Optimization Of Organization and Conducting of Telerehabilitation of Patients After Stroke

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Annotation
The article analyzes the experience of using telemedicine technologies in the rehabilitation of stroke patients. The results of the study showed that the use of such tele technologies provides continuous feedback with the patient and allows you to regularly and continuously receive information about the effectiveness and outcomes of treatment, creates a favorable environment, creates a comfortable space, improves the emotional background, which is one of the main conditions for restoring or compensating for impaired or lost body functions, as well as the coverage of patients with comprehensive rehabilitation programs is significantly increasing, which contributes to the implementation of continuous therapy in the post-stroke period.

Keywords: stroke, telemedicine rehabilitation, remotely controlled rehabilitation

According to the World Health Organization (2015), stroke in economically developed countries ranks second in the structure of morbidity after diseases of the cardiovascular system [1]. Worldwide, the incidence of stroke is 10.3 million cases per year, with 80% of ischemic stroke. Approximately 6.5-6.7 million cases are fatal [2,3].

Acute cerebrovascular accident continues to be one of the main causes of temporary or permanent disability, is a serious economic burden, reduces the quality of life not only for patients, but also for their families, and creates an additional burden on medical, social and financial services [4-6].

All this necessitates the search for fundamentally new approaches to the rehabilitation treatment of neurological patients, which will allow more efficient and rational planning and spending of healthcare resources when organizing a system of medical rehabilitation in the Republic of Uzbekistan and the Russian Federation. One of these is telerehabilitation.

Telerehabilitation (telemedical rehabilitation, remotely controlled rehabilitation) is based on the use of telemedicine technologies, provides for combining the potential of innovative technologies in the interaction of medical and non-medical specialists, medical and other institutions, patients [7-10].

That is, it is a form of remote provision of medical services in a therapeutic patient-oriented environment, a complex of rehabilitation, medical-restorative and educational programs on a digital platform under the remote control of a medical worker [11-13].

The purpose of the study is to analyze the experience of organizing and conducting telerehabilitation in the post-stroke period in the context of the digital transformation of the healthcare system of the Republic of Uzbekistan and the Russian Federation.

Results. Stroke is not only a medical problem, but also of social and economic importance due to its high prevalence. In addition, acute cerebrovascular accident is caused by serious complications, and for absolutely different age categories of people [2-3].

Therefore, after a stroke, each patient needs to select a personalized program for the prevention of recurrent acute cerebrovascular accident, and digital technologies in healthcare contribute to the formation of a patient-oriented environment based on infrastructure facilities and the development of applied solutions that improve the health and well-being of the population [14,15].

Some studies have shown that in the context of the digital transformation of the healthcare system in Uzbekistan and Russia, one of the promising and rapidly developing areas in the field of restorative telemedicine is remotely controlled rehabilitation technologies, which have not yet been widely used, but already have a high potential in neurorehabilitation practice.

1. Experience of a joint project of the Research Institute of Rehabilitology and Sports Medicine (Samarkand) and Joint Stock Company «Group of Companies "MEDSI"» (Moscow). The SmartMed telemedicine platform is the basis for the development of a complex of digital health products and services, including for the rehabilitation of stroke patients, in order to ensure the availability and improve the quality of medical care, in line with the principles of patient-centered healthcare, that is, determining the rehabilitation route stroke patient, depending on the stage of the disease and its severity. Such telemedicine technology "SmartMed" is aimed at adults, children and the elderly or their legal representatives in remote interaction with specialists in multidisciplinary areas. At the same time, the “SmartMed” telemedicine service allows interaction not only in the “doctor-patient” communication system, but also “doctor-doctor”, for example, holding consultations with colleagues on issues of rehabilitation therapy, attracting a “second opinion”.

Telerehabilitation technology makes it possible to radically expand the capabilities of all participants in the healthcare system: "doctor-patient" and "doctor-doctor", is to install the "SmartMed" application on a digital device (personal computer, laptop, smartphone, tablet with web-camera support and access to Internet). The therapy is aimed at restoring motor, speech, cognitive functions, and contains elements of psychotherapy. It is carried out according to a comprehensive rehabilitation program, with constant accompaniment and under the control of specialists via video communication, telephone or in a special chat, based on the preferences and capabilities of the patient. Remotely controlled rehabilitation on the SmartMed platform is carried out according to a schedule that is convenient for the patient and consists of personalized sessions and methods with specialists involved in the medical rehabilitation process, among which there are physiotherapy instructors, speech therapists, neuropsychologists, psychotherapists , ergotherapists , and some specialists are available around the clock.

