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The Course of Chronic Heart Failure in Ischaemic Heart Disease

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Abstract: Cardiovascular disease (CVD) is a current problem in modern cardiology [1, 2, 5]. The National Guidelines on Risk Identification and Prevention of Sudden Cardiac Death state that the leading causes of death from CVD are progression of chronic heart failure (CHF) (50% of all deaths) and sudden cardiac death (SCD) (50%) [1]. CHF is a serious and prognostically unfavourable complication among all CVDs. The incidence of CHF is 2-3% and increases with age: up to 3-4% in those 45 years and over, and up to 10% in those 70 years and over [2, 3, 6].

Coronary heart disease (CHD) is a major cause of CHD [7,8,10]. According to a number of large epidemiological studies, up to 75% of heart failure cases are due to CHD and its complications, with arterial hypertension (AH) coming second as the leading cause of CHD. Structural changes in the heart develop in patients with CHD as a result of frequent episodes of ischaemia, in patients with acute myocardial infarction (AMI) due to scarring of functioning myocardium, with inflammatory processes, chronic overloading of the heart by volume or pressure and with other myocardial lesions [1,9,11,13]. CHF is a syndrome that develops as a result of impaired filling and/or emptying ability of the heart, proceeding in conditions of imbalance of vasoconstrictor and vasodilator neurohumoral systems, accompanied by inadequate perfusion of body organs and tissues and manifested by a complex of symptoms: shortness of breath, weakness, palpitation, increased fatigue and fluid retention. Besides differentiating CHF with preserved (≥50%) and reduced (≤40%) LV EF, recently patients with borderline (41-49%) values of LV EF have been distinguished [5,19,20].

Despite a wide arsenal of modern medications, the long-term prognosis of patients with CHF often remains unfavorable [14,15,17]. Based on the above, the study of the incidence of CHF with CHD is important for understanding the causes of death at the population level, planning and organising preventive and therapeutic measures aimed at reducing mortality rates [3,12,16,18].

Purpose of the study: to study features of development and timely diagnosis of chronic heart failure in patients with coronary heart disease who applied for medical care in Samarkand Branch of Republican Scientific Center for Emergency Medical Care.

Materials and Methods: 86 patients with the diagnosis of coronary heart disease and CHF who were admitted to the Emergency departments No.1 and No.2 of Samarkand branch of RRCEMP were included in the investigation. The patients were divided into 2 groups depending on sex: Group 1 consisted of 47 (54.7%) men, Group 2 consisted of 39 (45.3%) women. The mean age of the patients was 56±9.5 years. To detect signs of volume overload the following symptoms were assessed: tachypnea, tachycardia, arterial hypertension, hypoxia, jugular vein swelling, pulmonary

edema, galloping rhythm, increased liver and/or signs of portal hypertension, peripheral edema, peripheral cyanosis.

All patients underwent clinical and instrumental examination, including ECG, chest radiography, EchoCG with the calculation of central hemodynamic parameters on a SIEMENS device (Germany). The severity of left ventricular systolic dysfunction, which underlies CHF, was assessed based on echocardiographic indices. EchoCG revealed a marked decrease in ejection fraction (EF).

RESULTS: Our findings revealed that men were more likely to suffer from CHD and CHF compared to women, with 47 (54.7%) and 39 (45.3%), respectively. The distribution of patients by age revealed the following data (Table 1).

Table 1. Distribution of patients according to sex and age

Patients	**Total**	**20-40 years**	**41-60 years**	**over 60 years of age**
IBS + CHF	86 (100%)	6 (7%)	44 (51,2%)	36 (41,8%)
Men	47 (54,7%)	4 (4,7%)	21 (24,4%)	22 (25,6%)
Women	39 (45,3%)	2 (2,3%)	23 (26,7%)	14 (16,3%)

When the duration of the disease was assessed, the following data were found: 30% of patients had a disease duration of up to 1 year, 59% of patients had a disease duration of between 1 and 5 years, and 11% of patients had a disease duration of more than 5 years (Figure 1). In our studies, patients with a disease duration of 1 to 5 years prevailed.

