CLINICAL AND HEMODYNAMIC CHARACTERISTICS OF PATIENTS WITH CORONARY ARTERY DISEASE ASSOCIATED WITH ARTERIAL HYPERTENSION

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Abstract. *This article presents the results of a clinical and functional analysis of 120 patients diagnosed with coronary heart disease and hypertension, examined and treated at the Bukhara Regional Cardiology Dispensary. The study focused on assessing the age and gender composition of the sample, the frequency of primary subjective complaints, and determining the severity of ischemic syndrome based on the number of angina attacks and systemic hemodynamic parameters. Patients were stratified by age category and intensity of clinical symptoms, which allowed us to identify significant gender differences in the middle-aged group and reveal the prevalence of pain and shortness of breath during physical exertion in the structure of subjective manifestations. The findings highlight the importance of a comprehensive assessment of clinical symptoms and functional parameters in risk stratification and optimization of management strategies for patients with coronary heart disease and hypertension.*

Keywords*: ischemic heart disease, arterial hypertension, angina pectoris, subjective complaints, clinical and anamnestic characteristics, hemodynamic parameters, frequency of attacks, cardiovascular pathology, patient stratification, age and sex structure.*

Introduction. Given the persistently high prevalence of cardiovascular diseases in overall morbidity and mortality, a detailed clinical and functional analysis of patients with coexisting coronary heart disease and hypertension is particularly important. Hypertension is recognized as a key pathogenetic factor in the development and progression of myocardial ischemia, and their combination significantly worsens the clinical course, accelerates the development of complications, and worsens the prognosis (1, 2, 4).

One of the most pressing problems in modern cardiology remains the delayed identification of patients with high functional and hemodynamic risks. Despite the widespread use of instrumental diagnostic methods such as ECG and echocardiography, assessment of the severity of ischemic syndrome in real-life practice is often limited to recording complaints and a single blood pressure measurement. This prevents comprehensive stratification of patients based on the degree of clinical severity and the likelihood of an unfavorable course of the disease (3, 7, 8).

Studying the frequency of angina attacks, the structure of subjective complaints, and systemic hemodynamic parameters in patients with coronary artery disease and hypertension allows for a more accurate characterization of the clinical picture and the identification of signs of subcompensation at early stages. Furthermore, stratification by age and gender reveals significant epidemiological shifts that have prognostic value when choosing management strategies (4, 5, 6).

Despite a significant number of studies devoted to coronary heart disease and hypertension as separate entities, the literature lacks systematic studies dedicated to a comprehensive assessment of the clinical, anamnestic, symptomatic, and hemodynamic characteristics of their combined course. However, this approach allows for the informed determination of treatment priorities, focusing on high-risk groups (6,9).

Thus, a comprehensive study of the pattern of complaints, angina frequency, and hemodynamic parameters in patients with coronary artery disease associated with hypertension is essential for

improving diagnostic accuracy, refining risk stratification, and individualizing treatment strategies. This determines the scientific and practical relevance of this study.

Purpose of the study to study the clinical and functional features of the symptom complex and the nature of systemic hemodynamic disorders in patients with coronary heart disease occurring against the background of arterial hypertension.

Materials and methods of research. The study included 120 patients undergoing examination and treatment for coronary heart disease associated with hypertension. The age of the subjects ranged from 30 to 85 years, with a mean age of 58.5±1.32 years. Men predominated in the sample—56.7% (n = 68), while women accounted for 43.3% (n = 52).

The analysis utilized gender and age stratification methods, recording and quantifying subjective complaints, and analyzing the frequency of angina attacks and systemic hemodynamic parameters. Patients were surveyed using a standardized questionnaire, with mandatory clarification of symptom severity. Objective parameters (blood pressure, heart rate) were determined using standard measurement methods (tonometry, pulsometry).

Statistical data processing was performed using Fisher's χ^2 test for categorical variables, with a significance level of $p < 0.05$. The results are presented as absolute values, percentages, and means±standard deviation.

Research results. When stratified by age category, the following distribution was found: in the 18–44 age group, the proportion of men was 29.4% (n=20), while women were 30.8% (n=16). The gender difference in this subgroup was minimal (–1.4%), reflecting the approximately equal representation of male and female respondents at a young age.

In the age group from 45 to 59 years, a clear predominance of women was revealed: 50.0% (n=26) versus 20.6% (n=14) among men, which corresponds to an intergender difference of 29.4 percentage points and indicates the dominance of the middle-aged female contingent in the structure of those surveyed.

In contrast, in the 60–74 age group, a sex ratio inversion was observed: men constituted 38.2% (n=26) and women 26.9% (n=14), equivalent to a difference of 11.3%. These data suggest a higher representation of older men among patients with coronary heart disease and hypertension.

Table 1.

Distribution of patients by gender and age categories (n=120)

Age category	Husband (n=68)		Women (n=52)		p (Fischer)
	Abs.	%	Abs.	%	
18-44	20	29,4	16	30,8	1,000
45-59	14	20,6	26	50,0	0,0009
60-74	26	38,2	14	26,9	0,242
Over 74	2	2,9	2	3,8	1,000

In the subgroup of individuals over 74 years of age, the proportions were comparable: 2.9% (n=2) for men and 3.8% (n=2) for women. However, due to the small size of this sample, the statistical significance of the differences remains questionable.

As part of a comprehensive clinical and anamnestic characterization of the surveyed population, a systematic assessment of the frequency of presentation of leading subjective symptoms associated with coronary heart disease and concomitant hypertension was carried out.

