

## WAYS TO INCREASE THE EFFECTIVENESS OF DISPENSARY CARE IN PATIENTS WITH CHRONIC ISHEMIC HEART DISEASE

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Relevance. The problem of chronic non-communicable diseases for Uzbekistan, as for most other countries of the world, is currently one of the most pressing problems of health care and clinical medicine, as they account for 70 to 80 percent of total mortality. In particular, in the structure of overall mortality in the Republic of Uzbekistan, according to the State Statistics Committee of the country, in 2022, diseases of the circulatory system accounted for 56.8% of deaths. Among all these diseases, particular importance is attached to arterial hypertension (AH) and coronary heart disease - IHD (1,2,3), since they are the most common, significantly increase the risk of developing cardiovascular complications and are the most common causes of death.

Recent literature has accumulated evidence that the use of percutaneous intracoronary interventions (transluminal angioplasty, intracoronary thrombolysis, etc.) can significantly reduce hospital mortality in acute forms of coronary artery disease. For example, in the Russian Federation, according to Rosstat, it decreased by 14.6%. Naturally, this inevitably increases the share of mortality from chronic forms of the disease; for example, in 2020 it accounted for 89% of all deaths from IHD. Since such patients are treated mainly on an outpatient basis, the ratio of deaths from IHD at home and in the hospital has changed - for example, in the Moscow region, the number of deaths from IHD in the hospital was 30.2%, and at home - 69.8%. This situation raises the question of the need to intensify work in the outpatient clinic to prevent mortality from chronic forms of IHD (4, 5).

In both retrospective and prospective studies, the history and course of the disease, the dynamics of clinical, instrumental and laboratory data, the adequacy and timeliness of the prescription of medications and their correction, the validity and timeliness of referral for hospitalization, as well as for angiographic examination or intracoronary interventions in the case of occurrence of indications. In a prospective study, in addition to routine dynamic clinical-instrumental and laboratory-biochemical observation, patients underwent ultrasound examination of the chest and abdominal organs, and MRT if indicated. The presence of risk factors was assessed - hereditary burden, food addictions, bad habits, occupation, etc.

The end points of the study were cases of acute coronary events and strokes, cases of sudden death and emergency hospitalizations, new cases of circulatory failure (6,7), etc.

**Results and its discussion.** The intensive outpatient observation program used for patients of the main group provided, first of all, for the formation of patient compliance with treatment in close contact with the medical staff of the clinic. (8.5% of patients immediately refused such cooperation. Another 6.3% later gradually stopped fulfilling the conditions of intensive outpatient observation.) The patient's initial compliance or generated with the help of a doctor made it possible to timely identify the occurrence of negative (or suspicious) deviations in the patient during the course of the disease and initiate diagnostic and therapeutic (conservative or, if indicated, surgical) measures to correct coronary blood flow in the early stages of acute coronary events (including possible thromboembolism) or acute heart failure (6). In particular, patients with periodically or permanently high blood pressure were taught the skill of regular self-measurement. Together with the doctor, an effective drug and dose were selected. Thus, target blood pressure values (≤140/90) were achieved in 41.7% of patients. The patient immediately reported the slightest change in the course of the disease to the doctor and, according to indications, the necessary studies were carried out and adjustments were made to the treatment. The following intermediate goals were considered: stabilization of the patient's condition; increasing tolerance to physical activity; transition of the functional class of angina from higher to lower; disappearance (complete or transition to non-dangerous forms) of high radiation arrhythmias, reduction of initial signs of acute left ventricular failure (7).

Table 1 shows data on the main health characteristics of patients in both groups and diagnostic and therapeutic procedures performed on patients in both groups.



 $Table\ 1$  Health status of patients with coronary artery disease during dispensary (control) and intensive outpatient (basic) observation

N	Condition indicators	Test	Main
	health	group	group
		(n=360)	(n=118)
1.	Wed. art. pressure mmHg	146,2 <u>+</u> 11,4	138,4 <u>+</u> 6,1
2.	Wed. body mass	84,8 <u>+</u> 2,2	82,1 <u>+</u> 4,4
3.	Body mass index:		
3.1	≤25	31,7%	32,2%
3.2	25 - 27	29,5%	31,4%
3.2	≥30	39,2%	36,4%
4.	Heart rate beat. min	79,9 <u>+</u> 1,1	72,6 <u>+</u> 1,7
5.	Number of squadrons patients (%)	65,1 <u>+</u> 1,6%	63,4+2,0%
6.	Wed. number of squadrons states	2,5 <u>+</u> 0,2	2,3 <u>+</u> 0,4

One of the demonstrative indicators of the intensity of patient monitoring by medical workers is the frequency of the patient's requests for medical help (8); according to other sources, the patient's medical activity (Table 2).

