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ASSESSMENT OF THE EFFECTIVENESS OF EARLY REHABILITATION MEASURES FOR ISCHEMIC STROKE WITH DIABETES MELLITUS

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Таянч сўзлар: инсульт, реабилитация, ипидакрин, тикланиш даври.
Ключевые слова: инсульт, реабилитация, ипидакрин, восстановительный период.

Vascular diseases of the brain continue to be a major medical and social problem. According to WHO, about 5 million people die each year from cerebrovascular diseases. About 80% of patients who suffer a stroke become disabled, of whom 10% become severely disabled and require constant nursing care. Only 10% of strokes end in full recovery within the first weeks of illness.

ҚАНДЛИ ДИАБЕТ ФОНИДА ИШЕМИК ИНСУЛЬТДА ЭРТА РЕАБИЛИТАЦИЯ ЧОРАЛАРИ САМАРАДОРЛИГИНИНГ АҲАМИЯТИНИ БАҲОЛАШ

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Миянинг қон томир касалликлари асосий тиббий ва ижтимоий муаммо бўлиб, ЖССТ маълумотларига кўра, ҳар йили цереброваскуляр касалликлардан 5 миллионга яқин одам вафот этади. Қон томирига чалинган беморларнинг тахминан 80% ногирон бўлиб, улардан 10% оғир ногирон бўлиб қолади ва доимий парваришни талаб қилади. Фақат 10% қон томирлари ва касалликнинг биринчи ҳафталарида тўлиқ тикланиши мумкин.

ОЦЕНКА ЗНАЧИМОСТИ ЭФФЕКТИВНОСТИ РАННИХ РЕАБИЛИТАЦИОННЫХ МЕРОПРИЯТИЙ ПРИ ИШЕМИЧЕСКОМ ИНСУЛЬТЕ НА ФОНЕ САХАРНОГО ДИАБЕТА

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Сосудистые заболевания головного мозга продолжают оставаться важнейшей медико–социальной проблемой. По данным ВОЗ, ежегодно от цереброваскулярных заболеваний умирают около 5 млн. человек. Около 80% больных, перенесших инсульт, становятся инвалидами, из них 10% – тяжелыми, и нуждаются в постоянной посторонней помощи. Только 10% инсультов заканчиваются полным восстановлением нарушенных функций уже в первые недели заболевания.

Relevance. Stroke is one of the main causes of permanent disability, averaging 56-81%. After a stroke, more than 15% of patients will need constant care. Among the types of acute circulatory disorders in the brain, ischemic stroke accounts for 65-75%, hemorrhage (including subarachnoid) - 15-20% and transient circulatory disorders in the brain - 10-15%. The incidence of strokes in adults aged 50-55 years increases 1.8-2.0 times every ten years. Today, there is a growing need to expand the types of medical rehabilitation and apply modern methods [1,9].

In Uzbekistan, there are 60,000 strokes a year, 5,000 a month, 166.6 strokes a day and 6.9 strokes per hour, of which 30-40% are fatal and more than 50% are disabled. In patients who have had a stroke, disability of varying degrees reaches 80%. Disability is not as high in any acutely developing disease. This means that these patients will need to be returned to a normal life system. A number of specialists in this area, including rehabilitation specialists, neurologists, psychologists, speech therapists, therapists, are involved (Ibodullaev Z.R.).

Based on the results of today's comprehensive (SHINE) study, patients with type II advanced DM 2 have a systemic character. The patient develops micro and macroangiopathies in the venules, arterioles, heart capillaries, brain, kidneys, upper and lower limbs, retina [2]. When acute circulatory disorders in the brain occur in the background of diabetes mellitus, the state of glycemia is influenced by risk factors for the dynamics of neurological status. The mean stroke development in patients is 6.9 ± 5.2 years [3]. There are opinions that very early rehabilitation plays an important role in the prevention of many organ system complications associated with inactivity, namely respiratory system pneumonia, atelectasis, circulatory disorders deep vein thrombosis, pulmonary artery embolism, immunosuppression, bed sores and muscle atrophy. There are views on the activation of regenerative processes to reduce the risk of mood swings, prevent stroke-related complications [4].

