



## Ischemic Heart Disease and Rehabilitation

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**Abstract:** The frequency of hospitalizations of patients with myocardial infarction does not decrease with an increase in the number of visits to polyclinics due to the poor quality of dispensary control. In the post-infarction period, the treatment of patients in rehabilitation departments reduces the number of days of inpatient treatment and leads to a reduction in the number of patients with coronary heart disease who seeks emergency medical care.

**Keywords:** emergency care, preventive measures, health care, improvement.

**Introduction.** Prevention of pathologies of the cardiovascular system, in particular coronary heart disease (CHD), has remained one of the modern tasks of applied public health and medical science in recent decades [1,2]. A noticeable increase in mortality is associated with a high prevalence and low efficiency of primary and secondary prevention of cardiovascular pathology [3,8]. In our country, morbidity and mortality from myocardial infarction remain high. It should be noted that mortality from MI is also higher among the elderly and senile population. It accounts for 2/3 of all deaths from cardiovascular pathologies [6,7]. Despite the active introduction of modern methods of traditional treatment, modern methods of myocardial revascularization, mortality from MI in all age groups remains very high, and non-drug prevention of cardiovascular diseases is being modernized [4]. One of the most dangerous complications of acute myocardial infarction is chronic heart failure and recurrent myocardial infarction, which is the main cause of early death [2,5]. In fact, today the diagnosis of MI is based on a clinical assessment of the patient's condition, taking into account the anamnesis, ECG data and specific laboratory parameters. Early diagnosis of myocardial infarction is not a completely solved problem. Recurrent myocardial infarction is accompanied by many complications, more pronounced remodeling of the myocardium of the heart and high mortality. It should be borne in mind that due to the premature use of modern methods of treatment, the number of patients who survived after a primary MI is increasing, and the number of patients with recurrent MI is significantly increasing [1]. The healthcare system of our region suffers from the lack of interaction between hospitals and polyclinics in the timely admission of patients with myocardial infarction to the dispensary and the strict provision of their treatment.

**Purpose of the study.** Development of a method for improving the secondary prevention of myocardial infarction in patients.

**Materials and methods.** The study was conducted in the city of Bukhara. In the Bukhara branch of the Republican Scientific Center for Emergency Medical Care in the Department of Emergency Cardiology, 378 medical history. For the purposes of the study, two methods of linear statistical methods and multivariate statistical analysis were used: the cluster analysis method (Kim J.O., Muller C.W., Klekka W.R., 2010) and the tree classification method (Kanyukov V.N., Ekimov A.K., 2009). The study was analyzed using the program STATISTICA 10 (Borovikov V., 2007). In a comparative analysis of the data on seeking medical attention after myocardial infarction, taking into account the age and gender of 378 patients, an analysis was made of their seeking medical attention

in these health care institutions: the number of requests for emergency medical assistance (ANMS), to polyclinics and to the hospital.

A set of tasks aimed at preventing complications and death from heart disease by implementing measures aimed at adjusting the principles of treatment and eliminating risk factors in patients with a history of cardiovascular diseases refers to cardiovascular diseases. For the category of persons with diseases of the cardiovascular system, preventive measures should be taken as soon as possible. With this pathology, secondary prevention of diseases is carried out in two stages:

1. As part of outpatient monitoring of CVD patients by cardiologists and district doctors in primary health care organizations;
2. The second way is specialized, including high-tech medical care, medical rehabilitation and spa treatment.

To avoid complications and relapses of diseases of the cardiovascular system, the following is carried out:

- timely consultation medical specialist
- examination according to the instructions for specialized treatment
- specialized high-tech treatment with instructions for its implementation
- preventive counseling and risk factor management during a specialized intervention with the physician performing the intervention to correct risk factors identified in the hospital and maintain a healthy lifestyle
- medical rehabilitation.

