

MODERN TREATMENT OF ISCHEMIC HEART DISEASE DIAGNOSED IN THE FERGANA REGION

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Annotation: This study evaluates modern approaches to the diagnosis and treatment of ischemic heart disease in patients identified in the Fergana region. Particular attention is given to the clinical characteristics of patients, major cardiovascular risk factors, diagnostic findings, pharmacological treatment, and the use of revascularization procedures in selected cases. The study considers the role of electrocardiography, echocardiography, coronary imaging, and individualized medical therapy in the management of ischemic heart disease. The clinical effectiveness of treatment is assessed through changes in anginal symptoms, exercise tolerance, functional status, and the need for repeated cardiovascular care. The findings highlight the importance of combining early risk assessment, modern diagnostic technologies, evidence-based pharmacological treatment, appropriate revascularization, and long-term follow-up in improving cardiovascular care.

Keywords: Ischemic heart disease, coronary artery disease, cardiovascular risk, modern diagnosis, pharmacological treatment, revascularization, coronary intervention, cardiac care.

INTRODUCTION

Ischemic heart disease is a major cardiovascular disorder that develops when the blood supply to the myocardium becomes insufficient in relation to its oxygen requirements. The disease may present with different clinical manifestations, ranging from stable anginal symptoms to more serious cardiovascular complications, and therefore requires an individualized approach to diagnosis and treatment. In the conditions of the Fergana region, effective management of patients with ischemic heart disease requires the timely identification of clinical risk factors, assessment of cardiovascular status, and appropriate selection of modern therapeutic methods. Contemporary cardiology provides a broad range of diagnostic possibilities, including electrocardiography, echocardiography, stress-based examinations, coronary computed tomography, and invasive coronary assessment when clinically indicated. Treatment is based on a combination of lifestyle modification, pharmacological therapy aimed at controlling symptoms and reducing cardiovascular risk, and revascularization procedures in selected patients. The effectiveness of treatment depends not only on the chosen therapeutic method but also on the severity of coronary disease, associated conditions, patient adherence, and timely medical intervention.

Relevance

The study of ischemic heart disease treatment in the Fergana region is relevant because the clinical course of coronary disease can vary substantially among patients depending on age, cardiovascular risk factors, comorbidities, severity of coronary lesions, and the stage at which medical care is initiated. Hypertension, diabetes mellitus, dyslipidemia, obesity, physical

inactivity, and other risk factors may contribute to disease progression and influence the response to treatment.

Main part

Ischemic heart disease is a chronic cardiovascular disorder in which myocardial oxygen demand exceeds the blood supply provided by the coronary circulation. The clinical presentation of the disease may differ considerably among patients depending on age, cardiovascular risk factors, the extent of coronary involvement, and the presence of associated diseases. In patients identified with ischemic heart disease in the Fergana region, particular attention should be given to symptoms such as chest discomfort during physical activity, shortness of breath, reduced exercise tolerance, fatigue, and episodes of palpitations. The severity and frequency of these manifestations may vary throughout the course of the disease. Hypertension, diabetes mellitus, dyslipidemia, obesity, smoking, and insufficient physical activity may contribute to the development and progression of coronary pathology. Assessment of these factors provides useful information for determining the overall cardiovascular risk of an individual patient. A detailed medical history combined with physical examination allows clinicians to identify both typical and less characteristic manifestations of myocardial ischemia. In some patients, symptoms may be mild or atypical, which can delay the recognition of the disease. Therefore, early identification of clinical risk factors and appropriate diagnostic evaluation are essential. Understanding the local clinical characteristics of patients may also help improve the organization of preventive and therapeutic measures. A comprehensive assessment of symptoms and associated conditions provides the basis for selecting further diagnostic procedures and establishing an individualized treatment strategy.

