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Research Article

Medical Efficiency of Cardiological Rehabilitation in Health Resort and Health Facilities on the Example of the Kyrgyz Research Institute of Balneology and Rehabilitation Treatment

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Abstract

One of the recommendations presented at this year's European Heart Congress was recommendations for the prevention of cardiovascular disease (CVD) [1]. Modern cardiac rehabilitation is carried out as a structured multicomponent program that includes physical activity, patient education, changes in his health behavior, psychological and social support. In the European Union, only 44.8% of patients with coronary heart disease recommend participating in any form of rehabilitation, and only 36.5% of all patients currently have access to any rehabilitation program. Over the past decade, a systematic decrease in mortality from coronary heart disease (CHD) has been observed in the Russian Federation, mainly due to the introduction of modern technologies for the treatment of patients with CHD. For the first time since the beginning of the century, the level of cardiovascular mortality dropped below 600 per 100 thousand population, but it still accounts for almost half (47%) of deaths, and the incidence tends to grow: in 2016 - 31.7, in 2017. -32.1 cases per 1000 population [2].

Keywords: Cardio Rehabilitation; Quality Assessment; Efficiency; Sanatorium Stage; Optimization; Heart Disease; Physical Activity; Patient Education

Introduction

Diseases of the cardiovascular system are the most significant preventable non-communicable diseases in which cardiac rehabilitation (CR) plays an important role [3]. According to medical statistics, cardiovascular diseases rank first in the structure of total mortality in Kyrgyzstan, accounting for almost half (50.4% according to 2014 data) of all deaths. On average, more than 18 thousand people die from heart disease in the republic every year, about 50 every day. At the same time, in the world, these diseases claim up to 17.5 million lives a year. Under the leadership of WHO, in 2013 all Member States (194 countries) agreed on global mechanisms to reduce the burden of preventable noncommunicable diseases (NCDs), including the Global Action Plan for the Prevention and Control of NCDs 2013–2020. The plan aims to reduce the number of premature deaths from NCDs by 25% by 2025 through voluntary global targets, two of which directly target the prevention and control of CVD.

Purpose of the study: to assess the medical efficiency of cardiological rehabilitation in sanatoriums and health-improving institutions. Introduction: There is a sufficient number of published

works on the development and organization of rehabilitation of patients with coronary heart disease (CHD) in the second half of the 20th century. However, over the past 20-30 years, both diagnostic (coronary artertography) and therapeutic (stenting, bypass grafting) methods and opportunities for patients with CHD have changed significantly. The organization of inpatient care for the population (differentiation of the bed fund according to the degree of treatment and care intensity and the restructuring of the bed fund) underwent a noticeable reform, and the entire health care system in connection with the introduction of the compulsory medical insurance system [4]. Meanwhile, if the clinical aspects of rehabilitation of patients with CHD are highlighted in many studies and the issues of disability after diseases of the circulatory system are widely covered in the literature [5], then the organizational issues of rehabilitation of patients with the circulatory system, with modern methods of diagnosis and intensive treatment of such patients, the need of the population in stationary beds in the literature are not enough [6-19].

Criteria for inclusion in studies

- not Q - wave myocardial infarction uncomplicated - on the 15th day, complicated - on the 20-30th day; - unstable angina after stabilization of the clinic and normalization of the ECG from day 15; - postinfarction cardiosclerosis, angina pectoris up to functional class (FC) III.

Study exclusion criteria: Special contraindications for CVD:

- Acute myocardial infarction, macrofocal complicated, regardless of localization;
- Chronic heart failure functional class II (NYHA) and above.
- Acute heart failure (Killip II) and above.
- Rhythm and conduction disorders (paroxysms of atrial fibrillation and flutter, paroxysmal tachycardia with a frequency of attacks more than 2 times or more per month, ventricular extrasystoles according to Lown II and above, AV blockade of II degree and above).
- Recurrent course of myocardial infarction.
- Aortic aneurysm.
- Aneurysm of the heart.
- Thromboembolic complications.

Methods, Study Design

The material of a descriptive retrospective study was the case histories of 1,500 patients who received rehabilitation treatment at the Kyrgyz Research Institute of Balneology and Rehabilitation from 2013-2017.

