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Studying the Relationship Between the Physical, Psychological and Social Status of Patients with Cardiovascular Disease

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Abstract: Currently, standardized instruments related to a series of patient assessments are used in Russian cardiology to assess patients' quality of life. These include general quality of life questionnaires, specific quality of life questionnaires for cardiovascular diseases, and specific quality of life questionnaires for specific cardiac conditions. Accumulated domestic and international experience in assessing quality of life in patients with cardiovascular diseases demonstrates the potential of this method in cardiology and opens up new opportunities to improve the quality of medical care for this large and complex patient population. The first major quality-of-life studies in clinical medicine were conducted in cardiovascular diseases. Their results revealed that traditional criteria for assessing therapeutic effectiveness, based on a wide range of laboratory and instrumental parameters, reflect only the physical component of the disease process but do not provide a complete picture of the patient's well-being, which includes, along with physical well-being, psychological, emotional, spiritual, and social functioning.

Keywords: Studies, addiction, physical, psychological, and social conditions, patient, cardiovascular disease.

Introduction: This method is used as an important additional criterion for the effectiveness of therapy and rehabilitation programs for patients with various cardiovascular diseases and in the evaluation of new drugs used in cardiology. Other areas of application of the quality of life assessment method in cardiology include the development of prognostic models for various cardiovascular diseases, conducting social and medical population studies with the allocation of risk groups for cardiovascular pathology, evaluating the effectiveness of preventive programs in risk groups, pharmacoeconomic studies, but also psychological, social and spiritual aspects of a patient's life. Due to the fact that the study of quality of life in cardiovascular diseases began relatively long ago, when the list of tools for assessing quality of life was very limited, the first studies often used "surrogate" quality of life indices. Modern studies use standardized tools related to a series of assessments given to patients. The most frequently used general questionnaires for assessing quality of life in cardiovascular diseases include the following: • General Health Questionnaire - SF-36; • Sickness Impact Profile; • Nottingham Health Profile; • Quality of Well-Being Scale; • McMaster Health Index Questionnaire; • Psychological General Well-Being Index; • Hospital Anxiety and Depression Scale. Information is provided on specific quality of life questionnaires used in patients with cardiovascular diseases. Possible applications in cardiology and allows to: • optimize the standardization of treatment methods; • carry out an examination of new treatment methods, based on international criteria accepted in most developed countries; • improve the quality of examination of new drugs; • ensure full individual monitoring of the patient's condition with an assessment of early and long-term results after cardiac surgery; • develop prognostic models for many cardiovascular diseases; • conduct social and medical population studies identifying risk groups for cardiovascular pathology; • ensure dynamic monitoring of risk groups and evaluate the effectiveness of preventive programs; • study and conduct economic justification of treatment methods

taking into account pharmacoeconomic indicators: price-quality, cost-effectiveness. At the end of the last century, a series of leading articles were devoted to the importance of the method of assessing the quality of life in cardiology [2-4]. In recent years, reviews have appeared in international periodicals devoted to assessing the quality of life of patients with various cardiovascular diseases [5-7]. Let us consider the possibilities of the method of assessing the quality of life in cardiology based on the results of domestic and foreign studies. The results of numerous studies indicate a significant decrease in quality of life in patients with circulatory diseases compared to the quality of life of the healthy population (population norm) [8-21]. It has also been established that not only patients with circulatory diseases are at risk of reducing the quality of life, but also healthy members of their families who care for patients (relatives or children) [22-23]. A large study conducted in 15 cardiology centers in Sweden examined quality of life indicators in patients with coronary heart disease (CHD) [24]. The study included 2,121 patients. Quality of life was assessed using three questionnaires: the Physical Activity Scale, the Nottingham Health Profile (NHP), and the Psychological General Well-Being Index. One of the objectives of the study was to compare quality of life parameters in patients with coronary artery disease and healthy individuals. The control group included 1,027 healthy men, matched to the patient sample by age. Figure 1 presents a comparative analysis of quality of life parameters in men aged 60–64 years with coronary artery disease and the control group, based on the Nottingham Health Profile data. The structure of the Nottingham Health Profile is such that the higher the score on the scale, the worse the quality of life. As can be seen from the data in the figure, quality of life parameters in men with coronary artery disease were worse than in healthy individuals on all six scales of the questionnaire, with parameters on the emotional functioning, pain, and mobility scales being more than 2 times worse in the patient group. As for the energy level, its value was several times worse in patients than in healthy individuals. The same pattern was observed for the quality of life parameters in Part 2 of the questionnaire. Significant differences were obtained for almost all scales of the SF-36 questionnaire, indicating a significant deterioration in the physical, psychological, and social functioning of patients with coronary heart disease and post-infarction cardiosclerosis compared to the population norm. It is important that the quality of life study method reveals changes in various areas of a patient's life that would seem to be unrelated to the manifestations of the disease. According to a number of recent studies, quality of life is considered a fairly reliable indicator for assessing the condition of patients with coronary heart disease and can be used to improve the objectivity of assessing the clinical condition of patients [25–28]. Currently, a large arsenal of antihypertensive drugs is available for the treatment of such a common disease as arterial hypertension. Many modern antihypertensive drugs have comparable efficacy in terms of controlling blood pressure, preventing premature death, and improving overall survival of patients. In this situation, such an integral criterion for assessing the effectiveness of the drug as the patient's quality of life takes on special significance. In a significant number of randomized studies, the assessment of quality of life is considered one of the criteria for the effectiveness of drugs [33–37]. We present the results of a multicenter, randomized, double-blind study that involved 626 patients with mild to moderate arterial hypertension [35]. Patients were prescribed one of three arterial hypertensive drugs: captopril, methyldopa, or propranolol. The response to treatment was assessed 24 weeks after the start of drug administration. The quality of life was assessed using the following instruments: General Well Being Questionnaire, Work Performance Questionnaire, Physical Symptoms Distress Index, and Sexual Symptoms Distress Index. Quality of life parameters were assessed before and after treatment. After 24 weeks of treatment, hypertension control results were similar in the three groups. However, the study medications were shown to have different impacts on quality of life in patients with mild and moderate hypertension. Overall quality of life was significantly higher in patients receiving captopril compared to those receiving methyldopa and propranolol. Captopril treatment resulted in less severe side effects, fewer sexual dysfunctions, and higher scores on overall well-being, life satisfaction, and work capacity. In patients receiving methyldopa, a deterioration in all quality of life indicators was found. The use of propranolol led to