In the acute period of a stroke from the first day the patient's condition and passive move-

ments can be recommended. During treatment, the patient's condition is important, and the muscles prone to spastic contracture should be as stretched as possible and the attachment points of their antagonists should be close together.

Discomfort, pain, and other complaints are transferred to another state when they occur. During treatment during the day it is prescribed to change the patient's condition every 1.5-2 hours.

Therapeutic exercises Inactive therapeutic exercises on the paralyzed side, especially with the help of an instructor, alleviate the situation. Active and inactive exercises with separate parts of healthy and injured arms and legs include movements such as relaxation, breathing exercises, and changing body position in bed mode [5,7].

Research objective: to study and evaluate the different aspects of early rehabilitation treatments with diabetes mellitus in ischemic stroke and in non-diabetic cases.

Material and methods: results of examination and analysis of 150 patients diagnosed with acute cerebrovascular accident, ischemic type in the Bukhara branch of the Republican Scientific Center of Emergency Care, emergency neurology and neuroreanimation in 2020-2021 to address the scientific goals and objectives of our research. provided. Patients with ischemic stroke on the background of diabetes mellitus Group I (Basic) (BG) consisted of 80 patients, the ratio of women to men was 1: 1.1 and the average age was 62.3 ± 6.2, group II (control) (CG) 70 individuals with no history of diabetes mellitus and examinations, with a sex ratio of 1: 2.5 with a predominance of women and men, and an average age of 61.2 ± 6.9.

Result and discussion: Patients in both groups were provided with first aid and therapeutic exercises were recommended in conjunction with standard treatment procedures. Patient status was assessed on days 1-2 and 7-10 of the study, using Bartel, NIHSS, and MRS (medical research council scale) scales.

Ultrasound brachiocephalic artery duplex scanning (USDS) and brachiocephalic angiography examination methods

Brachiocephalic arteries USDS examination BG n = 49, 61.25 ± 6.96%, CG n = 57, 81.4 ± 5.15 patients, angiography examination n = 23, 28.75 ± 9.44% and CG n = 12, 17.1 ± 10.88% were performed in patients. Obstacles to cerebral blood flow using brachiocephalic arteries USDS and angiography methods were studied and compared with clinical signs of changes in blood flow velocity and possible consequences.

1 table.

Indications for stenosis of the brachiocephalic arteries by ultrasound duplex scanning and angiography.

Vessels		Basic group			Control group		
		n	%	M	n	%	M
Arteria carotis communis	right	30	41,7	14,7±3,1	27	39,1	14,43±2,4
	left	24	33,3	11,6±2,7	17	24,6	7,61±1,79
Arteria carotis externa	right	7	9,7	2,4±1,4	3	4,3	1,97±1,18
	left	8	11,1	2,9±1,4	4	5,8	1,68±0,84
Arteria carotis interna	right	11	15,3	5,6±2,2	11	15,9	5,45±1,6
	left	10	13,9	3,6±1,6	8	11,6	4,16±1,49
Arteria vertebralis	right	5	6,9	5,6±2,2	3	4,3	1,3±0,84
	left	4	5,6	3,6±1,6	4	5,8	1,5±0,76

The degree of stenosis of the brachiocephalic arteries was examined by ultrasound duplex scanning and angiography. 11.6 ± 2.7 cases were observed in the control group, 39.1% in the right-sided group, 14.43 ± 2.4% in the right-hand group (27/69), and 24.6% (17/69) in the left-hand group. 61 ± 1.79%. In both groups, it can be observed that the stenosis is mainly located in the common carotid arteries. There are also cases of stenosis in the external and internal carotid arteries and spinal arteries, the results of which are presented in Table 1.

BG stenosis was not detected - 36.1%, mild - 15.3%, moderate - 27.8%, severe - 16.7%, critical stenosis - 4.2% of patients with no occlusion. CG stenosis was not detected - 49.3%, mild - 13.0%, moderate - 23.2%, severe - 13.0%, critical -14.5% and occlusion cases were not detected (2 table).