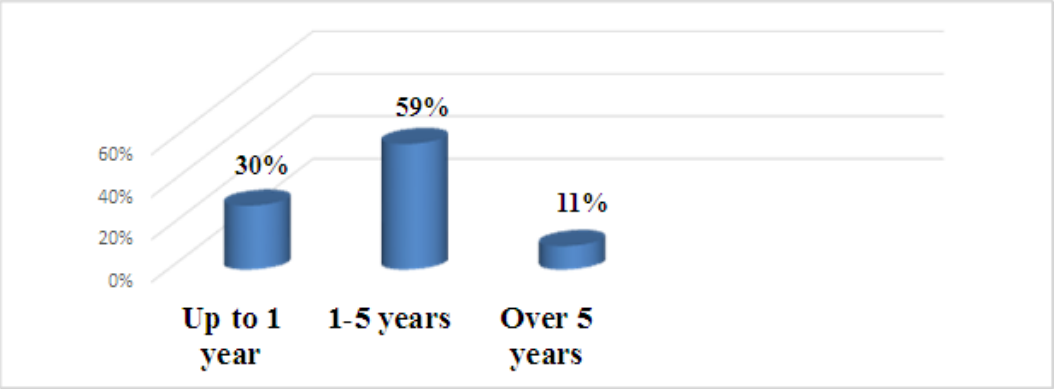

Figure 1. Number of patients with CHD and CHF according to duration of illness

The analysis of the medical history, medical history, and interviews with patients' relatives in our studies showed that 54% of cases began with symptoms of heart failure (Fig. 2). 96% of patients had other signs of heart disease at the beginning of the disease: 65% had pain in the heart area, 34% had palpitations, 3% had CHD with symptoms not directly related to heart disease: headaches, pain in the shoulder joints. In them, signs of cardiac involvement were detected by Echo-CG.

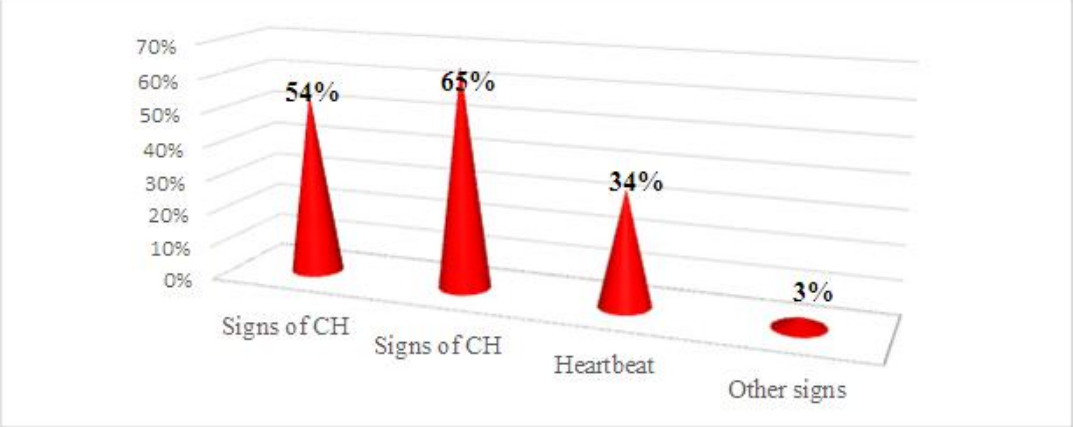

Figure 2. Frequency of initial signs of CHF and CHF

According to our study, on admission all patients had signs of CHF: Stage I CHF was found in 4.7%, Stage II "A" in 45%, Stage II "B" in 42%, and Stage III circulatory disorders in 8.3% (Figure 3.).

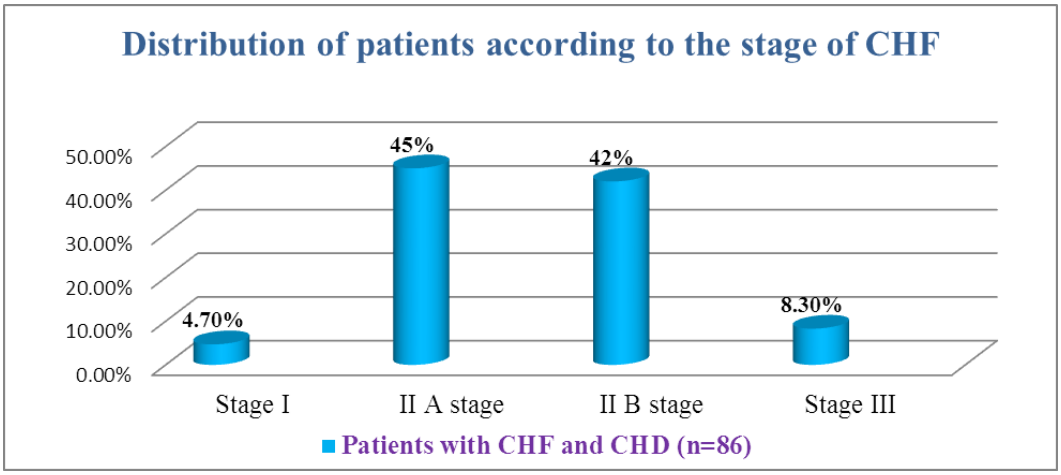

Figure 3. Distribution of patients according to CHF stage

In a study of patients, heart pain was found to be the most common symptom in IHD and CHF. In our study, almost all patients complained of cardiac pain. In 57 patients (66%) palpitation was constant, in 29 patients (34%) it was a sudden onset. The sensation of heart palpitations was accompanied by a feeling of faltering, "tumbling" or cardiac arrest.