an improvement in performance, but was accompanied by a deterioration in physical performance and sexual dysfunction. Captopril was discontinued due to side effects in 8% of patients, propranolol and methyldopa - in 13 and 20%, respectively. Another study deserving attention in this regard is the multicenter study "Captopril and Quality of Life", conducted jointly by Russian and German cardiologists in the early 90s of the last century [37]. The study compared the effect of long-term antihypertensive monotherapy with captopril, nifedipine, hydrochlorothiazide, propranolol on quality of life parameters in patients with arterial hypertension. Ischemic heart disease is currently the leading cause of death in developed countries. This nosological form accounts for approximately 50% of all cases of mortality from cardiovascular diseases. Improving the patient's quality of life is one of the important goals of treatment [42]. Studying the patient's quality of life can be an important criterion in assessing the effectiveness of ischemic heart disease treatment, as well as in comparing the effectiveness of different programs: conservative and surgical treatment, various types of drug therapy, and rehabilitation regimens [43–55]. Let us dwell on the results of a multicenter randomized study conducted in the USA, which compared the dynamics of quality of life indicators in patients with ischemic heart disease who underwent surgical treatment with cardiac laser revascularization and patients who received drug therapy [56]. Quality of life parameters were assessed using the Seattle Angina Questionnaire (SAQ) before treatment and 3, 6 months, and 1 year after it. Before treatment, the quality of life indicators in the compared groups were the same. After the operation, positive dynamics of all quality of life parameters were observed, and the differences between the groups were reliable at all points of the examination. Based on these data, it was concluded that percutaneous transmyocardial laser revascularization significantly improves the quality of life of patients with coronary artery disease and has an advantage over drug treatment. For the electronic collection of data on quality of life and satisfaction with treatment results in patients with stable angina after planned percutaneous coronary intervention, PCI (angioplasty with stenting of the coronary arteries) in real-life clinical practice, electronic forms of quality of life questionnaires were developed at the Almazov National Medical Research Center of the Ministry of Health of the Russian Federation [46]. The prognostic value of the patient's initial quality of life has been shown for a number of cardiovascular diseases [58–64]. Quality of life data obtained before treatment can provide the physician with valuable information on the dynamics of the disease development and its outcome and, thus, help in choosing the correct treatment program. Quality of life as a prognostic factor can be useful in stratifying patients in clinical trials and in choosing an individual treatment strategy for the patient. Currently, a large number of studies are being conducted to improve rehabilitation programs for various categories of patients with cardiovascular diseases. These comprehensive programs include physical exercise, social support, psychological rehabilitation, specialized patient training, etc. [66–69]. The main purpose of these programs is to improve the patient's quality of life. In this regard, an important criterion for determining the effectiveness of rehabilitation is the patient's quality of life. When assessing the effectiveness of rehabilitation for patients who have suffered a myocardial infarction, the focus is usually primarily on the patient's physical performance, the nature of complications, and mortality rates. However, it is often overlooked that for a patient who has suffered a myocardial infarction, a sense of well-being, not only in physical but also psychological and social terms, is no less important. Apparently, a rehabilitation program for a patient who has suffered a myocardial infarction should be considered as a set of measures aimed at improving their quality of life. The program consisted of a set of measures including physical exercise, educational seminars, and counseling. The control group included patients with similar clinical and demographic characteristics who were not included in the program. Along with the assessment of clinical parameters, quality of life parameters were examined. Patients were examined before the program began and 1, 6, and 12 months after its completion. Upon completion of rehabilitation, positive clinical dynamics were observed in the patients, accompanied by an improvement in all components of quality of life. Moreover, high indicators of clinical effectiveness and quality of life parameters were maintained 1 year after the completion of the rehabilitation program and were

significantly higher than in the control group. One of the important indicators influencing the quality of life of a patient after myocardial infarction is the length of hospital stay. One of the domestic studies showed that no significant differences were found in groups of patients with different rehabilitation rates [70]. At the same time, in patients with an accelerated rehabilitation program, indicators of quality of life and psychological status showed more pronounced positive dynamics by the end of the observation period, which allows us to recommend early activation of patients with uncomplicated myocardial infarction. Another study demonstrated that quality of life can be used as the basis for a personalized approach to treatment and rehabilitation measures in patients with cardiovascular diseases [67]. According to this study, taking cognitive and emotional (anxiety-depressive) impairments into account during rehabilitation has a positive impact on patients' quality of life, as well as contributes to increased treatment effectiveness for the underlying disease and improvements in cardiac parameters (blood pressure, heart rate variability, and exercise tolerance). Thus, patient quality of life indicators are an important criterion for the effectiveness of patient recovery after rehabilitation for various cardiovascular diseases.

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