MRI examination was performed in 7 patients in the main group and 8 patients in the control group, in 73 patients in the main group and in 62 patients in the control group. In the main group, where ischemic stroke was detected by MSCT, n = 43 lesion size was 2.76x1.99 ± 0.22 cm, n = 32 density was 20.0 ± 3.82 ED, and in the control group, the lesion size was 2.98x2.08 ± 2.59. cm², density 20.19 ± 3.77 ED.

2 table.

Indicator	Basic group		Control group		
	n	M±m	n	M±m	p
Subatrophy	58	72,5±4,99	41	58,6±5,9	(p>0,01)
Atrophy	12	15±3,99	8	11,4±3,8	(p>0,001)
Vascularencephalopathy	76	95±2,44	63	90±3,8	(p>0,01)
Strokeischemia	45	56,25±5,5	32	45,7±5,9	(p>0,001)

Indications for MRI and MSCT examinations.

Cerebral subatrophy BG (58/80) 72.5 ± 4.99%, CG (41/70) 58.6 ± 5.9%, atrophy BG (12/80) 15 ± 3.99%, CG (8 \ 70) 11.4 ± 3.8%, vascular encephalopathy BG (76/80), 95 ± 2.44%, CG (63/70), 90 ± 3.8%, intracranial hypertension BG (27 \ 80) 33.75 ± 5.29%, CG (23/70) 32.8 ± 5.6% (tab-2). Diagnosis of ischemic stroke In the cases of BG (45/80) 56.25 ± 5.5%, CG (32/70), 45.7 ± 5.9% was observed foci of ischemia, in the remaining patients penumbra formation lasted 8 -24 hours at the expense of, the investigation is explained by the presence of penumbra formation over time.

MRI and MSCT examinations showed that the localization of the ischemic lesion BG was mostly located in the middle and anterior cerebral arteries CG, mainly in the middle, posterior, and vertebrobasilar circulatory basins.

If we look at the diagram above, in both groups the focus of stroke was mainly left cerebral BG 45.2 ± 5.56%, CG 43.8 ± 5.93%, and in the basin of the right midbrain arteries BG 23.8 ± 4.76, CG 28, It can be observed that it is located in 1 ± 5.37% of cases. BG-16.6%, CG-6.3% in the anterior cerebral artery basin, BG-11.9% in the spinal artery basin, CG-15.7% and BG 2.4 ± 1.7% in the vertebrobasilar circulatory basin, CG was found to have an ischemic lesion in 6.3 ± 2.9% of cases (Fig. 2). Indications were shown for patients with ischemic hearth disease compared to BG (42/80) and CG (32/70). The greater incidence of subartopia, atrophy, and vascular enceph-alopathy detected in MRI and MSCT in the main group was interpreted as a complication of DM, a directly related disease.

3 table.

Indicator	BG(n=80)	CG (n=70)	p
	M±m	M±m	
Urea 1-2 days	8,56±0,45	7,04±0,32	(p>0,01)
Urea 7-10 days	6,89±0,29	6,18±0,27	(p>0,05)
Creatinine 1-2 days	117,1±4,15	97,66±3,65	(p>0,05)
Creatinine 7-10 days	101,01±2,87	89,79±2,99	(p>0,001)
Glucose 1-2 days	10,23±0,39	6,23±0,27	(p>0,01)
Glucose 3-4 days	8,95±0,32	5,12±0,08	(p>0,05)
Glucose 5-6 days	8,4±0,29	4,76±0,07	(p>0,001)
Glucose 7-8 days	7,36±0,19	5,62±0,05	(p>0,05)

Results of dynamic comparison of blood biochemical analysis.

