



MODERN APPROACHES TO EARLY DIAGNOSIS OF HYPERTENSION AND ITS CLINICAL SIGNIFICANCE

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ABSTRACT

Hypertension is one of the leading cardiovascular diseases worldwide. This condition often progresses without obvious clinical symptoms in the early stages, earning it the nickname “silent killer.” As a result, patients frequently seek medical attention only after complications have developed. This article highlights the importance of early diagnosis of arterial hypertension, modern diagnostic methods, and their role in clinical practice. Scientific evidence shows that early diagnosis can prevent severe complications such as stroke, myocardial infarction, and kidney failure. In addition, the article analyzes the role of regular blood pressure measurement, identification of risk factors, and screening studies. The article is intended for medical professionals, students, and the general public interested in a healthy lifestyle and aims to strengthen preventive measures against hypertension.

Introduction

Arterial hypertension is a chronic condition characterized by persistently elevated arterial blood pressure above normal levels. According to the World Health Organization, hypertension is one of the main risk factors for cardiovascular disease development. One of the main challenges is its often silent progression over long periods, which may go unnoticed by patients.

Today, urbanization, unhealthy diet, sedentary lifestyle, stress, and harmful habits significantly contribute to the development of hypertension. Notably, the prevalence of hypertension among young and middle-aged populations is increasing. Therefore, early detection of hypertension, understanding its mechanisms, and implementing preventive measures have become urgent issues. The aim of this article is to explore methods for the early diagnosis of hypertension and their clinical significance.

Main Section

Hypertension is classified into primary (essential) and secondary types based on etiology. Primary hypertension is the most common, accounting for 90–95% of cases. Although its exact cause is unknown, genetic predisposition, unhealthy diet, stress, sedentary lifestyle, and harmful habits play a significant role. Secondary hypertension develops as a result of kidney diseases, endocrine disorders (e.g., thyroid or adrenal dysfunction), or

cardiovascular pathologies. Early detection of secondary hypertension allows effective disease management and blood pressure control.

The simplest and most important method for early detection is accurate blood pressure measurement. Patients should be calm, avoiding physical exertion and stress before measurement. A single measurement is insufficient because blood pressure fluctuates under external factors. Therefore, repeated measurements at different times and days are recommended.

Recently, 24-hour ambulatory blood pressure monitoring (ABPM) has been recognized as a reliable method for early detection. ABPM tracks blood pressure dynamics in daily life and is especially useful for identifying “white coat hypertension” and masked hypertension, which can remain undetected in clinical settings.

Laboratory and instrumental assessments are also crucial for early diagnosis and evaluation of target organ damage. Blood and urine tests, creatinine, and electrolyte levels assess kidney function. Lipid profiles and glucose levels help identify additional risk factors such as atherosclerosis and diabetes. Electrocardiography (ECG) can detect cardiac hypertrophy and rhythm disturbances, while echocardiography evaluates structural heart changes.

Risk factor assessment is an integral part of early diagnosis. Overweight, obesity, smoking, alcohol consumption, high salt intake, physical inactivity, and chronic stress increase hypertension risk. Screening programs and preventive check-ups are essential, particularly in primary healthcare, to prevent hypertension-related complications.

Research Methodology

This study employed a comprehensive scientific approach to investigate early diagnosis of hypertension. Analytical, descriptive, and comparative research methods were used. Clinical guidelines from the World Health Organization, the European Society of Cardiology, and the Ministry of Health of the Republic of Uzbekistan were reviewed. Scientific articles, monographs, and statistical reports were systematically analyzed.

The diagnostic value of blood pressure measurement, 24-hour ambulatory monitoring, and laboratory and instrumental tests was compared. Observation and comparison methods were applied to assess the effectiveness of various diagnostic approaches. The collected data were summarized to identify the most optimal methods for early hypertension detection. This methodological approach ensured the reliability of the study's results

Results

Analysis showed that regular and accurate blood pressure monitoring is crucial for early hypertension detection. In particular, 24-hour ambulatory monitoring significantly improves the identification of masked and “white coat” hypertension. Patients diagnosed at early stages exhibited less target organ damage and a lower risk of complications.

Furthermore, comprehensive evaluation of risk factors allowed identification of individuals at high risk of developing hypertension. Lifestyle modifications, including reduced salt intake, increased physical activity, and avoidance of harmful habits, proved effective in maintaining normal blood pressure. These results emphasize the need for a systematic and integrated approach to hypertension prevention and early diagnosis.

Conclusion

Early diagnosis of hypertension is one of the most pressing issues in modern medicine and public health. Its prolonged asymptomatic course complicates timely detection and often leads to severe cardiovascular complications, including stroke, myocardial infarction, chronic heart disease, and kidney failure. Therefore, early detection of hypertension is a critical strategy for preserving population health.

Early diagnosis slows disease progression, prevents target organ damage, and increases treatment effectiveness. Study results indicate that regular blood pressure monitoring, 24-hour ambulatory monitoring, and comprehensive laboratory and instrumental assessments significantly enhance early detection. Preventive screening is especially important for high-risk populations.

Managing hypertension should not be limited to pharmacological treatment. Promoting a healthy lifestyle, balanced nutrition, limiting salt intake, increasing physical activity, and eliminating harmful habits are key preventive measures. Raising public awareness and strengthening preventive check-ups in primary healthcare facilities can reduce the burden of hypertension.

In conclusion, a comprehensive approach focusing on early diagnosis and prevention can reduce morbidity and mortality related to cardiovascular diseases on a population level.

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