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Improvements of Early Rehabilitation for Ischemic Stroke Patients

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ABSTRACT

Increasing the efficiency of rehabilitation of patients after stroke remains one of the most important strategic tasks of neurologists. Neurological deficits that develop in the early stages after a stroke negatively affect the patient's quality of life. Their timely identification and correction can improve functional outcome. Carrying out comprehensive rehabilitation measures in the early stages of the disease leads to reduction of the neurological deficit caused by a stroke, acceleration of the patient's return to social life, and improvement of the quality of life. Grouping stroke complications and carrying out treatment measures through a special approach to them leads to the restoration of the functional state of the damaged brain tissue.

In recent years, throughout the world there has been a catastrophic increase in the number of vascular diseases leading to disability and death of the patient. In Uzbekistan, this situation is especially relevant, since morbidity rates over the past years have seen a tendency towards a steady increase in this pathology. According to modern large international studies, in recent years, in the structure of cardiovascular pathology, strokes have begun to prevail over myocardial infarctions in frequency by approximately 24%. This trend even received a special name - "stroke paradox". There are many explanations for the "stroke paradox." The connection between stroke and life expectancy seems to be the most substantiated. The annual risk of stroke in the age group 45–54 years is 0.2%, 65–74 – 1.3%, over 80 years – 4.6%. But even among patients of working age, out of every hundred people who become ill, 36 people die within the first month, and by the end of the first year - every second. Data from the National Stroke Registry showed that one in three stroke patients require assistance with care, and one in five are unable to walk independently. Only one in five stroke survivors recovers their health and returns to normal life. But it should be noted that a one-time vascular accident is not always the final cause of disability and mortality. It has been repeatedly shown by statistical calculations based on data from the National Registers of many countries that if a patient has suffered one stroke, then within a year with a probability close to 15% he will suffer a second one, and after a few years this probability approaches 30–40%. In this regard, a modern strategy for the rehabilitation of patients with ischemic cerebrovascular accidents, which is based both on the correction of existing functional deficits and on the prevention of recurrent disorders, is currently being actively discussed. According to the modern concept, when carrying out rehabilitation activities, it is necessary to observe principles such as the earliest possible start, an integrated approach and continuity of rehabilitation. The main activities are carried out in three areas: 1. Prevention of recurrent cerebrovascular accidents. 2. Restoration of lost functions. 3. Prevention of post-stroke complications. Prevention of recurrent cerebrovascular accidents is based on modern ideas about

