

**RESEARCH IN THE FIELD OF ISCHEMIC HEART
DISEASE****Abduvokhidov Abbos Bekzodovich**1st Year of Clinical Residency in Cardiology**Musurmanova Ugiloy Quvondiq qizi**1st Year of Clinical Residency in Cardiology

Abstract: *Ischemic heart disease (IHD) is one of the most common and dangerous diseases of the cardiovascular system. The main cause of IHD is atherosclerosis of the coronary arteries, leading to impaired blood supply to the myocardium. In modern conditions, IHD ranks first among the causes of mortality in many countries, especially in industrially developed regions. In an era of high stress levels, sedentary lifestyles, and an increase in the number of patients with obesity and diabetes mellitus, the relevance of early detection and effective treatment of IHD is greater than ever.*

Keywords: *Acute coronary syndrome (ACS), myocardial infarction, pathophysiology, prevention.*

Relevance:

In today's lifestyle, which involves low physical activity, high consumption of fatty foods, and stress, the risk of developing IHD continues to grow. According to the World Health Organization (WHO), cardiovascular diseases, including IHD, claim about 18 million lives annually. In recent years, there has been a trend toward a lower age threshold for the onset of the disease. The disease has a significant impact on patients' quality of life and leads to rehabilitation. significant economic costs for treatment. The relevance of the topic is due to the need to raise public awareness and develop early prevention strategies.

Main Part:

A recently published review article by Crea et al proposed a new classification of ACS into three groups based on pathogenesis: patients with ACS with obstructive atherosclerosis and systemic inflammation, patients with ACS with obstructive atherosclerosis without inflammation, and patients with ACS without obstructive atherosclerosis. Patients in the first group have the worst outcome and can be identified by measuring inflammation markers and even invasive methods. In patients without systemic inflammation, the individuals at highest risk and the level of risk are determined by plaque characteristics (larger lesion size, reduced lumen area, or reduced fibrous cap thickness). Patients without obstructive lesions may constitute one-third of patients with ACS and have the best outcome, although up to 10% experience a serious cardiovascular event in the first year. In this group of individuals, the cause of the problem is a disturbance in vascular tone, leading to epicardial or microvascular vasoconstriction; future studies should investigate how to improve vascular tone. [6]

In primary prevention, a clinical trial demonstrated the benefits of the Mediterranean diet in patients at high cardiovascular risk in terms of the incidence of serious cardiovascular events. The multicenter PREDIMED trial was conducted in Spain, and 7,447 participants with cardiovascular risk were randomly assigned to a Mediterranean diet with extra virgin olive oil, a Mediterranean diet with a mixture of nuts, or a control diet. The results of following the Mediterranean diet were striking: a reduction of 3 cardiovascular events per 1,000 person-years and a 30% reduction in relative risk among high-risk participants who did not have cardiovascular disease. [7] This effect confirms the benefits of a heart-healthy diet in secondary prevention, in which diet quality is inversely proportional to cardiovascular risk. [8] This beneficial effect is additional to the pharmacological effect already obtained in secondary prevention. In contrast, in another large clinical trial randomizing 12,513

patients, supplemental omega-3 polyunsaturated fatty acids did not reduce cardiovascular morbidity and mortality in a population at high cardiovascular risk. [9] These data underscore the critical importance of intensive secondary prevention in patients with ischemic heart disease, especially since a recent epidemiological study predicted that mortality from myocardial infarction would decline in American patients compared with Spanish patients, thereby reversing the trend of the past 20 years. [10] The authors of this study suggest a more aggressive approach to identifying and correcting cardiovascular risk factors. [11]

Results:

Study results: Projections for the next 30 years suggest that the number of ACS cases will stabilize among people younger than 75 and increase among people older than 75, so that due to population aging, there will be an overall increase in the total number of ACS cases. [1]

Studies conducted in the United States show that mortality from ischemic heart disease has declined in recent years due to improved control of smoking, hypertension, and dyslipidemia, but with the progressive increase in obesity and diabetes mellitus. [2,3]

The epidemic of obesity from an early age remains a cause for concern. In Spain, it has been estimated that 26% of children aged 8 to 17 are overweight and 13% are obese, although this ratio appears to have stabilized over the last 12 years. [4]

Risk factor control is far from ideal, even in secondary prevention settings where it could be of great benefit. In this regard, a recently published analysis of pooled data from three clinical trials (COURAGE, BARI-2D, and FREEDOM) among patients with diabetes showed that even under the controlled conditions of a clinical trial, only 8% to 23% of patients achieved all four treatment targets: low-density lipoprotein cholesterol <100 mg/dL (70

mg/dL in the FREEDOM trial), systolic blood pressure <130 mmHg, glycemic control (glycated hemoglobin <7%), and smoking cessation.

The main reasons for poor control of cardiovascular disease risk factors are insufficient medication dosages and poor adherence among patients undergoing long-term polypharmacy therapy.

Conclusions:

Coronary heart disease is a complex medical and social problem and remains one of the leading causes of morbidity and mortality worldwide. Modern advances in diagnostics, pharmacotherapy, and interventional treatments can significantly improve the prognosis for patients and enhance their quality of life. However, preventive measures aimed at changing lifestyle and minimizing risk factors continue to play a key role. A comprehensive approach to CHD management, including early diagnosis, timely treatment, and promotion of a healthy lifestyle, is the basis for successfully combating this disease and improving public health.

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