The dynamics of the results of blood biochemical analysis are given in Table 3, the total amount of bilirubin BG n = 15, 17.36 ± 0.34, bound 4.06 ± 0.22, CG n = 12, total bilirubin 17.49 ± 0.61, The bond is 4.15 ± 0.43. ALT BG n = 18, 31.8 ± 2.14 n = 13, 30.3 ± 4.9 and AST BG 27.6 ± 1.4, CG 26.5 ± 3.2, and among these indicators the difference is not detected. The amount of urea in the blood BG was 8.56 ± 0.45 at the beginning of the study, 6.89 ± 0.29 at the end of the study, and 6.89 ± 0.29 after the initial CG, 6.18 ± 0.27, and the amount of keratin was 117.1 before BG. ± 4.15, then 101.01 ± 2.87 and CG first 97.66 ± 3.65, then 89.79 ± 2.99 mmol \ l.

Psychological rehabilitation was performed in the following group of patients on the basis of rational psychotherapy, emotional psychotherapy and psychological conversation methods, respec-tively. In both groups, the majority of patients underwent psychological rehabilitation through psy-

chological interviews. The method of psychological conversation has been widely used due to the relative abundance of symptoms of BG circulatory and diabetic encephalopathy, the high level of anxiety in patients.

Psychological conversation style in the main group n = 62, 77.5 ± 4.6%, in the control group n = 43, 61.4 ± 5.45%, rational psychotherapy BG n = 10, 12.5 ± 1.46%, CG n = 20, 28.6 ± 3.45%, and the method of emotional psychotherapy was used in BG n = 8, 10 ± 1.19%, n = 7, 10.0 ± 1.36%. Therapeutic exercise is one of the most important areas of early rehabilitation. In the study groups, inactive therapeutic exercises and breathing gymnastics exercises that could be used in the acute period of ischemic stroke and were not contraindicated for the use of DM were recommended. Initiation of therapeutic exercises was started when the patient's consciousness, blood sugar, PLR and BSP test results were taken into account, and the treatment was started when there were proportional indicators. Delays that occurred in the study groups due to circumstances that prevented the initiation of therapeutic exercises were noted and studied across the groups. Therapeutic exercise normalizes neurodynamic processes and accelerates recovery by creating a stream of impulses that tend to the center and escape from the center as a result of slow and active movements.

Therapeutic exercise generalizes the passage of sensory and motor impulses in the affected arms and legs, improves blood circulation, normalizes weakened muscle activity, prevents the formation of joint contractures and restores movement coordination. The use of therapeutic physical exercise prevents the occurrence of inflammatory diseases of the lungs, bed sores and constipation.

The most common cause of delayed onset of inactive gymnastics was pain syndrome, which was observed in cases of positive BSP test results and blood glucose levels above 13 mmol / l in the main group, and inactive gymnastics was continued in patients with impaired consciousness. Delays in BG were observed to be higher than CG.

Inactive gymnastic exercises for 3-5 days BG n = 41, 51.3 ± 5.6%, CG n = 25, 35.7 ± 5.7%, 6-7 days BG n = 29, 36.3 ± 5 , 4, CG n = 36, 51.4 ± 6.0%, and more than 8 days BG n = 10, 12.5 ± 3.7%, CG n = 9, 12.9 ± 4.0% . Exercise lasted 3-5 days in most cases due to delays in BG, while 6 -7 days in most cases in CG.

