

REHABILITATION PATIENTS AFTER STROKE

Dadaboyeva Z.I.

Department of Rehabilitation, Sports Medicine and Traditional Medicine,
Andijan State Medical Institute.

Introduction: The article discusses the issues of rehabilitation of patients after stroke at the outpatient stage. The key principles of post-stroke rehabilitation are presented: functional approach, frequency and intensity of training. The main methods of rehabilitation are considered: physical therapy, physiotherapy, etc. The optimal intensity and duration of training have been determined. The features of physical rehabilitation of the paretic arm are noted. The effectiveness of complex rehabilitation using physical and medicinal methods in restoring lost functions is shown.

Keywords: Physiotherapy, physical therapy, stroke, post-stroke rehabilitation, outpatient stage.

Stroke is the main cause of severe long-term disability. In Uzbekistan, almost 60,000 people suffer from stroke every year. The number of stroke survivors is expected to grow in the coming years as the risk of stroke increases with age and the world's population ages [2]. Approximately 85% of stroke survivors survive, but often have significant impairments. Limb paresis is the most common disorder after stroke (in 75% of survivors), leading to limitations in daily life [3]. In many cases stroke leads to impaired physical functions as a result of paralysis and limited range of joint movement, as well as psychological problems, including post-stroke depression [4-6]. These conditions have adverse consequences: they reduce the quality of life of the patient and increase the burden on his family members, increase the costs of the healthcare system. It has been reported that various factors contribute to an unfavorable prognosis regarding the functional activity of patients after stroke, including age, deterioration of physical functions before rehabilitation, cognitive impairment and urinary incontinence. 12 months after a stroke, about 28% of patients remain addicted in areas such as dressing, using the toilet and moving around the room. Pettersen R. and his colleagues found that 32% of people remained inactive in their daily activities 3 years after a stroke.

The recovery time after a stroke depends on the physiological characteristics of each person, from the type of stroke itself (ischemic or hemorrhagic), the area and volume of the lesion. The rehabilitation process should begin as early as possible, preferably immediately after the victim's condition stabilizes. Comprehensive stroke treatment is based on the understanding that stroke is a chronic disease and includes several important elements: lifestyle modification, control of cardiovascular factors risk management, secondary prevention, rehabilitation and restoration of motor functions. The effectiveness of rehabilitation measures aimed at restoring motor functions is determined by several factors: the time factor, the type of therapy and its intensity, drugs used to stimulate the recovery process, and, finally, the purpose of rehabilitation. The time period of rehabilitation measures is determined by the pathological and biological processes occurring in the brain after a stroke, as well as their duration. At the earliest stage after a stroke, it is likely to be rational to use neuroprotectors and carry out interventions aimed at neuroprotection, at later stages – the use of drugs that stimulate the processes of biological recovery.

Currently, it has been established that rehabilitation can be carried out in various conditions (for example, in-hospital, postoperative care and outpatient treatment), and its implementation reduces the risk of recurrence of stroke and improves the functional status and quality of life of the patient. The

advantages of outpatient rehabilitation treatment aimed at improving the functional status of the patient, risk profiles of cardiovascular diseases and quality of life, increasing survival, as well as reducing the risk of recurrent strokes and psychological or stress disorders have been identified.

The key principles of post-stroke rehabilitation include a functional approach, frequent and intensive task-oriented workouts, and their early start (in the first days or weeks after a stroke). Currently, a wide range of interventions are being studied that can potentially contribute to the restoration of brain function after a stroke, including cell therapy, treatment with selective serotonin reuptake inhibitors, neurotrophic factors and catecholaminergic agents, regional electrical stimulation of the brain, transcranial magnetic stimulation (TMS), neuroprosthetics, the use of robots and the use of special methods of physical rehabilitation.

At the outpatient stage, the tasks for patients in the recovery period of the disease are to stabilize the course of the underlying vascular disease, adapt to everyday household loads, reduce the severity of motor and other post-stroke disorders, and for patients in the residual period, the tasks are to develop substitution compensations, adapt to the defect, eliminate arthralgias, correct psychopathological manifestations, complete restoration of household activity.

