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Evaluation of the Efficiency of the Complex of Rehabilitation Treatment for the Outcome of the Early Period after Acute Cerebral Circulation Disorders

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ABSTRACT

Based on the data of neurological examination and somatic status of 200 patients with ACVA, a plan of rehabilitation measures was drawn up for each patient. In the rehabilitation department, patients received a standard course of rehabilitation treatment for 24 days, including drug therapy and non-drug drugs. Evaluation of the effectiveness of the complex of rehabilitation treatment for the outcome of the early recovery period after stroke was carried out. It was found that the outcome of the disease and the success of rehabilitation measures in the early recovery period of stroke (2-4 weeks from the onset of the disease) is determined by the presence of predictors of a positive prognosis of stroke.

KEYWORDS: neurological examination, somatic status, ACVA, a plan of rehabilitation measures, rehabilitation department, patients, standard course, rehabilitation treatment, drug therapy, influence of stabilization, emotional sphere, somatic pathology, arterial hypertension, heart disease.

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RELEVANCE OF THE TOPIC

The problem of vascular diseases of the brain is one of the important problems of modern medicine. This pathology determines the level of such indicators of population health as life expectancy, morbidity and mortality. Strokes rank 2-3 among the causes of death, in the first month from the onset of the disease, mortality reaches 30%; the consequences of a stroke are the main cause of disability. There is a clear tendency towards the rejuvenation of this pathology, leading to a decrease, disability or death of persons of young working age. In this regard, the question of increasing the effectiveness of rehabilitation treatment is becoming very relevant. Restoration of lost functions is fundamentally possible on the basis of the concept of the plasticity of the nervous system, based on two basic principles: the polysensory function of neurons and the hierarchy of the structures of the central nervous system (2).

In this regard, the problem of rehabilitation of stroke patients become economically and socially significant. The continuity of patient management from the inpatient stage of treatment to the rehabilitation stage is important. To increase the effectiveness of treatment, it is necessary to bring the rehabilitation period as close as possible to the inpatient stage of treatment. An obvious position is that the earlier treatment is started, the better the outcome of the disease. The emphasis in restorative treatment should be placed on early rehabilitation as a way to achieve the maximum recovery of lost functions, in connection with which a decrease in the percentage of disability is possible, since the greatest increase in points on the Barthel, Rankin scale occurs in the first 2-3 months from the onset of the disease. Another important task of rehabilitation is the prevention of recurrent strokes, which develop during the first year in 5–25% of patients, and within 5 years - in 20–40% (1,3).

There is a need for systematic studies of recovery processes and outcomes of early rehabilitation treatment within 2–4 weeks from the onset of the disease, and their comparison with data on the effectiveness of such measures several years after the onset of stroke. Knowledge of such features will contribute to the improvement of the corresponding rehabilitation measures and expand the understanding of the rehabilitation processes in general. It is

required to study the impact of various risk factors for stroke on the effectiveness of the recovery process.

PURPOSE OF THE STUDY

To assess the outcomes of cerebral strokes after a comprehensive treatment and rehabilitation complex in the early recovery period.

MATERIALS AND RESEARCH METHODS

The study involved 150 patients who were treated in the neurological department of the Bukhara branch of the Republican Scientific Center for Emergency Medical Aid in the early period of stroke (2–4 weeks after the stroke).

Among them there were 73 men (48.7%), women - 77 (51.3%) aged 39 to 73 years. Of these, 5 (3.3%) were 30–39 years old, 36 (24.0%) were 40–49 years old, 72 (48.0%) were 50–59 years old, and 34 (22.7%).

There were 75 patients of young working age, i.e. 50.0% of all examined patients. In terms of social status: 40.7% (61 people) labor activity is associated with intellectual and mental work. Patients were admitted to the sanatorium and were initially examined by us in the following periods from the onset of the disease: from 11 to 28 days, on average - 17 days.

The complex of examination of patients admitted to the rehabilitation department included a general examination, a study of the neurological status, testing using scales and tests: the Barthel scale, the NIHSS scale, the Motrisite index, and the Rivermead Motoric Assessment test. The patients were examined and evaluated by an occupational therapist and exercise therapy instructor. All underwent a clinical blood test, general urine analysis, electrocardiography (ECG), biochemical blood test. In the acute period of the disease, 72 patients underwent magnetic resonance imaging (MRI) of the brain. During treatment (24 days), patients were tested according to this algorithm on days 1–2 and on the 23rd day of stay.

RESULTS

The study included patients with various types of stroke: with ischemic stroke - 90 (60.0%) and transient ischemic attack (TIA) - 51 (34.0%). The hemorrhagic nature of the lesion was observed in 9 (6.0%) patients. The distribution of patients by stroke subtype is presented as follows: atherothrombotic - 5 (3.3%), hemodynamic - 48 (32.0%), cardioembolic - 12 (8.0%), lacunar stroke against the background of hypertension - 58 (38.7%), hemorheological - 17 (11, 3%), hemorrhage against the background of a sharp increase in blood pressure (BP) - 9 (6.0%). Among the comorbidities, arterial hypertension of moderate severity (160–170 / 100–110 mm Hg) was noted. Heart rhythm disturbances were noted in the form of a permanent (15 people) or paroxysmal form (19 people) atrial fibrillation. Diabetes mellitus was in 30 patients, non-insulin dependent in the stage of compensation-subcompensation.

