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## **INFORMATION AND COMMUNICATION TECHNOLOGIES IN MEDICINE**

Annotation: A standardized approach to the organization of the health care system, aimed at improving the effectiveness of management and treatment and diagnostic solutions in medicine, requires the use of new tools. Information and communication technologies (ICTs) occupy leading positions in this field both at the global and local levels.

Key words: ICT, education, medical education institutions.

Undoubtedly, the use of ICTs in everyday practice requires the training of medical personnel, the necessary competence of doctors and patients in this field of services, the organization and management of the main functions of medical care. Most researchers believe that the "clinical productivity" of the service and its effectiveness is achieved not by the very fact of using telemedicine technologies, but by an adequate interpretation of the results in the process of achieving the main goals of medical care.

One of the fundamental roles in the implementation of the tasks set in chronic diseases is the active participation, awareness and literacy of patients in the self-control of their own health, the joint responsibility of the patient and the doctor for the decisions made. A number of scientific studies have shown that low health literacy is associated with unequal access to health care, which leads to an increase in the frequency of hospitalizations, mortality, and a deterioration in the quality of life.

There is strong evidence that public health can be better protected by the use of additional ICT capabilities, with an emphasis on the active participation of the patient in the implementation of this task. The positive experience of the clinical use of information technologies around the world has made it possible to transfer medicine to a qualitatively new level, which successfully contributes to reducing the number of hospitalizations, complications, adverse outcomes, as well as socio-economic benefits and improving the quality of life. It is proved that the increase in the effectiveness of preventive, therapeutic and rehabilitation measures is achieved through dynamic monitoring of the patient's condition in the form of long-term monitoring, control and correction of key parameters of the human body's vital activity, preventive measures, and ensuring the safety of home rehabilitation measures. Taking into account the peculiarities of the course of the disease can significantly increase the effectiveness and safety of decisions made. It is noteworthy that increasing the availability of medical care to patients with disabilities, as well as overcoming territorial and temporary barriers between medical professionals and the population of remote regions, lead to clinical and socio-economic benefits for patients and the state as a whole.

In a number of large clinical trials data on the effectiveness of clinical use of various types of ICTs in certain branches of medicine were obtained: remote monitoring of the main functional indicators of the body (blood pressure, heart rate, blood glucose level, etc.), telemedicine counseling, monitoring of rehabilitation measures at home, specialized systems for supporting medical decisions. All these are options for solving the problems of an individual approach to patients, based more on the studied patterns, rather than the intuition and experience of the doctor. Remote telemonitoring generally has unlimited possibilities and is also implemented in monitoring the state of implantable devices-pacemakers and implantable cardioverters-defibrillators, which provide data on the functioning of the system, as well as extensive information about the patient's condition.

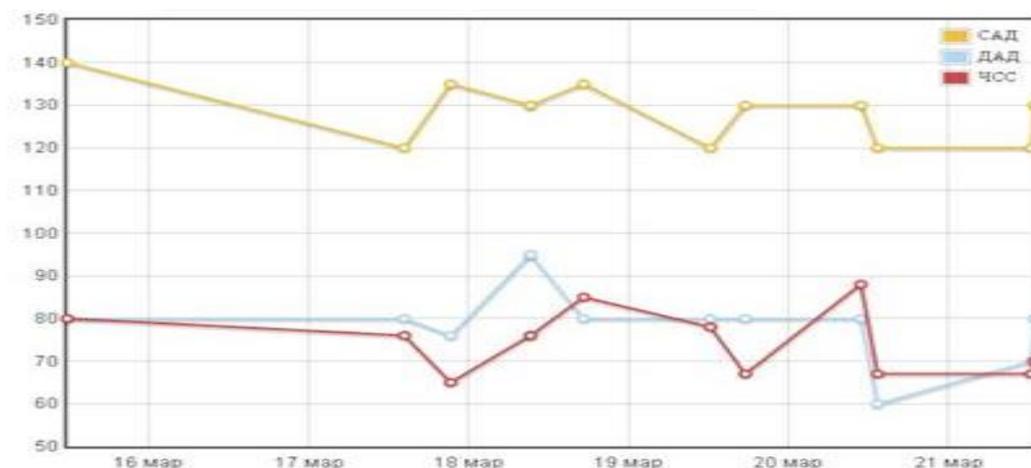


Fig. 1. Control of rehabilitation measures at home

Statistics show that by 2020, older citizens will account for up to 25% of the world's population, i.e. draws attention to the problem of "population aging". As people approach retirement age, they enter a period of life associated with a high risk of economically costly and life-threatening chronic diseases. An important component of health control in this case can be the monitoring of the physiological parameters of patients related to the prevention and long-term treatment of diseases, as well as the organization of telemedicine advisory support, which, in turn, contributes to closer communication between doctors and patients, developing a sense of "security" (patient satisfaction with communication with doctors) and increasing compliance. A recent randomized controlled trial on the use of telemedicine in the individual management of elderly patients showed improved blood glucose control in diabetes mellitus in regions recognized as "receiving insufficient medical care" in the state of New York (USA). Given the high percentage of chronic diseases in this group of patients, a number of European countries are implementing telemedicine programs of self-service and therapeutic training that help to improve patients' awareness of the existing disease, to form the necessary skills and abilities that allow them to manage their disease for a long time and actively and to provide dynamic timely control to prevent complications.

Information support for primary and secondary prevention of diseases and their early diagnosis is becoming increasingly relevant. The high prevalence of cardiovascular pathology among young and middle-aged people, including in the

latent form, and the high risk of cardiovascular complications in them-requires a pre – symptomatic diagnosis in this age group in the light of the positions of modern medicine, defined as predictive, personalized and preventive medicine. This fact requires special approaches to the timely diagnosis and correction of the identified risk factors, as well as the initial forms of diseases in patients of these groups. A significant role here is given to the use of telemedicine, and in particular telemedicine preventive surveillance. When implementing preventive measures in young people who do not have complaints and therefore do not focus on the state of health, it is important to inform about the significant role of risk factors, to understand the causes of the disease, the initial manifestations of the disease. This again shifts the emphasis in favor of increased literacy and therapeutic training to protect the health of young and middle-aged people and their self-control.

One of the important components of the effectiveness of rehabilitation measures is their constant monitoring and active participation of the patient in them. According to foreign literature, telemedicine technologies contribute to “overcoming the barrier to access to cardiac rehabilitation for a large number of patients and can be widely used around the world”. Thus, the doctor gets the possibility of constant operational access to various information about the patient's condition online, receives data not only on the parameters of the cardiovascular system, but also on other vital systems that potentiate the "mutual burden syndrome", and, if necessary, can make adjustments to the treatment and rehabilitation program. The clinical experience of using telemonitoring in the category of high-risk patients in many studies has proved the prospects of developing remote monitoring systems for patients using external devices and sensors of vital parameters of the human condition, as well as improving patient self-control.

There is a significant increase in compliance with treatment (up to 90%) in patients who actively use home self-monitoring methods, a decrease in the frequency of hospitalizations, a 20-25% decrease in mortality among patients with cardiovascular diseases compared to traditional technology of organizing medical

care. Positive dynamics in the application of telemonitoring systems in this case is also achieved by increasing awareness and literacy in relation to the existing disease, the degree of patient satisfaction with the quality of medical care, achieving patient consent to treatment and timely implementation of medical recommendations.

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