Rehabilitation methods include:

- physical therapy: position treatment, individual classes, training in proper walking; mechanotherapy using desktop simulators for hands and fingers, special devices to reduce muscle tone;
- physiotherapy: massage of segmental zones, selective and acupressure of paretic limbs, hardware physiotherapy (only after adaptation of the patient and stabilization of the condition) – electrophoresis of vascular funds for the cervical-collar zone in order to improve cerebral circulation, potassium or magnesium electrophoresis using the Vermel method for cardiac arrhythmias; heat on paretic limbs with increased muscle tone, local analgesic procedures for arthralgias. The appointment of electrical stimulation is permissible, and in minimal physiotherapy doses, only after consultation with a cardiologist and a physiotherapist;
- psychotherapy: individual or group (communicative discussion) classes, autogenic training, psychogymnastics;
- other special treatment methods: speech therapy, alcohol-novocaine blockades of spastic muscles, acupuncture, techniques of functional biofeedback, etc.

It is possible to return to work for patients with moderate post-stroke disorders who are in the recovery period, provided that the course of the underlying vascular disease is stabilized, as well as taking into account the patient's work attitude.

For most people, walking is a natural skill that does not require much effort. At the same time people who have suffered a stroke may experience disorders walking in the form of reducing it, etc. Walking training is one of the main components of physical rehabilitation after a stroke, as it is an important criterion for discharge and a necessary condition for the patient's functioning at home. The results of various studies show that even in the later (chronic) stages after a stroke, people can still improve motor activity. Various treatment methods can be used to improve walking. Despite the

availability of new approaches to learning, such as the use of robotics, balance training, regular walking is still one of the most widely used methods in clinical practice.

Several systematic reviews have shown that higher time spent on physical rehabilitation increases functional outcomes in people with stroke. One of the methods to increase the intensity of training sessions may be to involve caregivers. The clinical guidelines note that patients after a stroke should exercise intensively.

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Great hopes are pinned on robots, which can significantly increase the possibilities of therapy and at the same time reduce labor costs. Systematic review 10 studies of the effect of therapy with robots on motor and functional recovery in patients after stroke has demonstrated a positive effect of treatment on the mobility of the paretic arm, but without significant improvement in its function. The authors of the Cochrane review of 11 clinical trials (n = 328) came to similar conclusions: after training using robots, despite a slight increase in strength and improvement in the movements of the paretic arm, patients do not have significant advantages in daily life. Currently, there is no doubt about the importance of medical rehabilitation to improve the recovery of lost functions. Although the results of randomized clinical trials do not yet allow us to formulate practical recommendations,

the volume of experimental data that indicate the prospects for a combination of drug treatment and task-oriented rehabilitation practices is increasing.

According to the study, which studied the effectiveness of the combined drug Vasobral in dyscirculatory encephalopathy, patients did not experience clinically significant changes in blood pressure or heart rate, including in patients with arterial hypertension receiving stable antihypertensive therapy.

Thus, treatment with levodopa in combination with physical rehabilitation for three weeks 1-6 months after a stroke allowed to achieve better results than using only physical rehabilitation. There is evidence that amphetamines have a similar effect, but the results of the clinical trial were mixed. It is believed that the mechanism of action of levodopa and amphetamines is mainly associated with the activation of cortical noradrenergic systems (especially in the contralateral lesion of the cerebral hemisphere), although assumptions have been made about the direct effects of dopamine. Suppression of norepinephrine reuptake by reboxetine (reboxetine) is associated with better motor skills development. In a randomized placebo-controlled clinical trial (n = 118) in patients with ischemic stroke and severe hemiparesis, the addition of physical rehabilitation with fluoxetine treatment (20 mg 1 r/day for 3 months), which was initiated in the first 5-10 days from the onset of the disease, provided significant benefits in restoring motor functions.

Thus, in the treatment of stroke patients, a combination of medicinal and non-medicinal methods is used, in combination they can improve the functional status of the patient, reduce the burden of the disease for the person and his family, society as a whole.

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