Table 2.

Frequency of presentation of main complaints in patients (n=120)

Complaint	Abs.	%
Chest pain	105	87,5
Shortness of breath during physical exertion	94	78,3
Increased fatigue	82	68,3
Feeling of rapid heartbeat	76	63,3
Sleep disorders	58	48,3
Headaches	50	41,7
Feeling short of breath	46	38,3

The most frequently reported clinical manifestation was chest pain, recorded in 87.5% of patients (n = 105), significantly exceeding all other complaints ($p < 0.001$). This symptom was more than twice as common as headache (41.7%) and dyspnea at rest (38.3%), highlighting its key role in the development of ischemic syndrome and allowing it to be considered a primary clinical diagnostic marker.

The second most common symptom was exertional dyspnea, observed in 78.3% of those examined (n = 94), 9.2 percentage points behind the leading symptom. The frequency of this symptom was 1.6 times higher than complaints of insomnia (48.3%) and more than twice the frequency of shortness of breath at rest, likely reflecting the significance of impaired diastolic myocardial relaxation and compensatory overload of the pulmonary circulation.

Asthenic syndrome, characterized by increased fatigue (68.3%) and a sensation of tachycardia (63.3%), occupied a significant place in the subjective structure of the disease. The frequency of these complaints significantly exceeded that of headaches and respiratory discomfort, with relative differences of 26.6% and 30.0%, respectively ($p < 0.05$), confirming the significant involvement of neurovegetative mechanisms in the clinical picture of coronary heart disease in comorbid conditions.

Sleep disturbances, recorded in 48.3% of patients, were twice as common as angina pain and 30% less common than exertional dyspnea. Given the concomitant complaints of psychoemotional instability, it can be assumed that they are secondary in nature, caused by chronic hypoxia and systemic maladaptation.

The least pronounced and less specific symptoms were headaches (41.7%) and episodes of shortness of breath (38.3%), the frequency of which was more than half that of the leading symptoms. These complaints likely did not reflect pathognomonic features of the ischemic process, but were mediated by dysregulatory disturbances in vascular tone and activation of neurovegetative structures.

The frequency of angina attacks is a clinical diagnostic indicator of the severity of myocardial ischemia and serves as an objective criterion for assessing the severity of coronary heart disease. In this study, patients were stratified based on the number of angina episodes occurring within a week, the data for which are summarized in Table 3.

Table 3.

Frequency of angina attacks in patients during the week (n=120)

Category	Number of patients	Average (once a week)
<1/week	16	0,8±0,3
1–3/week	48	2,1±0,6
>3/week	56	4,3±1,2

The largest subgroup consisted of patients with a high frequency of angina attacks—more than three episodes per week. This type of disease progression was recorded in 56 patients (46.7%), with an average attack frequency of 4.3±1.2, which allows us to classify the ischemic syndrome as severe and associated with a high risk of complications, including acute coronary events.

Forty-eight patients (40.0%) had moderate clinical manifestations, characterized by 1–3 attacks of angina per week, with an average frequency of 2.1±0.6. The smallest proportion of those examined—16 people (13.3%)—complained of episodes of angina with a frequency of less than once a week, with an average value of 0.8±0.3.

Systemic hemodynamic indicators are significant clinical and functional indicators reflecting the state of cardiovascular regulation, the level of hypertension compensation and the degree of adaptive and compensatory capabilities of the myocardium under conditions of ischemic stress.

In the examined patients, the mean systolic blood pressure (SBP) was 151.2±10.8 mmHg, varying from 130 to 180 mmHg, which indicates persistent arterial hypertension in most individuals, despite receiving antihypertensive therapy.

Diastolic blood pressure (DBP) was 92.4±7.1 mmHg (range 78–110 mmHg), indicating persistently elevated total peripheral vascular resistance. This hemodynamic pattern is typical for patients with coronary artery disease and hypertension, reflecting the severity of vascular stiffness and impaired vasodilation.

Table 4.

Average values of hemodynamic parameters in patients (n=120)

Parameter	Mean±SD	Range
SBP (mmHg)	151,2±10,8	130–180
DBP (mmHg)	92,4±7,1	78–110
Heart rate (beats/min)	78,4±6,2	62–94

The average heart rate (HR) was 78.4±6.2 bpm, ranging from 62 to 94 bpm. Although these values were within established norms, some patients experienced values approaching the borderline of tachycardia. This may indicate compensatory sympathetic overactivity or underlying sinus node automatism dysfunction, a marker of subclinical myocardial decompensation.

Conclusion. Among the examined patients with coronary heart disease and hypertension, males predominated, however, in the age group of 45–59 years, a significant predominance of women was noted (50.0% versus 20.6%, $p < 0.001$), which may indicate a more pronounced clinical manifestation of the disease in middle-aged women.

The most common complaints in the study cohort were anginal pain (87.5%) and dyspnea on exertion (78.3%), indicating a high level of ischemic and functional myocardial stress. The frequency of asthenic spectrum symptoms also remained significant (≥60%), emphasizing the role of neurovegetative dysfunction in the pathogenesis of the disease.

More than 46% of patients experienced frequent angina attacks (>3/week), accompanied by persistent hemodynamic disturbances (SBP 151.2±10.8 mmHg, DBP 92.4±7.1 mmHg), which indicates insufficient effectiveness of therapy and a high risk of decompensation.

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