**Results and its discussion.** Patients were divided into four groups according to cluster analysis, formed according to the principle of minimal difference in symptoms and had relatively similar baseline data (table 1). The main criteria were the age and sex of patients with coronary artery disease, and included the number of patients who applied to a cardiologist or a primary care physician in polyclinics. The first group included 139 patients, the second - 152, the third - 56, the fourth - 31 people (378 patients in total), taking into account the number of days of hospitalization for complex treatment in a hospital and a rehabilitation department.

The 139 patients in the first group had few visits to a cardiologist or an outpatient physician, and hospitalization of patients with cardiovascular diseases in the period after myocardial infarction was one of the lowest. This is due to the fact that the average age in the first group was  $65.40 \pm 0.93$  years (Table 1).

Unlike patients of other groups, out of 152 patients of the second group, the average age was  $74.31 \pm 0.67$  years, including women. That is, the second group included patients of the oldest age. The majority and lowest proportion of hospitalized patients in the second group presented with emergency care and were referred to the rehabilitation department. The patients of the third group were elderly people; their average age was  $78.52 \pm 0.54$  years, while almost all patients were men. Patients of the third group had an average rate of outpatient treatment and hospitalization.

**Table 1 Statistics of patients assigned to one of the four groups (  $M \pm m$  )**

Criteria	Group 1 ( $M \pm m$ )	Group 2 ( $M \pm m$ )	Group 3 ( $M \pm m$ )	Group 4 ( $M \pm m$ )
Number of visits to a cardiologist or general practitioner in polyclinics per patient	1.34±0.17	1.69±0.11	2.30±0.19	1.52±0.27
Number of NSMP calls per patient	0.53±0.11	1.27±0.24	0.41±0.18	0.39±0.19

Number of hospital admissions per patient	0.21±0.04	0.30±0.05	0.38±0.09	0.19±0.11
Number of hospitalizations in the rehabilitation department per patient	0.34±0.04	0.10±0.02	0.43±0.07	1.03±0.03
Age sick	65.40±0.9 3	74.31±0.67	78.52±0.54	86.01±1.48
Floor	1.00±0.00	2.00±0.00	1.02±0.02	1.71±0.08

They ranked third in the number of visits to the NSMS and second in the rehabilitation department. The fourth group consisted of one-third of the men and two-thirds of the women who were senile - and their mean age was  $86.01 \pm 1.48$  years. Patients of the fourth group took the third place in terms of the number of outpatient visits and hospitalizations in the rehabilitation department. But they had the fewest 911 calls and hospitalizations. The number of inpatient treatment courses in each group was high. In the postinfarction period, out of 378 patients, 102 were hospitalized - this is 27%, or a third of all patients. In all four groups of patients, the number of visits to the cardiologist and the local therapist was low, and in the third group of patients - a maximum of  $2.30 \pm 0.19$ . Of the 378 patients, 118 or - 31% never went to a doctor or cardiologist with coronary heart disease and were not observed by local physicians. This may be due to the lack of communication between the hospital and the polyclinic when transferring patients with MI and the lack of data on patients with myocardial infarction in the polyclinics in their area. In all four groups of patients, the number of hospitalizations and visits to the NSMS was very high (table 1). Probably due to the low number of visits to the cardiologist and the doctor, the number of hospitalizations did not decrease with the increase in the number of visits to the cardiologist and the internist. In contrast, the most frequent visits to the cardiologist and internist are in the third group of hospitalized patients (Table 1). Some cases are related to rehabilitation. The average largest number of hospitalizations in the rehabilitation department corresponded to the smallest number of hospitalizations for the fourth group and the lowest frequency of visits to the NSMP (Table 1).