Research methods

Clinical methods of research

The study of patients began from the moment of hospitalization in the clinical units of KNIIKiVL. All patients underwent a general clinical examination, which included the collection of complaints, anamnesis of life, anamnesis of the disease, with the determination of anthropometric parameters (height, weight, waist (OT) and hips (OB), calculation of BMI and measurement of SBP and DBP. and comorbidities and their risk factors.

Physiotherapy exercises in combination with climatotherapy

1. Morning hygienic exercises from 5 to 15 minutes; 2. Therapeutic exercises were prescribed during the day in the form of aerobic exercises at a free pace for the main muscle groups - neck, back, abdomen, limbs, starting at 5, then gradually brought to 10-12 repetitions per 1 procedure. Breathing exercises and exercises for stretching the spine were included. 3. Special physical training was carried out on a cardiac rehabilitation complex, manufactured by "Schiller" with computer control of ECG and blood pressure. 4. Walking was also used as a means of physical training - walking on a flat surface from 500 m, gradually increasing to 3 km per day, then later, as it was mastered, in the form of a terrenkur. Free walks around the territory of the sanatorium and sleeping on an open veranda were prescribed. Classes were conducted individually with a specialist in physiotherapy exercises, taking into account the individual tolerance of physical activity, the severity of the disease and concomitant pathology. IV. Psychological rehabilitation was carried out by a psychotherapist and was carried out both individually and in the form of group psychotherapy. Psychopharmacotherapy was prescribed if necessary.

Research results: The assessment of the quality of medical care is identified with the determination of the degree of compliance of medical and diagnostic care with the established rehabilitation criteria. As the results of the study showed, out of 500 patients (average age 57.1 ± 10.0 years), there were 371 men (74.2%), and

129 women (25.8%). The average age of men was 56.2 ± 10.7 years of women - 60.0 ± 8.9 years. The age characteristics of patients who received rehabilitation treatment at KNIIKiVL are presented in table 1.

Age years	Number of patients n (%)	Men n (%)	Women n (%)
≤40	19 (3,8%)	12 (2,4%)*	7 (1,4%)*
41-50	75 (15,0%)	55 (11,0%)*	20 (4,0%)
51-60	190 (36,2%)	146 (37,1%)*	44 (33,1%)
61-70	137 (27,4%)	92 (18,4%)*	45 (9,0%)
71-80	65 (13,0%)	21 (4,2%)*	44 (8,8%)*
> 81	14 (2,8%)	4 (0,8%)	10 (2,0%)*

Table 1: Age characteristics of patients who received rehabilitation treatment at KNIIKiVL for 2013-2017.

Note: * p < 0.05 - significance of differences between groups (men and women).

The results of the analysis showed that in the age categories up to 40 years old and from 41 to 70 years old, males were significantly more likely to receive rehabilitation treatment, and in the age category over 71 years old - women predominated (p < 0.05), and in the age category up to 55 years old for men and up to 75 years for women, the use of rehabilitation treatment increases by 146 (37.1%) and 45 (9.0%) people, respectively. Depending on employment, the main contingent was - working patients were 267 (53.4%), of whom 194 (38.8%) were engaged in mental labor, 73 (14.6%), pensioners - 233 (46.6%) human. When performing this study, based on a questionnaire survey of 500 patients who received rehabilitation treatment at KSRIBaRT on the issues of ensuring patient satisfaction with medical rehabilitation in a sanatorium-resort institution, it showed the following: as a result of the analysis, 66.1% of respondents were satisfied with the process of providing medical rehabilitation at KSRIBaRT, 10% abstained from answer, 23.9% of respondents are not satisfied. The respondents are not satisfied with the fact that: there is no modern innovative technologies (medical equipment, fitness rooms), training of personnel with the appropriate knowledge and skills is required, the attending physician does not properly inform the patient about his state of health and its possible results after undergoing rehabilitation programs. Also, when assessing the quality and effectiveness of medical rehabilitation, it was carried out using the standard questionnaire MOS SF-36 in 500 patients who received treatment at KSRIBaRT in 2013-2017. The questionnaire included 3 main functions: functional state, feeling of well-being and general health), which correspond to 8 aspects of health: physical functioning, role functioning, pain, general health, vitality, social functioning, emotional functioning, psychological health.