The localisation of ischaemic changes on the ECG revealed the following findings. Ischemic changes of anterior wall were observed in the 1st group in 18 (38,3%) patients, and in the 2nd group in 12 (30,7%) patients, (p=0,99). Posterior wall ischemia of left ventricle (LV) was found in 15 (32%) patients in group 1, in group 2 it was found in 13 (33,3%) patients (p=0,45). Ischemic changes of anteroposterior wall were 2 times higher in group 2 patients and were observed in 8 (20.5%) patients, in group 1 in 4 (10.2%) patients respectively (p-0.14). Lateral wall ischaemia was found in group 1 in 4 (8.5%) patients, in group 2 in 3 (7.7%) patients, (p=0.81). (Figure 3.10).

Along with ischaemic heart wall lesions, dyspnoea was one of the most frequent symptoms in CHD and CHF patients. The frequency of dyspnoea was 88.3% in Group 1 and 79.4% in Group 2 (Figure 5). The third most common symptom of CHF in CHF was cyanosis, the frequency of which was 66.1% in the 1st group and 58.4% in the 2nd group. Moderately marked edema was found in 24% of patients in Group 1 and 19% in Group 2, while marked edema in CHF patients was found in 19% in Group 1 and 18% in Group 2 respectively.

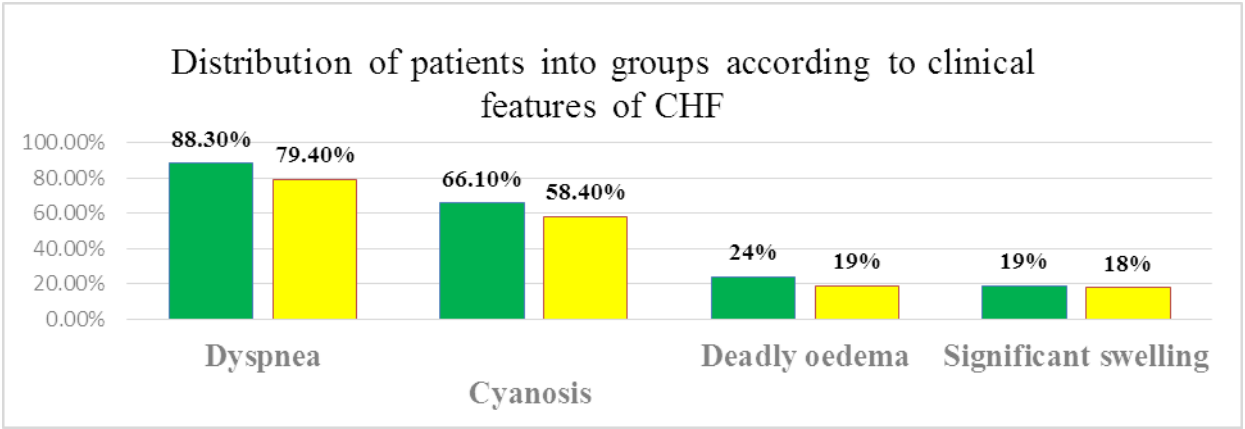

Figure 4. Distribution of patients into groups according to clinical signs of CHF

Due to the decreased contractile function of myocardium and its diastolic filling, the heart size was enlarged in all patients: in 46 (14.3%) patients to the left and downward, in 40 (85.7%) patients - in transverse view.

On auscultation, in 68 patients (79.1%) a weakening of the I tone was noted at the apex of the heart, caused primarily by its muscular component, as well as by increased filling of the dilated left

ventricle. In 13 patients (15.1%) a systolic murmur at the apex, which did not extend beyond the heart projection, was a characteristic sign of heart muscle damage, and in 5 patients (5.8%) a systolic murmur was observed at the cricoid process base.

Auscultation of the lungs revealed congestive rales in 57 patients (66.3%) in the lower regions, and in 29 patients (33.7%) - throughout the lungs. Other symptoms in our studies were as follows: edema in 58.3%, hepatomegaly in 27%, ascites in 24.4%, hydrothorax in 12.9% of patients.

Conclusion: thus, CHD in patients in the local population often begins with heart pain and palpitations. The rapid development of heart failure, the high incidence of hepatomegaly, ascites hydrothorax, and oedema reflect the relatively severe clinical course of CHD in patients and are major factors in the reduced life expectancy of patients. In general, it can be concluded that clinical manifestations of CHF in CHD patients are nonspecific; therefore, in order to clarify the diagnosis, a complete clinical and instrumental examination, including ECG, chest radiography, EchoCG with the calculation of central hemodynamic parameters, should be performed.

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