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APPLICATION OF PHARMACOPUNCTURE IN COMPREHENSIVE REHABILITATION OF PATIENTS IN THE EARLY RECOVERY PERIOD OF CEREBRAL STROKE

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Abstract. The aim of the work is to study the severity and speed of relief of cephalgia, cerebral hemodynamic parameters and cognitive indicators in patients in the early recovery period of cerebral stroke in a placebo-controlled study. 96 patients (57 women and 39 men), whose average age was 62.4±2.9 years, were treated with complaints of headaches, impaired concentration, attention and memory, emotional exhaustion. The study participants were divided into 4 groups: the 1st (n = 25) received a basic treatment complex supplemented with pharmacopuncture Cerebrum compositum ; 2nd (n = 24) - basic complex and pharmacopuncture Placenta compositum ; 3rd (n = 24) - the basic complex in combination with pharmacopuncture of physiological solution (placebo); in the 4th (n = 23) only the basic treatment complex was used. The examination included an assessment of cognitive functions on the Mini - Mental scale State Examination (1975), pain syndrome on a visual analogue scale (1986), ultrasound duplex scanning of extracranial sections of the main arteries of the head (device Logic -400, USA). In the dynamics of therapy, patients in groups 1 and 2 showed a more rapid (after the 7th procedure) and pronounced (by 4.5 and 3.8 times by the 15th day of observation, respectively) decrease in the intensity of cephalgic syndrome than in groups 3 and 4. The best results were found in patients in group 1, where the treatment complex was supplemented with pharmacopuncture Cerebrum compositum . In patients of groups 1 and 2, an increase in the volumetric blood flow rate by 1.3 times was detected, the parameters of the resistance index decreased by 1.2 and 1.3 times, respectively, the pulsatory index - by 1.3 times, which significantly differed from similar values in groups 3 and 4. The best results in the parameters of cerebral hemocirculation were achieved using pharmacopuncture of the Placenta preparation compositum , while positive changes in cognitive indicators - Cerebrum composite .

Key words: Ischemic stroke, pharmacopuncture, cephalgia, memory, attention, circulation, brain, rehabilitation.

Introduction. In the clinical picture of patients who have suffered an acute cerebrovascular accident, cephalgic headache is detected in 20-65% of cases. syndrome of varying degrees of intensity [1]. Post-stroke headaches can significantly affect the course of the recovery period and, in combination with neurological deficit, emotional-volitional and cognitive impairment, increase the likelihood of developing depressive symptoms, reducing the patient's motivation to participate in rehabilitation activities [2, 3]. The above determines the search for neurorehabilitation methods aimed at adapting patients to the consequences of the disease and improving their quality of life [4, 5]. One of the components of the rehabilitation complex can be pharmacopuncture , the effect of which is mediated by the summation and potentiation of the puncture effect and the drug, the deposition of which in biologically active points (BAP) causes prolonged irritation of the latter with long-term maintenance of

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neuroreflexive and humoral reactions [6, 7]. Due to the presence of side effects and contraindications in a number of medications in the treatment of diseases of the central nervous system, the use of complex drugs such as Cerebrum is becoming relevant composite and placenta compositum [8]. It has been established that Cerebrum compositum is effective in the treatment of encephalopathies of various origins, occurring with cognitive impairment (memory and attention disorders); it promotes the activation of regenerative processes and immunological reactivity [9]. The drug Placenta compositum is used in the initial manifestations of cerebral atherosclerosis due to its identified spasmolytic effect, which improves microhemocirculation processes [10]. Taking into account the presented data, the use of these drugs in the form of pharmacopuncture can be justified in the complex rehabilitation of patients in the recovery period of cerebral stroke.

Materials and methods. Ninety-six patients (57 women and 39 men) aged 50-65 years (mean age 62.4±2.9 years) in the early recovery period of cerebral stroke (the average period after stroke was 3.4±0.5 months) were examined and treated in the inpatient setting of the Research Institute of Rehabilitation and Sports Medicine of the Sam State Medical University in Samarkand. In 57.7% of patients, cerebral ischemia was detected in the left middle cerebral artery basin, 42.3% - in the right middle cerebral artery basin. Of those examined, 77.1% complained of mild headaches, 22.9% - moderate headaches, 86.5% had neurodynamic and regulatory disorders (impaired concentration, memory loss, emotional exhaustion). The inclusion criteria were: early recovery period of acute cerebrovascular accident, verified clinically and by neuroimaging methods (magnetic resonance, computed tomography), the presence of cephalgic syndrome of varying severity. The exclusion criteria from the study were: somatic diseases in the decompensation stage (myocardial infarction, severe heart failure IIb - III functional class, chronic renal failure stage III or higher, respiratory failure stage II - III , diabetes mellitus); the presence of cognitive impairment with a score on the Mini - Mental scale State Examination (MMSE) below 23; pronounced sensorimotor aphasia. All patients signed informed consent to participate in the program, conduct of research, permission was obtained from the local ethics committee. In addition to studying the neurological status, the research methods included assessment of: cognitive functions according to the MMSE scale (1975); pain syndrome according to the visual analog scale - VAS (1986); cerebral circulation according to ultrasound duplex scanning of extracranial sections of the main arteries of the head (Logic -400 device, USA). The basic treatment complex consisted of antioxidants (Cytoflavin , Mexidol), nootropic and neurotrophic drugs (Cerebrolysin , Piracetam), vitamins (B1, B6), low-frequency magnetic therapy on the lesion and therapeutic exercise complexes. Statistical processing of the research data was carried out on a personal computer using the statistical package SPSS 11.5.

