESH Guidelines for the management of arterial hypertension. *European Heart Journal*. 2018;39(33):3021–3104. DOI: 10.1093/eurheartj/ehy339.
4. World Health Organization. *Global Report on Hypertension: The Race Against a Silent Killer*. Geneva: World Health Organization; 2023. 276 p.
5. Kario K. The WHO Global report 2023 on hypertension warning the emerging hypertension burden in globe and its treatment strategy. *Hypertension Research*. 2024;47:1099–1102. DOI: 10.1038/s41440-024-01622-w.
6. European Society of Cardiology. 2024 ESC Guidelines for the Management of Elevated Blood Pressure and Hypertension. 2024. Available at: https://www.escardio.org/guidelines/clinical-practice-guidelines/all-esc-practice-guidelines/elevated-blood-pressure-and-hypertension/. Accessed: 13.05.2026.
7. Carey R. M., Muntner P., Bosworth H. B., Whelton P. K. Prevention and control of hypertension: JACC Health Promotion Series. *Journal of the American College of Cardiology*. 2018;72(11):1278–1293. DOI: 10.1016/j.jacc.2018.07.008.
8. NCD Risk Factor Collaboration. Worldwide trends in hypertension prevalence and progress in treatment and control from 1990 to 2019: A pooled analysis of 1201 population-representative studies. *The Lancet*. 2021;398(10304):957–980. DOI: 10.1016/S0140-6736(21)01330-1.
9. Oparil S., Acelajado M. C., Bakris G. L. et al. Hypertension. *Nature Reviews Disease Primers*. 2018;4:Article 18014. DOI: 10.1038/nrdp.2018.14.
10. Whelton P. K., Carey R. M., Aronow W. S. et al. 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the prevention, detection, evaluation, and management of high blood pressure in adults. *Hypertension*. 2018;71(6):e13–e115. DOI: 10.1161/HYP.0000000000000065.
11. Mills K. T., Stefanescu A., He J. The global epidemiology of hypertension. *Nature Reviews Nephrology*. 2020;16(4):223–237. DOI: 10.1038/s41581-019-0244-2.
12. Unger T., Borghi C., Charchar F. et al. 2020 International Society of Hypertension Global Hypertension Practice Guidelines. *Hypertension*. 2020;75(6):1334–1357. DOI: 10.1161/HYPERTENSIONAHA.120.15026.
13. Jamoldinovich, A. I. THE RELATIONSHIP BETWEEN ENDOTHELIAL DYSFUNCTION AND CARDIOVASCULAR RISK IN CHRONIC HEART FAILURE.
14. Шадиева, Д. К., Холматов, С., & Абдуллаева, М. СЕМАНТИКА В СТРУКТУРЕ СЛОВА И ТЕКСТА ЛИНГВОКОММУНИКАТИВНЫЙ АСПЕКТ. *Zbiór artykułów naukowych recenzowanych.*, 22.