the pathogenesis of cerebral circulatory disorders, according to which this pathology is not an independent disease, but one of the complications of various diseases of the cardiovascular system. The development of acute ischemia indicates significant damage to the blood supply to the brain. Moreover, in the absence of adequate treatment for the underlying disease, the risk of recurrent strokes is very high. Typically, a therapeutic program for the prevention of recurrent disorders is based on the mechanism of stroke development. But for any pathogenetic variant of ischemic stroke, from the first hours of the manifestation of clinical symptoms, it is necessary to prescribe antiplatelet drugs, which reduces the risk of repeated ischemic events by 20–25%. Acetylsalicylic acid at a dose of 75–150 mg per day has a proven antiplatelet effect. However, in some cases, acetylsalicylic acid is ineffective, and sometimes can even enhance platelet aggregation. Therefore, the effectiveness of this drug must be monitored by laboratory testing of platelet aggregation. Among the diseases leading to the development of cerebrovascular pathology, arterial hypertension and atherosclerosis come first [6,8]. Therefore, a special place is occupied by the issues of early prevention and rehabilitation of an already occurring cerebrovascular accident. Of particular interest to neurologists and psychiatrists was the problem of motor disorders and dementia associated with strokes. The use of various tests and neuropsychological tests reveals the wide prevalence and significance of these disorders [7, 9]. Basic principles of rehabilitation of patients [11, 13].: 1. Early start 2. Duration of rehabilitation measures 3. Staged rehabilitation (inpatient rehabilitation center - home conditions). 4. Comprehensiveness of rehabilitation 5. Help from relatives in the rehabilitation process Active rehabilitation occurs in the first 12 months after a stroke, and in the first 6 months the process is most rapid. During this period, active motor rehabilitation is most effective. Speech restoration is possible within a much longer period of time – in the first 2 years. Beginning of rehabilitation: For medium-sized cerebral infarctions, rehabilitation measures should begin from 5-7 days (in the absence of contraindications). In case of hemorrhages, the timing shifts upward. The main directions of rehabilitation in acute, subacute and early recovery periods of stroke: • Treatment by position – prevention of contractures; • Passive movements of the limbs • Breathing exercises; Fight against concomitant movements - synkenesis in paretic limbs; • Dropping off the patient; • Learning to stand • Learning to walk with a four-fingered cane; Learning to walk with a regular cane • Learning to walk without a cane; • Classes with a speech therapist Physiotherapy: 7-8 days after an ischemic stroke and 10-12 days after a hemorrhagic stroke, passive limb exercises begin for 10 minutes x 2 times a day, light massage with warming the limbs with Sollux, daily. After consultation with a physiotherapist, according to indications and contraindications, the following is prescribed: Electrophoresis with iodine and magnesium (cervical-lumbar region), electrophoresis of novocaine after 1-1.5 months. according to Vermeule, electrophoresis of proserin alternating with dibazole. It is also recommended to apply diadynamic currents to the joints; -Baths: pine, sulfide, iodine-bromine, pearl, nitrogen, carbon dioxide. Electrical stimulation of paralyzed limbs. Biofeedback; Treatment with botulinum toxin. Acupuncture, exercise therapy. In the early recovery period of a stroke, passive gymnastics is performed first on the healthy side. From the first days of a stroke, the patient is taught to sit and stand. They start by simulating walking in bed. It is allowed to seat a patient with his legs down only in the 5th lesson. Typically, active gymnastics on days 15-25 after a stroke begins with holding the paralyzed limb in its optimal position. When some motor functions are restored, after 3-5 weeks you can put the patient in bed, a little later with lowering the legs. Before the patient gets out of bed, he is prescribed a set of preparatory exercises (passive-active exercises such as cycling). After lying for a long time, the patient needs to adapt to a vertical state in order to avoid collapse. At week 6, they begin to carefully teach the patient to walk with the correct gait, first supporting him on 2 sides, then on 1 side. Walking along pre-marked tracks on the floor is used to correctly form a step. Then this exercise is complicated by placing sides up to 5-10 cm high on the side of the paretic leg. Then you can walk between parallel bars along a track and walk in place. To make walking easier in the first stages, a four-legged crutch is used. The drooping foot is

supported with a rubber band or with high-top shoes. The stage of learning to walk ends with walking up the stairs. It is necessary to actively include the paretic arm in the patient's self-care. Even in the early period of treatment, they begin to teach the patient the movements necessary for self-care and during eating, toileting, dressing, undressing. The purpose of laying paralyzed limbs. In the first 3-4 weeks after the onset of a stroke, muscle tone in paralyzed limbs increases quite quickly. This leads to the formation of a specific pose, the "petitioner's pose" or Wernicke-Mann's pose, in which "the hand asks, the leg squints." Therefore, special positioning of paralyzed limbs is necessary from the 1st day of the disease to prevent joint contractures. Conducts 2 hours daily. The paralyzed hand is moved to the side, palm down, with fingers straightened, held in this position by a bag of sand. A cushion is placed under the patient's armpit. The hand and forearm are bandaged to a splint. The procedure is repeated several times a day for 5-20 minutes. A bolster is placed under the knee joint of the paralyzed leg, and the foot is placed in an extension position with the rest resting on a wooden box. This prevents the formation of the Wernicke-Mann posture and prevents the development of dystrophic changes in the joints. In addition, every 3-4 hours it is necessary to change the patient's position from back to side. When the patient is placed on his healthy side, the paralyzed arm is placed on a pillow. To eliminate and prevent contractures, the first step is to properly position the paralyzed limbs. Passive movements are used, which are preceded by thermal procedures (paraffin therapy). In case of severe spastic syndrome, muscle relaxants are prescribed - drugs that reduce muscle tone: sirdalud, mydocalm, baclofen. However, it should be remembered that in the early recovery period these drugs can cause a decrease in muscle strength in paretic limbs, especially in the leg. They are contraindicated if paresis predominates in the leg compared to the arm. Special orthopedic mattresses are used to prevent bedsores. Modern robotic methods of rehabilitation of stroke patients[20-25] (moderate severity). These are verticalizers, locomats and special platforms (for large specialized rehabilitation or neurological centers). From the first days of stroke development, it is necessary to transfer the patient to a vertical position. There are special devices for this – verticalizers. This device allows, after fixing the patient, to transfer, under the control of hemodynamics and the patient's well-being, the patient from a horizontal position to various positions at an angle, and then to a vertical position. An important device for modern rehabilitation is the lokomat, a special device that allows you to simulate walking. Using a computer, walking parameters are set (speed, resistance, etc.), and gradual training of paretic limbs occurs. The use of a stabilometric platform (balance therapy) allows patients to develop a sense of balance. This device is a computer game, which is controlled by moving the center of gravity from one leg to the other. The main principle is early motor rehabilitation. Restoring everyday skills. These skills are restored through exercises in which the patient fastens and unbuttons buttons, on special training stands with 3 zippers, locks with keys and many others. and then to a vertical position. An important device for modern rehabilitation is the lokomat, a special device that allows you to simulate walking. Using a computer, walking parameters are set (speed, resistance, etc.), and gradual training of paretic limbs occurs. The use of a stabilometric platform (balance therapy) allows patients to develop a sense of balance. This device is a computer game, which is controlled by moving the center of gravity from one leg to the other. The main principle is early motor rehabilitation. Restoring everyday skills. These skills are restored through exercises in which the patient fastens and unbuttons buttons, on special training stands with 3 zippers, locks with keys and many others. and then to a vertical position. An important device for modern rehabilitation is the lokomat, a special device that allows you to simulate walking. Using a computer, walking parameters are set (speed, resistance, etc.), and gradual training of paretic limbs occurs. The use of a stabilometric platform (balance therapy) allows patients to develop a sense of balance. This device is a computer game, which is controlled by moving the center of gravity from one leg to the other. The main principle is early motor rehabilitation. Restoring everyday skills. These skills are restored through exercises in which the patient fastens and unbuttons buttons, on special training stands with 3 zippers, locks