Initially, based on the indicators of clinical neurological examination, all 150 patients were divided according to the severity of the disease into 3 groups: mild severity (n = 73) - 48.7%, moderate-severe severity (n = 64) - 42.7 % and severe severity (n = 13) - 8.7%.

The severity of neurological symptoms upon admission of patients to the rehabilitation department is presented in Table 1.

Table 1. Syndromes and their severity

Clinical syndrome and its severity		n	%
Mild severity	No focal symptoms	51	34,0%
	Reflex hemiparesis	6	4,0%
	Hemiparesis	9	6,0%
	Coordinating violations	11	7,3%
Moderate degree	Hemiparesis	54	36,0%
	Coordinating violations	9	6,0%
Severe degree	Hemiparesis with plegia of the upper limb	10	6,7%
Total		150	100,0%
Of these, speech disorder was observed		22	14,7%

Based on the data of neurological examination and somatic status, a plan of rehabilitation measures was drawn up for each patient. In the rehabilitation department, patients received a standard course of rehabilitation treatment for 24 days, including drug therapy and non-drug drugs.

Among the medications, the following groups of drugs were used: vasoactive drugs, antiplatelet agents, antioxidants, neuroprotectors, nootropics, vitamins, sedatives, antidepressants.

The selection of drugs for the treatment of arterial hypertension of various pharmacological groups was carried

out: angiotensin-converting enzyme inhibitors, beta-blockers, calcium channel blockers, diuretics.

Non-drug treatments included: regimen, diet therapy, physiotherapy with extensive use of physical factors. Kinesitherapy was performed.

Upon completion of the rehabilitation course, the treatment results were assessed according to the severity of the neurological deficit at the time of discharge, changes in the degree of disability, and the state of psychological status. The results of rehabilitation treatment were assessed as significant improvement, improvement, no effect and deterioration.

All patients used rating scales at admission and at the time of discharge. Neurological deficits were assessed using the NIHSS scale, the Rivermead Motor Assessment test, the Motrisite index, and the Barthel scale. When assessing the entire research group as a whole, the changes in the scales in the averaged variant were not very indicative, the dynamics of indicators was insignificant and corresponded mainly to mild motor disorders.

A modified Rankin scale was used to assess the degree of disability. According to the absolute number, all patients were divided as follows (Table 2).

Table 2. Distribution of the number of patients studied (n) according to the Rankin scale indicators at the beginning and at the end of treatment

Scale indicator	0	1	2	3	4	5	Total
Number of patients before treatment (error of representativeness 0.07)	0	63	49	27	11	0	150
Number of patients at the end of treatment (error of representativeness 0.06)	28	77	30	11	4	0	150

However, when randomizing patients with dividing them into groups according to the severity of neurological deficit, the extent of the pathological focus and somatic status, distribution by age, gender and social status, the sensitivity of the scales increased.

Table 3 shows the dynamics according to rating scales when dividing patients into severity groups.

Table 3. Average indicators for various rating scales for three groups, differing in the severity of the disease, in points (M ± σ) (p <0.05)

Scales	Mild severity, n = 73		Moderate to severe severity n = 64		Severe severity, n = 13	
	Before	after	before	After	before	after
Barthel	97,1±0,5	97,3±1,7	73,5±1,2	80,7±1,1	42,8±0,9	50,1±2,1
Rivermead	36,4±0,2	36,8±0,4	20,8±0,6	25,1±0,6	6,5±0,1	10,2±0,8
NIHSS	1,8±0,6	0,8±0,1	5,7±0,6	3,9±0,5	13,7±0,4	9,5±0,7
Motrisite	287,4±2,8	287,1±3,7	217,7±3,4	234,6±3,2	100,4±3,9	116,7±6,7
Rankin	1,8±0,4	0,7±0,7	2,4±0,6	1,5±0,6	3,6±0,3	3,7±0,2

As you can see from the table. 3, when all patients were divided into randomized groups, the dynamics on the scales increased significantly. The difference between the indicators before and after treatment according to rating scales for patients in the group of severe severity increased significantly. Subsequently, the dynamics was assessed by dividing patients into groups according to the severity of the disease.

CONCLUSION

Thus, the outcome of the disease and the success of rehabilitation measures in the early recovery period of stroke (2–4 weeks from the onset of the disease) is determined by the presence of predictors of a positive prognosis of stroke.

Predictors of a positive prognosis of cerebral stroke are young age, mild or moderate neurological deficit at the onset of the disease, absence or stabilization of concomitant somatic pathology.

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