The dynamics of requests for medical help are most influenced by the patient's well-being, his compliance with treatment, as well as the severity of the preventive vector in the doctor's work. The last factor is reflected in the number of contacts between a patient and a preventive doctor during the year, no matter - at the patient's home or in a clinic, on the initiative of the patient or his attending physician. At the same time, active visits on the initiative of the doctor (patronage visits) are distinguished - they reflect the preventive focus of the activities of medical workers in an outpatient clinic, and preventive visits on the initiative of the patient, without the presence of deterioration of the condition - they reflect the medical activity of the patient. As the analysis showed, the integral number of patient visits to clinic or emergency doctors in both groups differed slightly, with a slight advantage in patients in the control group (18.1 versus 15.4 in the main group). However, it turned out to be more informative and visual to distinguish between preventive visits initiated by the doctor (patronage visits), or active visits of the patient to the doctor for preventive purposes. It is this that clearly reflects the patient's compliance with cooperation with medical staff (9). Как видно из таблицы, наибольшие различия в обращаемости за медицинской помощью по ее видам между контрольной и основной группами выявляются в графах «Скорая помощь», госпитализация, и в поликлинику – с ухудшением состояния и с профилактической целью.

Table 2.

\ Frequency of visits of patients with coronary artery disease to a doctor during routine dispensary (control) and intensive outpatient (basic) observation

N	Index	Control group	Main gr
1.	Requests for honey. with help in total	37,5	30,7
	(for 1 year)		
2.	"Ambulance"	2,3	1,4
3.	Clinic in total	15,8	14,0
4.1.	According to condition	9,0	5,3
4.2.	Preventative (in polycle)	2,3	4,2
4.3.	Patronage. (at home)	4,5	4,5
5.	Extra hospitalization	3,6	1,3



Noteworthy is the almost twofold prevalence of the main group over the control group in terms of the number of active preventive visits (4.2 versus 2.3). This is a reflection of high compliance to treatment in patients of the main group. At the same time, we assessed the opposite prevalence of patients in the control group over the main group in terms of calls to the ambulance, to the clinic due to deterioration of their condition, the number of hospitalizations during the study period and, accordingly, the integral number of calls for medical help as a consequence of low compliance with treatment, underestimation by the patient of the severity of the disease and its prognosis. In other words, if the patient does not want to see a doctor preventively, then he has to turn to the services of an ambulance, or make a visit to the clinic due to a deterioration in his condition, or be hospitalized for emergency reasons (10).

Table 3

Coverage of patients with chronic forms of coronary artery disease with diagnostic and therapeutic technologies during routine dispensary (control group) and intensive outpatient monitoring (main group)

Diagnostic and therapeutic procedures	Test	<i>Main group (n = 118)</i>
	group	
	(n = 360)	
KAG	42 (11,66%)	27 (22,88%)
EchoCG	402 (111,67%)	139 (117,82%)
ECG - ST segment mapping		111 (94,07%))
LDL cholesterol	372 (103,34%)	221 (187, 29%)
Chest X-ray	104 (28,89%))	118 (100%)
ECG Holter monitoring		19 (16,1%)
Percutaneous intracoronary interventions	8 (2,22%)	34 (28,81%)

As can be seen from the table, in the main group there was significantly more intensive monitoring of the patients' health status. For almost all control methods (with the exception of echocardiography), the differences in the frequency of studies were significantly greater. Accordingly, the frequency of PCI (that is, radical coronary correction) in the main group was almost 15 times higher than during routine follow-up. This difference is explained by the fact that the assessment of the sensations that first appeared in the patient, the dynamics of manifestations, and disturbances in the stability of the course of the disease was given not by himself or his relatives, but by a specialist who, according to indications, ordered studies and, based on their results, raised the question of intensifying conservative treatment or performing surgical correction of coronary blood flow even before the development of coronary events, that is, preventively.

At the same time, it should be noted that in the control group, even with a significantly lower coverage of the examination, not all the prognostic information obtained was adequately assessed as an indication for switching to radical methods of coronary correction. To date, the role of such clinical and instrumental signs as dangerous arrhythmias, progressive left ventricular hypertrophy, attacks of acute left ventricular failure or initial, latent signs of heart failure as an equivalent of increasing coronary deficiency has been convincingly demonstrated (11, 12, 13). In our study, 11.7% of patients in the control group underwent coronary angiography, but PCI was performed in only 2.2% of cases. At the same time, in the main group (intensive outpatient observation), CAG was performed in 22.8% of patients, and PCI was performed in 28.8% of patients. Apparently, this is precisely the reason why mortality during the observation period in the main group was more than 5% lower than in the control group (Table 4).