Anxiety Low anxiety on the Taylor scale BG n = 1, 1.3 ± 1.2% before psychological rehabilitation, CG n = 3, 4.3 ± 2.4%, BG n = 3, 3.8 ± after rehabilitation 2.1%, CG n = 6, 8.6 ± 3.3%, moderate to low anxiety at initial examination BG n = 16, 20.0 ± 4.5, CG n = 20, 28.6 ± 5.4 %, in the next study BG n = 28, 35.0 ± 5.3%, CG n = 46, 65.7 ± 5.7%, moderate to high anxiety before BG n = 53, 66.3 ± 5.3% , CG n = 45, 56.3 ± 5.5% after psychological rehabilitation, BG n = 39, 55.7 ± 5.9%, CG n = 17 24.3 ± 5.1%. High anxiety first BG n = 7, 8.8 ± 3.2%, then n = 5 6, 3 ± 2.7%, CG first n = 8, 11.4 ± 3.8% after psychological rehabilitation n = 1, 1.4 ± 1.4%, very high anxiety BG was detected in the initial examination at n = 3, 3.8 ± 2.1%, not detected after psychological rehabilitation, very high anxiety in CG was detected in the initial and subsequent examinations.Physiotherapeutic treatments play an important role in many diseases, including ischemic stroke rehabilitation. While the acute phase of the disease is a contraindication to several types of physiotherapy, DM and its complications are also contraindications to physiotherapy in many cases. Electrostimulation and low-frequency magnetotherapy methods were selected and physiotherapy procedures were performed using them. Physiotherapeutic treatments Magneter AMT-02 low frequency magnetotherapy apparatus frequency 50 +/- 0,5 Gts, magnetic field 30 +/- 7,5) mTl width, treatment duration 10 minutes, electrostimulation Electrostimulator Frequency modulation using Transair 05 apparatus 30 Gts, modulation 50%, duration “2:3”, patient current 20 mA, treatment duration 15 minutes.

Physiotherapeutic treatments 1-2 days BG n = 55, 68.8 ± 5.2%, n = 56, 80 ± 4.8%, 3-4 days BG n = 19, 23.8 ± 4.8%, CG n = 10, 14 ± 4.2%, and after 5 days BG was observed in n = 6, 7.5 ± 2.9%, CG n = 4, 6 ± 2.8%. Delays in initiating physiotherapeutic procedures in the main group were caused by DM complications such as comorbidities and hyperglycemia, which in turn led to an increase in the duration and effectiveness of the early rehabilitation process. Magnetotherapy treatment 3-5 days BG n = 34, 42.5 ± 5.5%, CG n = 21.30 ± 5.5%, 6-7 days BG n = 33, 41.3 ± 5.5% , CG n = 35, 50 ± 6.0%, and BG n = 13, 16.3 ± 4.1%, CG n = 14, 20 ± 4.8% in 8 days or more (Table 3)).

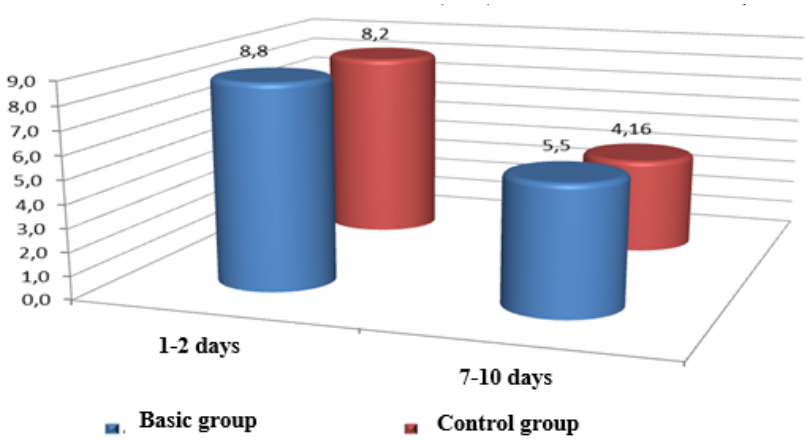
Electrostimulation treatment for 3-5 days BG n- 28, 45.9 ± 5.5%, CG n = 17, 29.3 ± 4.2% and for 6-7 days BG n = 27 44.3 ± 5.4 %, CG n = 31, 53.4 ± 6.3% and in patients with BG n = 6,

9.8 ± 1.5%, CG n = 10, 17.2 ± 2.7% for 8 days or more conducted (Table 3). No electrostimulation procedures were performed in 19 patients with BG and 12 patients with CG due to contraindications. It was observed that both groups underwent the same procedure and in the near future, or 20 mA, the duration of the treatment was 15 minutes.

The Bartel scale was assessed at 24–48 h of hospitalization and after completion of treatment and early rehabilitation measures in the emergency neurology department.