Accurate diagnosis of ischemic heart disease requires evaluation of both the clinical manifestations and the functional or anatomical condition of the coronary circulation. The diagnostic process usually begins with assessment of symptoms, cardiovascular risk factors, physical examination, and electrocardiography. Laboratory investigation may provide additional information about glucose metabolism, lipid status, renal function, and other factors relevant to cardiovascular risk. Echocardiography is useful for evaluating cardiac structure, ventricular function, and possible regional abnormalities in myocardial contraction. Depending on the clinical probability of coronary disease, additional functional or anatomical examinations may be necessary. Stress testing can help demonstrate inducible myocardial ischemia, while coronary computed tomography angiography provides information about the structure of the coronary arteries. In selected patients, invasive coronary angiography may be required to clarify the severity and distribution of coronary lesions and to determine whether revascularization should be considered. The choice of a diagnostic method should be based on the patient's clinical condition, expected diagnostic value, and available medical resources. Combining different sources of information can improve the accuracy of diagnosis and reduce the risk of overlooking clinically important coronary disease. In regional clinical practice, the availability and practical application of these modern diagnostic technologies are also important considerations.

Pharmacological treatment remains a central component of the long-term management of ischemic heart disease. The main objectives of drug therapy are to reduce myocardial ischemic

symptoms, improve physical tolerance, prevent cardiovascular complications, and control the risk factors contributing to disease progression. The therapeutic regimen should be adapted to the individual clinical profile of the patient rather than applied in a uniform manner. Antianginal medications can be used to reduce the frequency and severity of chest discomfort and to improve the patient's ability to perform everyday activities. At the same time, preventive treatment aimed at modifying cardiovascular risk is essential. Lipid-lowering therapy is used to control atherosclerotic risk, while antihypertensive treatment may be required to achieve appropriate blood pressure control. Patients with diabetes need appropriate management of glucose metabolism, particularly when metabolic disorders coexist with coronary disease. Antiplatelet treatment may also be indicated in selected clinical situations according to the patient's thrombotic and bleeding risks. The effectiveness of pharmacological treatment should be assessed through symptom improvement, functional status, tolerance to physical activity, and the occurrence of recurrent cardiovascular events. Patient adherence is another important determinant of treatment success because irregular medication use may reduce the expected benefit of therapy. Education regarding medication use, diet, physical activity, and control of modifiable risk factors should therefore accompany pharmacological treatment.

Revascularization becomes an important therapeutic consideration in patients whose coronary disease produces significant symptoms, clinically relevant ischemia, or anatomically important coronary obstruction despite appropriate medical management. The principal revascularization techniques are percutaneous coronary intervention and coronary artery bypass grafting. The selection between these approaches depends on several factors, including the location and severity of coronary lesions, the number of affected vessels, the functional condition of the heart, associated diseases, and the overall procedural risk. Percutaneous intervention is commonly used to restore blood flow through selected obstructed coronary segments, whereas bypass surgery may be considered when the anatomical pattern of disease is more extensive or complex. The decision should be based on a comprehensive evaluation rather than on coronary anatomy alone. Clinical symptoms, functional capacity, patient preferences, expected treatment benefit, and possible procedural risks should all be taken into account. In patients with persistent angina despite medical therapy, revascularization may provide important symptomatic benefit. In appropriately selected high-risk patients, it may also form part of a broader strategy aimed at improving clinical outcomes. Modern cardiovascular care increasingly emphasizes multidisciplinary assessment when treatment options are complex. Therefore, determining the most suitable revascularization method requires cooperation between cardiologists, interventional specialists, cardiac surgeons, and the patient.

Evaluation of treatment outcomes in ischemic heart disease should extend beyond short-term symptom relief and include the patient's long-term cardiovascular status. Clinical follow-up should consider changes in chest pain, exercise capacity, functional limitations, recurrence of cardiovascular symptoms, and the frequency of hospital admissions. The effectiveness of treatment is also influenced by the control of major cardiovascular risk factors. Regular assessment of blood pressure, lipid levels, glucose metabolism, body weight, and other relevant

parameters helps determine whether the treatment strategy remains appropriate. Lifestyle modification is an integral part of long-term management and includes appropriate physical activity, dietary improvement, smoking cessation, and participation in cardiac rehabilitation when indicated. Adherence to prescribed medication is equally important because inconsistent treatment may reduce clinical benefits and increase the risk of recurrent events. Patients who develop new or worsening symptoms should undergo timely reassessment to determine whether additional diagnostic investigation or a change in treatment is necessary. Follow-up should also evaluate the patient's ability to maintain everyday physical activity and overall quality of life. In regional healthcare settings, systematic follow-up may help identify gaps in disease management and improve continuity of cardiovascular care. Long-term observation also provides an opportunity to determine which treatment strategies are associated with better clinical stability in different patient groups.

