

Development of a Personalized Rehabilitation Program: A Clinical Case

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Annotation

This article describes a clinical case of a patient who suffered an acute cerebrovascular accident of the ischemic type. The patient underwent a comprehensive clinical and neurological examination with an assessment of mental status, a rehabilitation diagnosis was formulated according to the International Classification of Functioning, Disabilities and Health, and short-term and long-term goals were determined for the development of a personalized rehabilitation program.

Keywords: stroke, International Classification of Functioning, Disabilities and Health, rehabilitation, rehabilitation diagnosis, rehabilitation potential

Background

Strokes are one of the urgent problems of modern neurology, taking second place in the structure of morbidity and mortality [1-3]. A large percentage of patients who have undergone acute cerebrovascular accident remain disabled [4-7]. In this regard, the development of personalized rehabilitation programs for such patients is of great importance. When developing a rehabilitation program, it is advisable to use the International Classification of Functioning, Disabilities and Health, thanks to which it is possible to clearly define the goals of rehabilitation and rehabilitation potential with further selection of effective rehabilitation measures [9]. It should be noted that the effectiveness of rehabilitation measures depends on a number of factors, both medical and socio-psychological [10-12].

Case Presentation

A 70-year-old patient was admitted with complaints of weakness in the left limbs, decreased sensitivity in them, speech disorder, self-service disorder, movement, increased blood pressure. From the medical history: He fell ill acutely on 12/17/22. Against the backdrop of high blood pressure, weakness developed in the left limbs, speech was disturbed. In the period from 12/17/22 - 12/28/22

was on inpatient treatment with a diagnosis of Ischemic stroke, unspecified subtype, in the basin of the right middle cerebral artery with central left-sided severe hemiparesis, left-sided painful hemihypesthesia, mild dysarthria against the background of hypertension stage 3 stage 2 risk 4, cerebral atherosclerosis of cerebral vessels. Sharpest period. Concomitant diseases: Chronic iron deficiency anemia of moderate severity. Condition after resection of the stomach according to Billroth 1 for gastric ulcer (1997)

He was treated conservatively with positive dynamics. After a stroke, she developed weakness in her left limbs and impaired self-care. Sent to the second stage of rehabilitation treatment.

Anamnesis of life: Grew and developed according to age. Lives in a private house with his family, no bad habits. The epidemiological history is not burdened - there was no contact with infectious patients. Past diseases: stage III hypertension (takes lisinopril 5 mg tablet in the evening, Acecardol 100 mg tablet in the evening, Atorvastatin 20 mg tablet in the evening under the control of cholesterol, alanine aminotransferase, aspartate aminotransferase, high-density lipoprotein, low-density lipoprotein, Amitriptyline 25 mg tablet 1/2 tablets in the evening up to 1 month). The presence of allergic reactions denies. Operations - resection of the stomach according to Billroth 1 for stomach ulcers (1997). Heredity is burdened by cardiovascular diseases.

Investments. General state satisfactory, the position is inactive due to the presence left-sided hemiplegia/hemiparesis. The physique is normosthenic, the mucous membranes are of physiological color, clean. Respiration is carried out in all departments, harsh, respiratory rate 18 per minute, no wheezing. Heart sounds are muffled, rhythmic, heart rate is 64 per minute, no noise, blood pressure 140/90 mmHg. The abdomen is soft, painless in all areas, peristalsis is heard. Stool, urination are not disturbed. There are no edema.

Neurological status: Conscious, oriented right in space, time and place is oriented correctly. Emotionally labile. Follows commands and answers questions correctly. Eye fissures D = S. Pupils D = S, photoreaction preserved. Full eyeball movement. There is no nystagmus. The exit points of the trigeminal nerve are painless. The face is asymmetrical: the left nasolabial fold is smoothed. Tongue-slight deviation to the left. Swallowing is not disturbed. Dysarthria. Decrease in muscle strength in the left limbs: in the arm - proximal 4 points, distally - 4 points, in the proximal leg - 4 points, distally - 4 points. Hypotension muscles of the left limbs. Hemihypesthesia on the left of the conductor type. Tendon and periosteal reflexes S > D. Coordinator samples are not performs left limbs due to paresis, right limbs satisfactorily. There are no meningeal signs. Pelvic functions are controlled. Does not move independently, sits without support, transplants into a chair, paretic gait with additional support and support around the ward on walkers.