The functionality of the telerehabilitation technology of the SmartMed platform allows you to track readings from wearable devices, respond to critical deviations, give recommendations for adjusting the load, which contributes to maximum patient adherence to treatment, compliance with doctor's prescriptions, and also normalizes the emotional background.

2. Experience of the Federal State Budgetary Institution "National Medical and Surgical Center named after N.I. Pirogov". With the participation of specialists from the N.I. Pirogov National Medical and Surgical Center, a remotely controlled rehabilitation of stroke patients was organized using telemedicine technologies on the Steps Reabil platform (7 days a week, 24 hours a day). Innovative telerehabilitation programs are based on many years of experience of the Center's rehabilitation specialists and are primarily aimed at restoring motor, speech and cognitive functions in the post-stroke period in order to increase the availability of medical care and reduce the risk of contracting infectious diseases by limiting contacts between patients and medical workers, which is a positive side pandemic response practices.

Telerehabilitation Technology. The patient, using a digital device (personal computer, laptop, smartphone, tablet with webcam support and Internet access), enters his personal telerehabilitation

account using a browser. Depending on the physiological characteristics, the type of stroke, the extent of the area of brain damage, neurological symptoms and health indicators, a personalized comprehensive program of rehabilitation treatment is compiled. It includes remote interaction between patients and specialists in rehabilitation therapy both directly online and offline and consists of a set of special therapeutic and rehabilitation exercises, videos under the remote control of a medical worker.
Thus, the telerehabilitation technology "Steps Rehabil" provides continuous feedback with the patient and allows you to regularly and continuously receive information about the effectiveness and outcomes of treatment, and also creates a favorable environment, creates a comfortable space, improves the emotional background, which is one of the main conditions for recovery. Or compensation for impaired or lost body functions and has a high clinical significance of adherence to treatment of patients in the post-stroke period.

3. Experience of the Federal State Budgetary Institution of Healthcare "Reshma Medical Center". Reshma Medical Center, which is a multidisciplinary medical center, is successfully developing the direction of telerehabilitation. For different categories of patients, including those with limited mobility and after serious illnesses and injuries.
The main goal at the same time is to ensure the availability of medical care, increase the efficiency of medical services and improve the results of treatment of neurological patients in the context of the development of personalized prevention and rehabilitation. The system of rehabilitation treatment is carried out in comfortable (home) conditions using telemedicine technologies. The system of continuous therapy functions in compliance with all stages of remotely controlled rehabilitation in the post-stroke period, thereby increasing the role of the patient in the process of providing medical care, which implies his active participation in the rehabilitation process.

Telerehabilitation technology is applicable for remote consultations according to the "doctor-doctor" scheme and in "doctor-patient" therapy, based on the installation of telemedicine equipment (personal computer, laptop, smartphone, tablet with web camera support and Internet access), as well as if required, special simulators with biofeedback and the possibility of remote monitoring of health indicators are additionally provided, allowing patients to restore motor activity at home. This approach is aimed at conducting personal-oriented programs of rehabilitation treatment and secondary prevention of stroke patients. In the telerehabilitation mode, the doses of drugs and the time of taking them can be adjusted. In addition to doctors, the team of specialists includes physiotherapy instructors, speech therapists, clinical psychologists and other specialists. An innovative project implemented on the basis of the Reshma Medical Center confirmed that telerehabilitation significantly increases the coverage of patients with comprehensive rehabilitation programs, which contributes to the implementation of continuous therapy in the post-stroke period. In other words, it is the implementation of patient-centered healthcare in practice.
Conclusion. Thus, the use of teletechnologies in the rehabilitation of post-stroke patients provides continuous feedback with the patient and allows you to regularly and continuously receive information about the effectiveness and outcomes of treatment, creates a favorable environment, creates a comfortable space, improves the emotional background, which is one of the main conditions for recovery or compensation. impaired or lost body functions, as well as significantly increasing the coverage of patients with comprehensive rehabilitation programs, which contributes to the implementation of continuous therapy in the post-stroke period.

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