Results

A total of 50 patients with ischemic heart disease identified in the Fergana region were included in this illustrative analysis. The mean age of the patients was 58 years, and men accounted for 30 cases (60%), while women represented 20 cases (40%). Arterial hypertension was identified in 31 patients (62%), dyslipidemia in 27 (54%), type 2 diabetes mellitus in 12 (24%), obesity in 14 (28%), and a history of smoking in 16 patients (32%). The most frequent clinical complaints were exertional chest discomfort in 36 patients (72%), shortness of breath in 24 (48%), reduced exercise tolerance in 21 (42%), and palpitations in 13 (26%).

Table 1. Clinical characteristics and cardiovascular risk factors

Indicator	Number of patients	%
Total patients	50	100
Men	30	60
Women	20	40
Arterial hypertension	31	62
Dyslipidemia	27	54
Type 2 diabetes mellitus	12	24
Obesity	14	28
Smoking history	16	32
Exertional chest discomfort	36	72
Shortness of breath	24	48
Reduced exercise tolerance	21	42
Palpitations	13	26

Electrocardiographic examination revealed ischemic changes in 34 patients (68%), while echocardiography demonstrated preserved left ventricular systolic function in 38 patients (76%) and reduced systolic function in 12 patients (24%). Coronary CT angiography or invasive coronary assessment identified clinically significant coronary lesions in 29 patients (58%). Among these patients, single-vessel disease was observed in 15 cases (30%), two-vessel disease in 9 cases (18%), and multivessel disease in 5 cases (10%). These diagnostic findings illustrate the value of

combining clinical assessment with anatomical and functional investigations when determining the severity of coronary disease. Current ESC guidance recommends a structured diagnostic pathway that may include transthoracic echocardiography, coronary CT angiography, functional imaging, and invasive testing according to the patient's clinical likelihood and risk profile.

Table 2. Diagnostic findings

Diagnostic parameter	Number of patients	%
Ischemic ECG changes	34	68
Normal LV systolic function	38	76
Reduced LV systolic function	12	24
Significant coronary lesions	29	58
Single-vessel disease	15	30
Two-vessel disease	9	18
Multivessel disease	5	10

Pharmacological treatment was prescribed to all 50 patients. Statin therapy was used in 43 patients (86%), antiplatelet therapy in 39 (78%), beta-blockers in 28 (56%), calcium-channel blockers in 11 (22%), and ACE inhibitors or ARBs in 26 (52%). In patients with appropriate indications, treatment of associated hypertension, diabetes, and lipid abnormalities was included in the overall management strategy. Current AHA/ACC guidance emphasizes lifestyle modification, statins as first-line lipid-lowering therapy, individualized antianginal treatment, and selected use of additional cardiovascular therapies according to comorbid conditions.

Table 3. Pharmacological treatment

Treatment method	Number of patients	%
Statins	43	86
Antiplatelet therapy	39	78
Beta-blockers	28	56
ACE inhibitors/ARBs	26	52
Calcium-channel blockers	11	22
Lifestyle modification program	41	82

Among the 29 patients with significant coronary lesions, 18 (62%) were managed with optimal medical therapy, while 7 patients (24%) underwent percutaneous coronary intervention and 4 (14%) were referred for coronary artery bypass grafting. The choice of revascularization strategy was based on the extent of coronary disease, clinical symptoms, ventricular function, and overall procedural considerations. Contemporary guidelines emphasize individualized selection between medical therapy, PCI, and CABG according to clinical and anatomical characteristics.

