Global Conference on Medical and Health Sciences
Hosted Online from Madrid, Spain
Date: 14th March, 2026
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CLINICAL AND PATHOPHYSIOLOGICAL FEATURES OF THE DEVELOPMENT OF ISCHEMIC HEART DISEASE IN PATIENTS WITH DIABETES MELLITUS

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Relevance

Diabetes mellitus is one of the most pressing problems of modern medicine and represents a significant risk factor for the development of cardiovascular diseases. According to the World Health Organization, patients with diabetes mellitus have a significantly higher risk of developing cardiovascular diseases, particularly ischemic heart disease, which is one of the leading causes of disability and mortality worldwide.

Metabolic disturbances associated with diabetes mellitus, including chronic hyperglycemia, lipid metabolism disorders, oxidative stress, and endothelial dysfunction, contribute to the acceleration of atherosclerotic processes in the coronary arteries. As a result, ischemic heart disease often develops earlier in patients with diabetes and may present with specific clinical features, frequently manifesting in asymptomatic or atypical forms. This significantly complicates early diagnosis and timely initiation of appropriate treatment.

Therefore, a comprehensive study of the clinical and pathophysiological features of the development of ischemic heart disease in patients with diabetes mellitus is of great importance for improving early diagnosis, as well as for developing effective preventive and therapeutic strategies.

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Purpose of the Study. The aim of this study is to investigate the clinical and pathophysiological features of the development of ischemic heart disease in patients with diabetes mellitus and to assess the factors contributing to its progression for improving early diagnosis and preventive strategies.

Materials and Methods. The study included patients diagnosed with diabetes mellitus who were examined for the presence of ischemic heart disease. Clinical, laboratory, and instrumental examinations were conducted to assess the condition of the cardiovascular system. Clinical data, including patient complaints, medical history, and physical examination findings, were analyzed.
Laboratory investigations included the assessment of blood glucose levels, glycated hemoglobin, and lipid profile parameters. Instrumental diagnostic methods such as electrocardiography and echocardiography were used to evaluate cardiac function and detect signs of myocardial ischemia. The obtained data were analyzed using standard statistical methods to determine the clinical and pathophysiological characteristics of ischemic heart disease development in patients with diabetes mellitus.

Results. The analysis of the obtained data demonstrated that patients with diabetes mellitus have a significantly higher prevalence of ischemic heart disease compared to individuals without metabolic disorders. The study revealed that prolonged hyperglycemia plays a key role in the development of vascular endothelial dysfunction, which contributes to the acceleration of atherosclerotic changes in the coronary arteries.
Clinical evaluation showed that in patients with diabetes mellitus, ischemic heart disease often presents with atypical or less pronounced symptoms. A considerable proportion of patients reported mild or nonspecific chest discomfort, shortness of

breath, fatigue, and reduced exercise tolerance rather than the classical symptoms of angina pectoris. In several cases, signs of myocardial ischemia were detected during instrumental examination even in the absence of typical clinical manifestations, indicating the possibility of silent myocardial ischemia in this group of patients.

Laboratory findings indicated that patients with diabetes mellitus frequently had elevated levels of glycated hemoglobin and significant disturbances in lipid metabolism, including increased levels of total cholesterol and low-density lipoproteins. These metabolic abnormalities contribute to the progression of atherosclerotic lesions in the coronary vessels and increase the risk of ischemic heart disease.

Instrumental studies also confirmed structural and functional changes in the cardiovascular system. Electrocardiographic examination revealed signs of myocardial ischemia, rhythm disturbances, and conduction abnormalities in a number of patients. Echocardiographic assessment demonstrated changes in myocardial contractility, as well as signs of diastolic dysfunction, which may be associated with chronic metabolic disturbances and microvascular damage caused by diabetes mellitus.

Overall, the results of the study indicate that diabetes mellitus significantly influences the clinical course and pathophysiological mechanisms of ischemic heart disease development. The presence of metabolic disorders, endothelial dysfunction, and accelerated atherosclerosis leads to earlier onset and more complex clinical manifestations of coronary artery disease in patients with diabetes. These findings highlight the importance of early detection and comprehensive cardiovascular assessment in this patient population.

Conclusion. The results of the study demonstrate that diabetes mellitus significantly increases the risk of developing ischemic heart disease and influences its clinical course and pathophysiological mechanisms. Metabolic disturbances associated with diabetes, including chronic hyperglycemia, dyslipidemia, and endothelial dysfunction, contribute to the accelerated development of atherosclerotic changes in the coronary arteries.

In patients with diabetes mellitus, ischemic heart disease often presents with atypical or less pronounced clinical manifestations, which may complicate timely diagnosis. The presence of silent myocardial ischemia and subclinical cardiovascular changes highlights the necessity for comprehensive clinical and instrumental evaluation in this group of patients.

Therefore, early identification of cardiovascular risk factors, regular monitoring, and timely implementation of preventive and therapeutic measures are essential for reducing the incidence and progression of ischemic heart disease in patients with diabetes mellitus.