It was assessed on the Bartel scale in the form of mild paralysis, moderate paralysis, and severe paralysis, and on the basis of changes in the dynamics of the mean on BG and CG. According to the results of the Bartel scale, the initial indicators of severe paralysis were BG (30/80), 37.5 ± 5.4%, subsequent dynamic indicators (14/80), 17.5 ± 4.2%, first CG (15/70), 21.4 ± 4.9%, after treatment and rehabilitation measures (5 \ 70), in 7.1 ± 3.1% of cases, moderate paralysis BG initially (47/80), 58.8 ± 5.5% , followed by (34 \ 80), 42.5 ± 5.5%, CG before (46 \ 70), 65.7 ± 5.7%, then 32.9 ± 5.6%, and mild paralysis BG treatments before (3 \ 80), 3.8 ± 2.1%, then (32 \ 80), 40 ± 5.5%, CG before (9 \ 70), 12.9 ± 4%, at the end of the study (42 \ 70) was observed to be 60 ± 5.9% (p> 0.01) (Table 4). Symptoms of severe paralysis are more common in BG patients, and mild to moderate paralysis is more common in CG patients.

Patients on the NIHSS scale were examined in the early days and at the end of hospitalization and compared between groups to assess the dynamics of the patient's condition.



1 figure. NIHSS scale average performance dynamics.

The mean BG on the NIHSS scale at the beginning of the study was 8.8 ± 0.36, at the end of the study it was 5.5 ± 0.29, and at the end of the study CG was 8.2 ± 0.37, and after treatment and rehabilitation it was 4.16 ± 0.29.

Patients whose objective condition was assessed as satisfactory on the NIHSS scale were not observed in either group at the beginning of the ban. Was observed in 2% of cases. Mild neurological disorders at the beginning of the ban BG (33/80), 41.3 ± 5.5%, at the last examination (58/80), 72.5 ± 5%, before CG (36/70) 51.4 ± 6% , then (47/70) was observed in 67.1 ± 5.6% of cases. Moderate neurological insufficiency BG before (39/80) 48.7 ± 6%, after treatment (7/80) 8.8 ± 3.2%, before CG rehabilitation measures (28/70) 40 ± 5.9%, then (5/70), 7.1 ± 3.1% were observed. Severe neurological deficit BG in the initial examination (8/80), 10 ± 3.4%, in the final examination (2/80), 2.5 ± 1.7%, CG before (6/70), 8.8 ± 3 , 2% of patients with severe neurological impairment were not identified after treatment and rehabilitation measures. Patients with severe neurological deficits were not included in the study because no such patients were recorded in the groups before and after the study.

MRS is a rehabilitation scale used to assess the dynamics of recovery of muscle strength and motor activity. Muscle strength in the proximal and distal parts of each limb was assessed separately. Muscle strength was 28.9 ± 0.63 points at the beginning of the study on the MRS scale and 32.3 ± 0.59 points on the CG, and 32.3 ± 0.53 points at the end of the study and 36.8 ± 0.4 points at the CG can be observed to be restored to the score. Based on the NIHSS and MRS scale indicators, the initial indicators of BG showed deeper signs of neurological deficits, with positive changes in the patient population in both groups after treatment and early rehabilitation measures, and recovery was less than in CG patients.

Conclusions:

1. In the course of ischemic stroke and ischemic stroke with diabetes, psychological rehabilitation from the acute phase of the disease can be used therapeutic exercises and physiotherapeutic treatments.

2. Early rehabilitation complex measures stimulate the passage of sensory and motor impulses in the arms and legs, improve blood circulation, normalize weakened muscle activity, prevent the formation of joint contractures and help restore motor coordination.

3. Early rehabilitation treatments calm the patient, reduce anxiety levels, are generally invigorating, and prevent the occurrence of infectious complications in the respiratory system.

4. As a result of the use of complex early rehabilitation measures in the acute period of ischemic stroke is important in the general activation of the patient's body, the elimination of neurological deficiencies and the prevention of secondary complications.

5. In cases of ischemic stroke occurring against the background of diabetes mellitus, the effectiveness of complex early rehabilitation measures is less than in the control group.

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