The use of the precordial ECG mapping method was also aimed at early detection of deterioration of coronary circulation, potentially capable of transforming into acute coronary situations, based on the dynamics of AST and  $\Sigma$ ST indicators.

Activation of conservative treatment implied, as mentioned above, intensive monitoring of the patient's condition with coronary artery disease by a family doctor, subject to the maximum



(if possible) induced compliance of the patient to cooperate with medical staff, double antiplatelet and enhanced hypolipoprotein (high doses of statins) therapy (14), increasing doses of nitro drugs or other peripheral vasodilators, adding beta-blockers or calcium antagonists, selecting an adequate antiarrhythmic drug and its dose, diuretics, etc. The main activation measure, of course, is the radical improvement of coronary circulation using PCI methods (15).

The effectiveness of such tactics is clearly demonstrated by the data presented in Table 4.

Frequency of cardiovascular events in patients with coronary artery disease during routine dispensary (control) and intensive outpatient (main) observation

N₂	Cardiovascular	Test	Main
	complications	group	group
		(n=360)	(n=118)
1.	Mortality	20,8%	15,1%
2.	Myocardial infarction	18,5%	13,1%
3.	OKS	465,6/100 000	443,5/100 000
4.	Hypertensive crises	21,3%	17,1%
5.	Pulmonary edema	2,4%	1,1%
6.	Stroke, TIA	16,8%	13,3%

As can be seen from Table 4, in the main group compared to the control group, all types of cardiovascular events were significantly lower, including the integral indicator - mortality. The main and main reason for this difference was, in our opinion, the priority given to preventive diagnostic and therapeutic measures in the main group, in contrast to the control group, where coronary correction measures began to be carried out against the background of developing (or already developed) vascular complications. In addition, in the main group, coronary correction measures were carried out more aggressively, that is, their implementation began earlier, even before the onset of symptoms of coronary disorders or heart failure, higher doses were used, and the effect was complex, on all components of pathogenesis.

The effectiveness of combating cardiovascular events was somewhat less pronounced only in relation to hypertensive crises, which can be explained by the suddenness of their development and the complexity of prediction (16). In the analyzed period, both during retrospective and prospective (2022-2023) observation, the incidence of IHD among the population of the district was almost the same and amounted to 6.2%. The overall incidence of IHD was 6223 per 100 thousand population. The primary incidence was 909.3 per 100 thousand population. Of these, there were 153.1 cases of acute myocardial infarction (MI), and 311 cases of various forms of angina.

Analysis of the structure of the primary incidence of coronary artery disease revealed a significant excess of chronic forms over acute ones - 86.4% versus 13.6%. At the same time, a study conducted shortly before by the Ministry of Health of the Republic of Uzbekistan together with WHO showed that in the structure of overall mortality in the country, 69% of deaths are caused by chronic non-diseases, that is, diseases of the circulatory system (CHD, hypertension and their complications), 8% - by malignant neoplasms, according to 3% - diabetes mellitus and chronic obstructive pulmonary diseases.

The prevalence of risk factors for cardiovascular diseases also remains high - half of the population is overweight, 46% of the population has hypercholesterolemia, 42% of men and women consume tobacco products, more than a third of the population suffers from hypertension. A high incidence of hyperglycemia has been noted; every fifth resident of Uzbekistan aged 40-64 years has a 10-year risk of developing cardiovascular diseases (CVD), and the average daily consumption of table salt per capita exceeds 15 grams. While the WHO recommended level is 5



grams. Moreover, according to WHO experts, more than 30% of deaths from CNDs are considered preventable.

It is appropriate to note here that the significant leveling of the national and religious structure of the population that has occurred over the past decades, a pronounced increase in its religiosity, has led to the almost complete eradication of alcohol abuse (since Islam categorically prohibits the consumption of alcohol), which, however, did not lead to the expected reduction in CVD. The most likely reason for this, in our opinion, is the half-hearted measures taken by the state to reduce the consumption of tobacco products by the population. They boil down to the fight against tobacco smoking (raising prices for cigarettes, raising awareness about the dangers of smoking, banning smoking in public places and vaping, etc.). The only result of such a struggle is the transformation of nicotine consumption from smoking tobacco to chewing tobacco, the so-called "us", which is even more dangerous than smoking (17).

The listed factors could lead to a slight excess in the prevalence of risk factors for cardiovascular diseases, slightly higher rates of their detection, as well as cases of their complicated course among the population of Uzbekistan, in comparison with European countries, in particular with the Russian Federation (18).

