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APPLICATION OF TRANSCRANIAL MICROPOLARIZATION IN REHABILITATION OF PATIENTS WITH ISCHEMIC STROKE

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Keywords: stroke, trans-cranial micropolarization, motor and cognitive disorders, acute cerebrovascular accident.

Motor disorders are the most frequent and severe consequences of cerebral circulation disorders. Transcranial micropolarization is a highly effective additional treatment method for patients with ischemic stroke, which is reflected, in particular, in a significant acceleration of the regression of motor disorders.

Relevance. Motor disorders are the most frequent and severe consequences of cerebral circulation disorders. The economic consequences of a stroke are extremely severe, as the resulting disorders lead to disability. Despite the obvious progress in studying the pathogenesis of strokes, our understanding of the real compensatory mechanisms of the brain and their capabilities in restoring affected functions remains insufficient. This creates difficulties in the development of modern functional recovery technologies, among which such methods as functional bio-management, non -invasive electro-and magnetic stimulation, transcranial micro polarization are of particular interest. By influencing the neuro dynamic processes in the cerebral cortex, these methods contribute to the development of compensatory brain processes, significantly facilitate and accelerate the rehabilitation process.

Objective: To study the effectiveness of transcranial micropolarization in the rehabilitation of motor and cognitive disorders in patients with acute cerebrovascular accident.

Materials and methods of research: The work was carried out on the basis «of the Neuromed clinic, GKB No. 7. Our study included 50 patients (24 women and 26 men) aged 50-74 years who had suffered an ischemic stroke. The follow-up period was from 2018-2022. The main group included 25 patients with ischemic stroke who received transcranial micro polarization sessions together with standard pharmacotherapy. The main group included: 14 men, mean age-67.1 ± 8.2 years; 11 women, mean age-65 ± 5.6 years. The comparison group included an equal number of patients who received only standard pharmacotherapy. The comparison group included: 12 men, mean age 62.5 ± 6.5 years; 13 women, mean age 63.4 ± 6.9 years. The whole complex of measures was carried out in the early recovery period.

Results: Analysis of subjective symptoms of patients showed a prevalence of complaints of general weakness and weakness in the extremities (96% and 94%, respectively). Also, very often patients complained of dizziness (94%), increased blood pressure (86%) and headaches (82%). Next in frequency were speech disorders, which were more common in the main group (80%) than in the comparison group. 54% of patients complained of sensitivity disorders. 6% of the examined patients had visual impairments. Next, we analyzed the focal clinical symptoms in patients. All cases of ischemic stroke noted in our observations occurred in the carotid basin.

Muscle strength in the paretic limbs in the main group averaged 2.16±0.98 points and

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corresponded to paresis. The severity of paresis in the comparison group was slightly lower than in the main group and averaged 1.96±0.93 points. We evaluated the severity of paresis after the procedures, and the muscle and paresis severity in the main group decreased by almost 2 times and amounted to 1.16±0.74 points, while in the comparison group the difference after treatment decreased by 0.5 points and amounted to 1.46±0.65 points.

We examined the severity of spasticity in the examined patients on the Ashworth scale. The analysis included the results of spasticity assessment only on the affected limbs. In both groups evaluated, muscle tone initially ranged from 1 to 4 points on the Ashworth scale. In the main group, this indicator was slightly higher and averaged 2.68±1.1 points, while in the comparison group, the average score was 2.24±1.04. Treatment measures reduced spasticity compared to the outcome, but the most significant improvement occurred in the main group, where spasticity decreased from 2.68±1.1 points to 1.4±1.5 points, i.e. almost 2 times, while in the comparison group, after the therapy, this indicator decreased to 1.78±0.9.

A modified Fugle-MeyerAssessment scale was used to assess the functional features of upper limb motor disorders, as well as restore the level of daily functioning in the main and comparative groups Fugle-of patients..

After the treatment measures, all patients showed an improvement in the motor function of the affected upper limb to one degree or another. However, patients in the main group showed a significant improvement in comparison with the comparative group.

When evaluating patients on the Fugle-MeyerAssessment scale, improvements were noted in both groups, but there was a significant difference between the main and comparative groups. In the main group, these changes occurred due to an increase in the volume of active movements in the proximal arm. There was also a statistically significant change in the volume of passive movements in the hand. At the same time, only an increase in the volume of passive movements was significant in the comparison group. Initially, in the main group, the FMA score was slightly lower (31.08±2.9 points) than in the comparison group (34.57±3.5). However, after transcranial micropolarization, in the main group, this indicator increased by 10 points and amounted to 41.6±3.8 points, while in the comparison group, the increase was by 3 points and amounted to 37.44±3.8 points. In the main group, the severity of walking disorders was higher (4.36±2.05 points) than in the comparison group (4.04±1.5). After transcranial micropolarization, the degree of impaired walking function in the main group decreased by 2 points and amounted to 2.32±1.07 points, while in the comparison group, the improvement was only 1.16 points and amounted to 2.88±1.3 points.

Conclusions:

1. In the group of patients receiving transcranial micropolarization in addition to standard терарутранскраниальную микрополяризацию, this regression of cognitive impairment was statistically significantly more pronounced.
2. Transcranial micropolarization is a highly effective additional treatment method for patients with ischemic stroke, which is reflected, in particular, in a significant acceleration of the regression of motor disorders.

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