NEW ASPECTS OF DIAGNOSTICS OF MYOCARDIAL INFARCTION

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Abstract

Myocardial infarction often referred to as a heart attack, is an acute condition that results from a blockage in a coronary artery. This causes damage to the heart muscle due to lack of oxygen. The causes of myocardial infarction are varied, but the most common risk factors are smoking, high blood pressure, high cholesterol, and diabetes.

Keywords: Myocardial infarction, diagnostics, troponin I and T, myoglobin, creatine kinase, aspartate aminotransferase, lactate dehydrogenase, natriuretic peptide, electrocardiography.

Introduction

Symptoms of a myocardial infarction can vary from person to person, but there are a number of generally accepted signs to look out for. One of the most characteristic symptoms is severe pain or discomfort in the chest area, often described as tightness, pressure, or a feeling of heaviness. This pain may radiate to the left arm, neck, jaw, or back. In addition, patients may experience shortness of breath, which may occur both at rest and during physical activity. Symptoms that often accompany a heart attack include sweating, nausea or vomiting, as well as dizziness and fainting. It is especially important to note that in women, symptoms may be less pronounced and often manifest as fatigue, indigestion or anxiety. If these symptoms occur, you should immediately seek medical help, as early diagnosis and treatment significantly increase the chances of a successful outcome. Myocardial infarction is an emergency and time is of the essence in saving lives [2,4,6,9].

Laboratory changes in myocardial infarction are a complex of biochemical and physiological changes that occur in the body after a disruption in the blood supply to the heart muscle. In the first hours after a heart attack, the level of specific markers in the blood increases, such as troponin I and T, which indicate damage to cardiomyocytes. These proteins begin to be released into the blood within 2-3 hours after the onset of ischemia and can remain elevated for several days. In

addition, there is an increase in the level of myoglobin, creatine kinase (CPK), especially its MM isoform, as well as other enzymes such as aspartate aminotransferase (AST) and lactate dehydrogenase (LDH). These changes help in diagnosing and assessing the severity of a heart attack. Correct electrolyte analysis is also important, as disturbances in their balance can worsen the patient's condition [10,12,19].

In addition to the listed markers, an important aspect in the diagnosis of myocardial infarction is the assessment of the level of natriuretic peptides, such as BNP and NT-proBNP. These substances are released in response to myocardial stretching and help differentiate heart failure from other causes of dyspnea. An increase in their concentration may indicate a severe degree of heart failure, which is important for choosing treatment tactics [11,13]. However, it is important to remember that laboratory test results may be difficult to interpret in certain clinical situations, such as the presence of chronic diseases or blood disorders. Therefore, interpretation of data must always take place in the context of the patient's overall condition and other clinical findings.

Furthermore, the importance of early electrocardiography (ECG) cannot be underestimated. ECG not only serves as a method for assessing the electrical activity of the heart, but also allows for the identification of changes characteristic of acute myocardial infarction. The combination of laboratory diagnostics and ECG forms a powerful tool in the hands of cardiologists for fast and accurate diagnosis [14,16,18].

Modern medicine offers various approaches to treatment, including drug therapy and surgical interventions such as angioplasty or coronary artery bypass grafting. Prevention of myocardial infarction includes a healthy diet, regular exercise, and stress management. Increasing awareness of risk factors and responding appropriately to symptoms can significantly reduce the severity of consequences and maintain patient health [7,8,15].
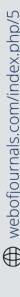
After successful treatment, patients undergo rehabilitation, which plays an important role in recovery. Rehabilitation programs include physical activity, patient education about heart health, and emotional support. A competent approach to recovery helps reduce the risk of recurrent attacks and improve the quality of life. It is important to note that prevention of myocardial infarction should begin at an early age. Educational programs and campaigns to raise awareness about cardiovascular disease can influence the lifestyle of the entire community. Simple, measures such as stopping smoking, maintaining a healthy weight, and getting regular checkups with your doctor can significantly reduce your risk [1,3,5,17].

In conclusion, myocardial infarction is a serious condition that requires attention from both medical professionals and the patient himself. Knowing risk factors, paying attention to your overall health, and recognizing symptoms can save lives.

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