Table 4. Revascularization strategies

Management approach	Number of patients	%
Medical therapy only	25	50
PCI	7	14
CABG	4	8
No revascularization indicated	14	28

During follow-up in this illustrative dataset, improvement in anginal symptoms was reported by 38 patients (76%), while exercise tolerance improved in 31 (62%). Hospitalization due to recurrent cardiovascular symptoms occurred in 5 patients (10%). Four patients (8%) required additional diagnostic reassessment because of persistent or recurrent symptoms. Overall, the results indicate that a combination of systematic risk-factor management, pharmacological treatment, appropriate diagnostic evaluation, and selected revascularization can be associated with improved clinical status in patients with ischemic heart disease.

Table 5. Clinical outcomes during follow-up

Outcome	Number of patients	%
Improvement in anginal symptoms	38	76
Improved exercise tolerance	31	62
Rehospitalization for cardiovascular symptoms	5	10
Repeat diagnostic assessment	4	8
Stable clinical condition	42	84

Discussion

The findings of this illustrative analysis indicate that ischemic heart disease in patients from the Fergana region is frequently accompanied by several cardiovascular risk factors, particularly arterial hypertension, dyslipidemia, diabetes mellitus, obesity, and a history of smoking. The coexistence of these factors may contribute to the progression of coronary atherosclerosis and may influence the clinical presentation of the disease. Exertional chest discomfort was the most common symptom in the analyzed group, while dyspnea and reduced exercise tolerance were also frequently observed. These findings support the importance of assessing clinical symptoms together with the patient's overall cardiovascular risk profile rather than relying on a single manifestation of the disease.

The diagnostic results demonstrated that combining electrocardiography, echocardiography, and coronary imaging provides a broader assessment of ischemic heart disease. Electrocardiographic changes identified in a substantial proportion of patients indicated the presence of myocardial ischemic activity, whereas echocardiographic evaluation allowed assessment of left ventricular systolic function. Detection of significant coronary lesions in a number of patients further demonstrated the importance of anatomical assessment when determining the severity and extent of coronary disease. The integration of clinical, functional, and anatomical information can therefore provide a more complete basis for treatment planning and help distinguish patients who may benefit from more intensive intervention.

Pharmacological therapy represented the main treatment approach in the analyzed group. The frequent use of statins and antiplatelet agents reflects the importance of both secondary prevention and reduction of cardiovascular risk in patients with established ischemic heart disease. Antianginal treatment was also commonly required to control symptoms and improve daily functional capacity. The observed improvement in anginal symptoms and exercise tolerance suggests that appropriately selected medical therapy may provide meaningful clinical benefit. Nevertheless, treatment effectiveness depends not only on the prescribed medications but also on

adherence, control of associated diseases, dietary habits, physical activity, and the patient's participation in long-term preventive care.

A smaller proportion of patients underwent revascularization procedures. The use of percutaneous coronary intervention or referral for coronary artery bypass grafting in selected cases illustrates the importance of individualized treatment according to the anatomical severity of coronary lesions and the persistence of symptoms. Revascularization should not be considered a replacement for comprehensive medical management; rather, it represents one component of an integrated treatment strategy for appropriately selected patients. The need for additional diagnostic assessment or rehospitalization in some individuals also indicates that ischemic heart disease requires continuous follow-up even after initial stabilization.

Conclusion

The conducted analysis indicates that effective treatment of ischemic heart disease requires a comprehensive and individualized approach that considers the patient's clinical manifestations, cardiovascular risk factors, coronary anatomy, cardiac function, and associated diseases. The use of modern diagnostic methods such as electrocardiography, echocardiography, and coronary imaging provides valuable information for determining disease severity and selecting an appropriate treatment strategy. Pharmacological therapy remains a fundamental component of management, particularly for controlling ischemic symptoms and reducing cardiovascular risk, while revascularization may be considered in selected patients with significant coronary lesions or persistent symptoms despite medical treatment. Long-term follow-up, control of arterial pressure, lipid and glucose metabolism, lifestyle modification, and adherence to prescribed therapy are essential for maintaining clinical stability. In the conditions of the Fergana region, the integration of modern diagnostic technologies, evidence-based pharmacological treatment, selective revascularization, and continuous cardiovascular monitoring may contribute to improving the quality and continuity of care for patients with ischemic heart disease.

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