Assessment according to clinical scales: Rivermead scale - 5 points, Rankin scale - 3 points, rehabilitation routing scale - 3 points (disability, moderate in severity, needs help with complex activities: cooking, cleaning the house, going to the store for shopping, can live alone at home without help from 1 day to 1 week).

Ultrasound duplex scanning of aortic branches from 12/17/2022: The vascular wall is heterogeneous, the contours are uneven, the thickness is 1.2 mm. Right Internal carotid artery in the area of bifurcation atherosclerotic plaque average size 7.9x3.6 mm, stenosis 40%. The right common carotid artery is a single atherosclerotic plaque, the average size is up to 4.2 x 2.0 mm, stenosis is 20%. The left internal carotid artery has multiple atherosclerotic plaque, average size up to 7.0x3.1 mm, stenosis 30%. Left common carotid artery single atherosclerotic plaque average size up to 4.3 x 1.9 mm, stenosis 20%. The vertebral arteries are narrowed: on the right, 1.8 mm; left - 1.9 mm.

Transcranial dopplerography from 12/17/2022: In the examined vessels, the blood flow is determined. Reduced blood flow velocity on the right in the middle cerebral artery to 21 cm/s.

On computed tomography of the brain On December 20, 2022, signs of acute cerebrovascular accident of the ischemic type were detected in the basin of the right middle cerebral artery (Figure 1).

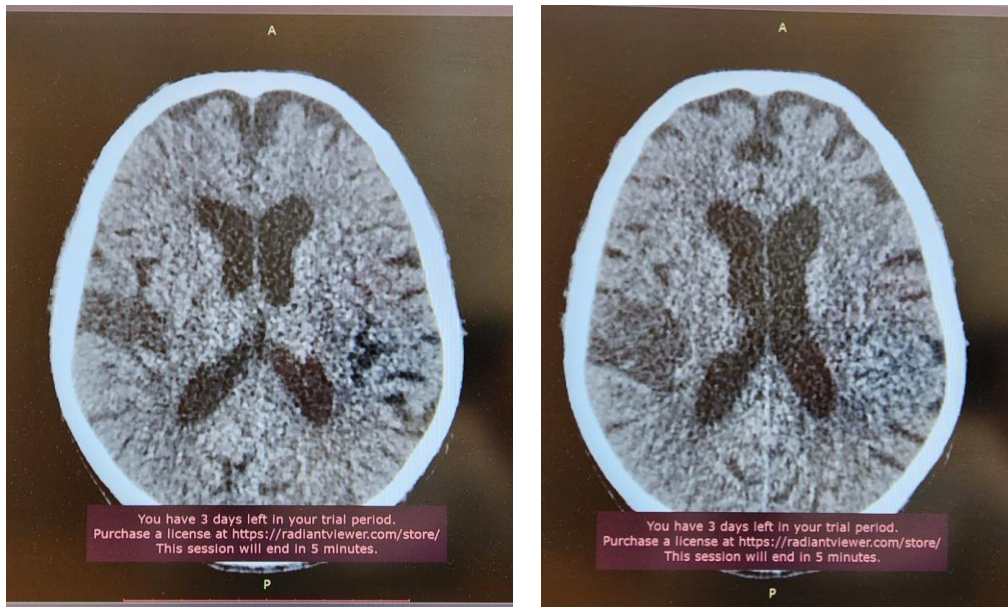


Figure 1. An ischemic lesion in the territory of the right middle cerebral artery is visualized on a series of computed tomography images

Computed tomographic morphometry is represented by the following indicators presented in table 1.

Table 1
Computed tomography and morphometric parameters of the brain

	D	S
Thalamus 1	31.3	31.8
Thalamus 2	14.2	14.3
Thalamus 3	-	-
hippocampus	-	-
Dorsolateral cortex	4.6	5.31