Results of the study. All patients were randomly divided into 4 groups: 1st (n = 25) received a basic treatment complex supplemented with pharmacopuncture Cerebrum compositum ; 2nd (n = 24) - basic complex and pharmocopuncture Placenta compositum ; the 3rd (n = 24) - the basic complex in combination with pharmacopuncture of physiological solution (placebo); in the 4th (n = 23) only the basic treatment complex was used. The control group consisted of 20 men and women without clinically significant cerebrovascular diseases, randomized with stroke patients by age and gender. Pharmacopuncture technique the drug was administered into the BAP, having a vasoactive, analgesic effect (VB 20, V 10, VG 16), with an insulin syringe subcutaneously 0.2 ml at one point per procedure, without dilution with physiological solution or anesthetics. The

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frequency of procedures is 3 times a week with a total of 10. The study of clinical manifestations of the disease during treatment showed that the severity and speed of relief of cephalgia in groups of patients with optimized basic treatment were more significant than when using placebo and standard treatment. Thus, in patients in the 1st group after 7 days of treatment, according to VAS, there was a decrease in the severity of cephalgia by 2.1 times from the initial level ($p = 0.0024$), in the 2nd - by 1.8 times ($p = 0.0087$), while in the 3rd and 4th - only by 1.2 times ($p = 0.041$), which reliably lagged behind the indicators of the 1st and 2nd groups by 1.8 ($p = 0.026$) and 1.4 times ($p = 0.032$), respectively. Even more significant changes were recorded in the study groups 2 weeks after the start of treatment: the intensity of the cephalgic syndrome in patients of the 1st group decreased from the initial values by 4.5 times ($p = 0.00012$), in the 2nd group - by 3.8 times ($p = 0.0038$), while in the 3rd and 4th - by 1.9 ($p = 0.0066$) and 1.8 ($p = 0.0084$) times, respectively. It was noteworthy that the greatest changes were observed in patients in the 1st group, where the basic treatment complex was optimized by pharmacopuncture using the complex drug Cerebrum compositum . The study of cerebral hemodynamic parameters during treatment allowed us to speak of positive trends, but only the increase in the volumetric blood flow velocity (Vvol) in the internal carotid artery was statistically significant (Fig. 2). Thus, the volumetric blood flow velocity indicator had an increase in the 1st group by 1.25 times ($p = 0.041$), in the 2nd - by 1.3 times ($p = 0.032$), while in the 3rd - by 1.2 times ($p = 0.067$), and in the 4th - only by 1.1 times ($p = 0.089$). According to the data presented in Fig. 3, 4 data in the studied groups of patients the initial values of the resistance index (IR) in the internal carotid artery exceeded the corresponding control parameters by 1.2 times ($p=0.045$), while the pulsatory index (PI) - by 1.4 times ($p=0.034$). After treatment the IR parameters were as follows: in the 1st group the decrease was 1.2 times ($p=0.048$); in the 2nd - 1.3 times ($p=0.036$), while in the 3rd and 4th - 1.1 times ($p>0.092$). Unidirectional dynamics took place with respect to PI , the indicator of which decreased in the 1st group by 1.25 times ($p=0.04$); in the 2nd - by 1.3 times ($p=0.024$), while in the 3rd and 4th - by 1.1 times ($p>0.05$). According to the data obtained, the greatest impact on cerebral blood flow was exerted by the treatment complex optimized by pharmacopuncture of the complex drug Placenta compositum . When studying the dynamics of cognitive indicators on the MMSE scale , it was found that if initially all the examined patients showed a moderate degree of cognitive deficit, then by the end of the treatment course the results of a brief mental status examination indicated more pronounced positive changes in patients treated using pharmacopuncture of complex drugs. Thus, in patients in groups 1 and 2, an increase in the total score on the MM SE scale was noted by 6.1% (from 24.5 ± 0.8 to 26.0 ± 0.7 points) and 4.5% (from 24.6 ± 0.9 to 25.7 ± 1.1 points) and allowed us to speak about an improvement in cognitive abilities, according to the recommendations of M. Folstein , S. Folstein , P. McHugh (1975) [11]. It was noteworthy that the best results in terms of cognitive indicators were recorded in patients who underwent pharmacopuncture with the drug Cerebrum. compositum . At the same time, in the 3rd and 4th groups of patients, the changes in the MM SE indices were smaller and ranged from 24.4 ± 0.7 and 24.5 ± 0.9 to 24.8 ± 0.6 and 24.9 ± 1.1 points, respectively.

Conclusions . Inclusion of pharmacopuncture of complex preparations Cerebrum in the complex treatment of patients in the early recovery period of cerebral stroke composite and placenta compositum causes a more rapid and significant reduction in the intensity of cephalgic syndrome than in the placebo group and with standard treatment, but the greatest effectiveness is demonstrated by the use of Cerebrum compositum . Optimization of

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treatment of patients in the early recovery period of ischemic stroke by pharmacopuncture of complex preparations Cerebrum composite and placenta compositor promotes correction of cerebral hemodynamic parameters - volumetric blood flow velocity, as well as IR and PI , while pharmacopuncture has a greater influence Placenta compositum . Application of pharmacopuncture of complex preparations Cerebrum composite and placenta compositum has a positive effect on the state of cognitive functions in patients in the early recovery period of cerebral stroke, while the use of Cerebrum compositum has a greater effect than Placenta compositum , corrective effect on cognitive deficit. Thus, the inclusion of pharmacopuncture of complex preparations Cerebrum in the complex treatment of patients in the early recovery period of cerebral stroke composite and placenta compositum causes a rapid and significant decrease in the intensity of cephalgic syndrome, helps to correct the parameters of cerebral hemodynamics, has a positive effect on the state of cognitive functions, which increases the effectiveness of treatment.

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