Cluster analysis made it possible to determine the direction of the inverse relationship between the numbers of hospitalizations in the rehabilitation department. Also, the number of people hospitalized for coronary heart disease in the post-infarction period and calls to the NSMP. In general, the number of hospitalizations in the rehabilitation department is small, however, in the first, second and third groups of patients, it is much less per patient (Table 1). Presumably, in the postinfarction period, this is to some extent associated with a high rate of hospitalizations. The informational value of each studied criterion was determined by the tree classification method. That is, the patient's age, gender, number of hospitalizations in the rehabilitation department, the number of visits to a cardiologist or a district therapist, the number of calls to the NSMP, the number of hospitalizations to include patients in one of the previously found clusters (Table 2). In the postinfarction period, the main role in predicting hospitalization for coronary artery disease for assigning a patient to one of the 4 groups is played by "age", "gender" and the number of hospitalizations in the rehabilitation department. The criterion "Patient visits to a cardiologist or therapist in polyclinics" is also more informative.

It should always be taken into account that myocardial infarction is fatal in 30% of cases before hospitalization - during the stay in the hospital and in the first hours of the disease. Nosocomial mortality occurs in 13–28% of patients in the first 28 weeks of illness. During the first year after myocardial infarction, the mortality of patients was observed in 4–10% of cases, of which 35% were over 65 years of age.

**Table 2 A set of informative criteria used to create a classification tree**

Criteria	Row informative criteria
Age	100
Floor	75
Number of hospitalizations in the rehabilitation department	63
Appeals of patients to a cardiologist or therapist in polyclinics	57
quantity calls to NSMP	eleven
Number hospital admissions _	7

Early thrombolysis, restoration of coronary permeability, the use of acetylsalicylic acid - blockers and an angiotensin- converting enzyme inhibitor improve the outcome of the disease, maintaining left ventricular systolic activity during inferior wall infarction. Lack of timely reperfusion (delayed or complete), decreased left ventricular systolic activity, ventricular arrhythmia, necrosis of a large part of the myocardium, low blood pressure from the very beginning of the disease, signs of acute left ventricular failure and distant signs of ischemia on the ECG indicate consequences. The great social significance of coronary artery disease is due to the prevalence of this disease, the severity of its course, the tendency to progression, the presence of severe complications and significant economic losses.

A promising technology for the prevention of complications of cardiovascular disease in patients with myocardial infarction in primary health care facilities may be the improvement of the existing system of dispensary observation. A targeted clinical examination based on data obtained in the treatment of patients with myocardial infarction in an outpatient setting in the post-infarction period allows us to assess the degree, timing and quality of secondary prevention of myocardial infarction, as well as to identify the shortcomings of this study. To improve the quality of low-level dispensary control when examining patients with MI and to improve the effectiveness of rehabilitation measures, it is necessary to create a single database of patients with MI in the region. Applying the results of this study to healthcare practice will reduce the risk associated with cardiovascular disease, i.e. mortality. It is necessary to improve the effectiveness of rehabilitation measures and provide information about patients with myocardial infarction in the region, control their access to polyclinics, ambulances, hospitals, and improve the organization of active appeals to them. It is advisable to monitor the regular medical examination of patients with myocardial infarction and develop the rehabilitation of patients with myocardial infarction.

**Conclusions:** The frequency of hospitalizations of patients with myocardial infarction does not decrease with an increase in the number of visits to polyclinics due to the poor quality of dispensary control. In the post-infarction period, the treatment of patients in rehabilitation departments reduces the number of days of inpatient treatment and leads to a reduction in the number of patients with coronary heart diseases who apply to the NSMP. Due to the low level of secondary prevention of myocardial infarction, almost a third of patients in the post-infarction period are re-hospitalized within six months for coronary heart disease. The number of hospitalizations for cardiovascular diseases in patients in the postinfarction period can be determined using the methods of statistical analysis, based on the most informative characteristics, sex, age of the patient, and the number of hospitalizations in the rehabilitation department. To improve the quality of low-level dispensary control when examining patients with MI and to improve the effectiveness of rehabilitation measures, it is necessary to create a single database of patients with MI in the region. Applying the results of this study to healthcare practice will reduce the risk associated with cardiovascular disease, i.e. mortality.

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