Ultrasound dopplerography from 01/09/2023: The vascular wall (changed) has impaired differentiation into layers. Intima-media complex: structure (heterogeneous). Thickness 1.4-1.9mm; internal contours (uneven). **Right common carotid artery:** lumen (stenotic) 40%, excessive tortuosity (absent), blood flow (laminar). **Left common carotid artery:** lumen (stenotic) 30%, local hyperechoic atherosclerotic plaques in the area of the carotid bifurcation, atherosclerotic parietal overlays with calcium elements are located, stenosing the lumen up to 45%, excessive tortuosity (absent), blood flow (laminar). **Right internal carotid artery:** lumen (stenotic) 72% prolonged atherosclerotic plaques excessive tortuosity (absent), blood flow (turbulent) linear velocity up to 240 cm/s. **Left internal carotid artery:** lumen (stenotic) 30%, excessive tortuosity (absent), blood flow (laminar). Right vertebral artery: lumen (free) d = 36 mm, linear blood flow velocity = 43 cm/s. Blood flow (laminar). Left vertebral artery: lumen (free) d = 34 mm, linear blood flow velocity = 64 cm/s. Blood flow (laminar) moderately pronounced non-straightness of the course of the vertebral arteries between the transverse processes of the cervical vertebrae. **Conclusion:** Atherosclerosis of the extracranial parts of the brachiocephalic arteries. Moderately pronounced non-straightness of the course of the vertebral arteries between the transverse processes of the cervical vertebrae, which is obviously due to osteochondrosis of the cervical spine.

In order to diagnose the structure of disorders of higher mental function and cognitive functions in connection with the tasks of restorative treatment and rehabilitation, the mental status of the patient was assessed.

At the time of examination, consciousness is clear, in place, time, self oriented. Contact is free. Approach to the examination is adequate. The mood is not lowered. The emotional background is even. During the examination, he is open to communication. The purpose of the study understands, the instructions are followed correctly. Motivation to work is sufficient. Moves around independently with the help of a walker. The speed of psychomotor processes is reduced. Criticism of his state and behavior is preserved.

Examination was carried out using the following methods: Montreal cognitive Assessment - 25 (30), MMSE 25 (30), Schulte tables, Beck scales (4), HADS (T2, D2). Drawing geometric shapes and objects. The fourth superfluous, generalization. Memory visual, auditory-speech Attention: concentration and exhaustion of attention are reduced to a mild degree method Schulte table 74,68,89,81,84 sec.) Memory: Memory readings are within normal limits. Dynamics of memorization of 10 words 7,7,8,7,9. Delayed reproduced - 7 words. Visual memory within the normal range. (according to the method, the Bernstein table remembers 8 figures out of 9 proposed). Speech: measured, consistent, to the point. There are no obvious pronunciation defects of speech. Vocabulary is sufficient. The name of objects and their frequently occurring images remembers. Establishes causal and logical relationships, composes a story based on plot pictures without errors. Count to 10 saved. Gnosis: on objects, on numbers, to the sounds into letters - saved. The ability to draw geometric shapes is normal. Thinking is a test to eliminate the superfluous without errors. The levels of processes of generalization, abstraction and abstraction are sufficient. Available to the patient All proposed methods for mental activity. The logical structure of thinking is not broken. The figurative meaning of metaphors and proverbs is mostly interpreted correctly.

In the course of the study, mild cognitive impairment was revealed (attention). There are no violations from the emotional background. The indicators of the Beck scale (4), HADS (T2, D2) are of a normative nature. Provided exercises and materials to work with attention. A consultation was held on measures to prevent dementia.

After a thorough examination, a diagnosis is made: I 67.8. Early recovery period of ischemic stroke from 12/17/2022, unspecified subtype, in the basin of the right middle cerebral artery with central left-sided severe hemiparesis, left-sided painful hemihypesthesia, mild dysarthria against the background of hypertension stage 3, 2 degree risk 4, cerebral atherosclerosis of cerebral vessels.

Discussion. Based on the clinical, neurological and neuroradiological studies, a rehabilitation diagnosis was formulated according to the International Classification of Functioning, Disabilities and Health b 117.1, b 167.1, b 730.1, b 320.1 , b 750.2, S 110.2, d 310.2, d 350.2, d 410.1, d 450.1 , d 540.1, d 550 . At the same time, the short-term goals were to develop an individual rehabilitation program; reducing the level of dependence on outside help and adaptation to self-service in daily activities; correction of postural and motor function, function of swallowing, speech, excretion, as well as correction of balance and coordination, reduction of pathological muscle tone, pain syndromes. As long-term functions, the restoration of the function of walking and cognitive functions, the correction of metabolism and nutrition, the correction of impaired perception, the increase quantitative and (or) qualitative level of consciousness.

Thus, the completeness of the clinical and neurological studies performed, the formulation of a rehabilitation diagnosis, a clear definition of the goals and objectives of rehabilitation, as well as the determination of the rehabilitation potential according to the domains of the International Classification of Functioning, Disabilities and Health contribute to the development of an effective personalized rehabilitation program for patients who have suffered an acute cerebrovascular accident.

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