with keys and many others.

SPEECH REHABILITATION. 1) Early start already in the acute period: from 10 minutes a day to 30-45 minutes at a later date (as patients quickly become exhausted). 2) It is mandatory to complete homework assignments after the main lesson 3) Recovery is carried out in a much longer period than movement disorder 4) Classes with a speech therapist-aphasiologist 5) Conversations with relatives 6) Watching TV shows, radio, movies WRITING RECOVERY: 1) Cheating individual letters, then words, sentences 2) Writing from dictation 3) Retelling the text read 4) Story based on a plot picture 5) Learning to write with the left hand (in the absence of recovery in the right hand).

RESTORATION OF READING: 1) Reading simple words 2) Captions of plot pictures 3) Viewing newspapers and magazines Classes with a speech therapist. During strokes in patients, depending on the location of the lesion and the initial dominance of the hemispheres (right-handed or left-handed), various speech disorders may develop. However, there are three main types of speech impairment in stroke: impaired understanding of spoken speech or impaired pronunciation of sounds, words, or a combination thereof. In addition, patients often have difficulty reading and writing. Depending on this, different speech therapy programs for individual lessons are used. It is especially important to start treatment early and carry it out for a long time. Restoration of speech functions is possible in the first 3 years from the moment of stroke development. However, the earlier the sessions with a speech therapist, the better the recovery process will go. The process of speech restoration depends on which hemisphere the stroke is in and on the hemisphere dominance of the patient. Thus, classes with a speech therapist are difficult if the patient has a sensory component of aphasia (that is, a violation of understanding, not pronunciation). However, in any case, timely classes with a competent speech therapist are of great importance. Psychotherapy. From the first days of rehabilitation, it is recommended to involve a psychologist or psychotherapist in the rehabilitation process. Many patients develop depression in the subacute and early recovery period. If depression develops or if depression is suspected, testing the patient using the Beck scale is indicated. With the development of depression, the prescription of antidepressants is indicated. As a rule, selective antidepressants are currently used: serotonin reuptake inhibitors, or serotonin and norepinephrine reuptake inhibitors - Cymbalta. These drugs have a moderate stimulating effect.

CONCLUSION Improvements of rehabilitation of patients after stroke remains one of the most important strategic tasks of neurologists. Neurological deficits that develop in the early stages after a stroke negatively affect the patient’s quality of life. Their timely identification and correction can improve functional outcome. Carrying out comprehensive rehabilitation measures in the early stages of the disease leads to reduction of the neurological deficit caused by a stroke, acceleration of the patient's return to social life, and improvement of the quality of life. Grouping stroke complications and carrying out treatment measures through a special approach to them leads to the restoration of the damaged brain tissue.

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