Performance criteria Observation group N = 500		Performance indicators	
		Comparison group N = 250	
1	High efficiency	354 (70,8%)	57 (22,8%)
2	Moderate efficiency	103 (20,6%)	98 (39,2%)
3	Low efficiency	37 (7,4%)	78 (31,2%)
4	Unfavorable outcomes	6 (1.2%)	17 (6,8%)

Table 2: Evaluation of the effectiveness of medical rehabilitation of patients at the Kyrgyz Research Institute of Balneology and Rehabilitation Treatment for 2013-2017.

An expert assessment of the medical efficiency of medical rehabilitation at KSRIBaRT for 2013-2017, based on a sample of 500 case histories, found that they completed rehabilitation treatment with high efficiency - 70.8%, with moderate efficiency - 20.6%, with low efficiency - 7.4% sick. Evaluating the results of the influence of the revealed defects on the patient who received rehabilitation treatment at KSRIBaRT over the past 5 years, it was found that in 78.5% of cases no harmful consequences were found either for patients or for health care resources. At the same time, the deterioration in the patient's condition, which is largely associated with the admitted defects, was 5.7%.

Limitations of the study: It should be pointed out that this study has a number of limitations. Firstly, the collected data of 1,500 patients who received rehabilitation treatment belonged to different categories of patients (gender, age, commitment to research, clinical situation, subjective feelings); therefore, there were ethical, qualitative limitations. This situation could create some distortion in the studied dependencies. Secondly, not all data were available for all patients, since the primary data were collected as part of the ongoing rehabilitation program, each of which was

conducted on an individual sample of the study. However, all of the variables were not necessary for the regressions; some of them turned out to be insignificant. In addition, this problem was solved by constructing several regressions. As a result, the number of observations used in regressions was 54-100 observations. Finally, some measurable variables, such as measures of the outcome of rehabilitation treatment, as well as the indicator of the effectiveness of rehabilitation treatment itself, are objective data and may not reflect the subjective feelings of the patient.

Conclusions

- The results of a study of 375 patients who received rehabilitation treatment over the past 3 years in the conditions (mid-mountain hospital) of KNIIKiVL showed that target blood pressure levels were achieved in 63% of patients, 42.3% stopped smoking, 61.4% normalized cholesterol, impaired tolerance to glucose normalized 100%, blood sugar 63.6%. Normalization of weight reached 26% of the patient.
- The use of rehabilitation programs in a sanatorium-and-spa institution forms pronounced anti-ischemic, antiarrhythmic, cardiotonic and vegetative-corrective therapeutic effects in patients with coronary artery disease, characterized by a decrease in subjective and objective clinical symptoms, an increase in patients' tolerance to physical activity.
- Specialized cardiological rehabilitation of patients, in the conditions of the Kyrgyz Research Institute of Balneology and Rehabilitation Treatment, is more effective, as it allows achieving the target levels of the main risk factors for coronary heart disease to a much greater extent.
- The use of physical factors of treatment in the complex of sanatorium-resort rehabilitation made it possible to statistically significantly improve the results of the sanatorium-resort stage of rehabilitation. The analysis of the data obtained confirms that the proposed by us rehabilitation programs of medical rehabilitation in the sanatorium - resort and health care institutions were effective by 91.4%.
- An expert assessment of the effectiveness of medical rehabilitation at Kyrgyz Research Institute of Balneology and Rehabilitation Treatment for 2013-2020, based on a sample of 500 case histories, established that 79.5% of patients completed rehabilitation treatment with high efficiency - 70.8, with moderate efficiency - 20.6%, with low efficiency - 7.4% of patients.

Ethics Approval

The study has been approved by the Ethics Committee of State Institution 'Clinical Hospital of the Office of the President and the Government of the Kyrgyz Republic', Bishkek, Kyrgyz Republic and in accordance with the Helsinki Declaration, Protocol No. 7 of 16 March 2021.

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