Clinical experience shows that the course of chronic forms of coronary artery disease can be very heterogeneous - from a benign one, lasting, even after a myocardial infarction, for decades, with a completely acceptable quality of life, to lightning fast, killing the patient immediately with the first manifestations of coronary disorders or shortly after them. According to a number of researchers, the incidence of cardiovascular death in the first five years after the onset of coronary pathology does not exceed 10%. (19, 20). At the same time, mortality from all causes in the same first five years was 20.6%. The most common causes of coronary death are circulatory failure, stroke or recurrent myocardial infarction. In a later period, the probability of death is increased by diseases, the number of which in patients with IHD progresses with age (comorbid conditions). This includes conditions that form the cardiovascular continuum - arterial hypertension, general atherosclerosis, type II diabetes mellitus, circulatory failure. The patterns that determine the course of this pathological process make it necessary to stratify risk in patients with coronary artery disease.

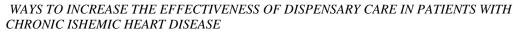
Since the target group for chronic forms of ischemic heart disease consists of patients in the second half of life, age, accordingly, becomes the main risk factor. Indeed, according to some data (21), in the age group of patients  $\geq$ 85 years with this disease, the five-year survival rate was below 50%.

A history of mycardial infarction in patients also turned out to be a very serious risk factor. In the group ≥75 years of age, the risk of death in such patients in the first year of the disease was almost 9%. Moreover, in the first five years after the onset of the disease, mortality exceeded 23%.

An even more significant risk factor for CHD was the addition of circulatory disorders (9). Statistics show that it more than five times increases the likelihood of death in patients with this diagnosis.

Also, an unconditionally aggravating factor for the prognosis of the disease is the identification of type II diabetes mellitus in a patient with coronary atherosclerosis. It has been shown, in particular, that the addition of this disease to coronary heart disease worsens the 5-year survival rate in these patients by 2 times compared to patients without diabetes. Similarly, comorbid chronic kidney pathology in patients with CHD doubles the risk of death during the first decade than this indicator for unimpaired excretory function.

Clinical recommendations of a number of authoritative associations of cardiologists and cardiac surgeons (15) in the treatment and diagnosis of chronic forms of coronary artery disease consider it necessary to assess cardiovascular risk by stress testing under ECG monitoring using the SCORE scale or with visualization of the ischemic segment of the myocardium and assessment of its area (EchoCG, single-photon emission computed tomography, positron emission tomography, MRI). Another criterion for the risk of cardiovascular complications is the assessment of the severity and prevalence of coronary stenosis using computed tomographic angiography. In







practice, these data can be obtained with sufficient reliability by the method of ECG mapping of the ST segment. In cases of high risk (5%, according to other data - more than 3%), surgical coronary revascularization can reduce the cardiovascular risk.

Currently, almost everywhere, monitoring of patients with coronary artery disease in most cases is carried out by family doctors of primary health care. Consequently, the task of setting indications for referring a patient for interventional correction is the responsibility of the family doctor of the clinic. Experience from a number of developed countries shows that the involvement of patients with coronary artery disease in an intensive outpatient monitoring program in Germany reduced their all-cause mortality by 19% and the rate of re-hospitalization by 6% (21). Undoubtedly, to the greatest extent what has been achieved should be associated with the timely, that is, preventive, referral of such patients for interventional intervention. In routine outpatient treatment of patients with coronary artery disease, the main task is the effective correction of the observed modifiable risk factors. To do this, as mentioned above, it is necessary to achieve the maximum possible patient compliance with treatment and punctual fulfillment of doctor's orders. First of all, it is necessary to strive to achieve target values of blood pressure and LDL cholesterol, which, according to some authors (14), can reduce the risk of recurrent heart attack, stroke or cardiovascular death by at least 10% compared to patients taking medium or low doses of statins. At the same time, according to other data, this task turns out to be achievable in less than 50% of cases (23).

## **Conclusion**

Statistics show that among patients with coronary artery disease, the absolute majority of deaths occur during out-of-hospital stays. Consequently, primary health care services should intensify work with this contingent in terms of combating modifiable risk factors. The model of intensive outpatient monitoring of patients with coronary artery disease effectively meets these goals. In this case, the most important condition for the adequacy of this model is the initial or induced compliance of the patient to treatment in collaboration with the doctor by medical personnel. The essence of this model is the preventive implementation of diagnostic, coronary-corrective conservative and, more importantly, interventional measures. The most important tasks of intensive outpatient monitoring are stable maintenance of target values of LDL cholesterol, parameters of the hemostatic system and blood pressure levels in the observed patients. To achieve this, dual antiplatelet therapy and high doses of statins should be used. The selection of antihypertensive drugs and their doses should be carried out in accordance with approved standards. Patients in whom the ischemic zone is not reproduced during a dosed stress test or is of limited size are considered indicated for drug therapy. And in patients with a widespread ischemic zone, timely interventional coronary correction can improve the prognosis.

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