EFFICIENCY OF DRUG THERAPY IN COMPLEX REHABILITATION OF PATIENTS IN LATE RECOVERY PERIOD OF STROKE

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Clinical and neurological studies in 73 patients (44 men and 29 women) with the consequences of ischemic stroke in late recovery period were performed. Dopplerographic and electroencephalographic parameters before and after the rehabilitation measures were examined. In this study, we assessed the therapeutic effect of nootropics in drug rehabilitation with the inclusion of Nootropil and Cavinton Forte in late stroke recovery period.

Keywords: Ischemic stroke, late recovery period, complex drug rehabilitation.

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Introduction

Last decades the incidence of stroke trends to increase. High morbidity rate is noted in the patients of working age and the elderly; there is also a significant rejuvenation of stroke. These circumstances make the importance and significance for the development of network of in-patient (stationary) and out-patient rehabilitation centers, as well as finding the most effective methods of treatment at different stages of rehabilitation after stroke (Hainline et al., 1992; Rakhimdzhanov, 1997; Vereshchagin et al., 1999). The practice shows that the last few decades, the use of medications, designed for prolonged time and having minimal toxicity and good pharmacodynamic properties, is effective and safe in the rehabilitation of patients with consequences of stroke. For these purposes, nootropics are the most frequently used substances that have a positive specific effect on the higher integrative brain function due to direct effect on the metabolism in neurons and increase the stability and plasticity of the nervous system to harmful factors (Kadikov, 1997; Vilenskiy, 1995). Development and introduction of modern medicines open new opportunities to improve the quality of drug therapy in stroke rehabilitation period.

The purpose of our study was to evaluate the clinical efficacy of drug therapy in complex rehabilitation of patients in late recovery period of stroke.

Material and methods

We examined 73 patients in late recovery period of ischemic stroke: 44 (60.3%) men and 29 (39.7%) women. Persons of young age were 19 (26%) and average-aged were 54 (74%) patients. According to the degree of disability, patients were divided into the following disability groups: I group - 6 (8.2%) patient with severe neurological status, II group - 47 (64.4%) patients with moderate deficit of neurological symptoms, and III group - 20 (27.4%) patients with mild degree of neurological disorder. In 32 (43.8%) patients an ischemic focus was located in the left hemisphere of brain, 41 (56.2%) patients were with right hemispheric stroke.

Neurological examination and studies of somatic status were performed in all patients with the consequences of stroke, according to the traditional scheme, which basically focused on subjective symptoms, study of motor, cerebella, speech and cognitive functions, as these post-stroke conditions were limiting normal vital activity of a patient. Based on the application of physical methods of diagnosis and additional paraclinical investigations (computed tomography, Doppler ultrasound of brachycephalic vessels, Transcranial Doppler), we identified a complete topic picture of brain lesion. To assess the functional state of brain in studied patients we used the method of electroencephalography (EEG) on...
the electroencephalograph EEG-8 of firm “Neyrosoft” (Russia) on the standard scheme with monopolar way at rest. Clinical analysis of brain biopotential investigation was carried out taking into account the classification of the types of EEG by (Rakhimdzhanov, 1997). The study of blood flow in brachycephalic arteries by ultrasound dopplerography (USDG) was carried out on ultrasonic dopplerograph “Sonomed-325” (Russia) with computer device “Hewlett Packard” (USA) and recording frequency sensors 2-4 and 8 MHz. All patients were receiving course of rehabilitation in neurological departments of the National Rehabilitation Centre of the Republic of Uzbekistan, Clinical Hospital No.1, and Central Hospital of the Ministry of Internal Affairs of the Republic of Uzbekistan.

**Results and discussion**

Analysis of subjective and objective symptoms showed that more than half of the patients (50.7%), admitted to the rehabilitation center or hospital in the late recovery period of stroke, complained of headaches of varying intensity. Dizziness in this group met in 35 (47.9%) patients, one third from them mainly complained of dizziness system that hardly reduced working activity. Interesting was the fact that a large number of patients with disabilities (90.4%) complained of memory loss from mild to severe degree. Sleep disturbance in this group of patients was observed in 54.8% of cases and manifested itself as early awakening. 53 (72.6%) disabled patients complained of mild to severe degree fatigue symptoms. The most distressing and common symptoms in 84.9% patients on admission to the rehabilitation centre or clinic were complaints of difficulty walking from mild to severe intensity. Along with this, in this group of patients, neurological status was expressed in the form of expressed and moderate motor impairments, which were characterized by hemiparesis with significant decrease in muscle strength, moderate increase in muscle tonus and reduction of superficial and deep sensitivity. When performing active movements, there were limitations in the form of partial assistance; the patients were in need of additional devices. There were also met focal symptoms as Danzig-Kunakov’s symptom (52.1%), central paresis of the VII and XII pairs of cranial nerves (95.9%), manifestations of lip reflex (35.6%), pathological symptoms of Jacobson-Lusk (71.2%) and Marinesku-Radovich (75.3%). As our researches showed, in the late recovery period after the course of complex rehabilitation, which included medication and psychological rehabilitation, as well as individually customized set of physical therapies, massage and kinesotherapy, noted positive changes in clinical and neurological status (Table 1).

<table>
<thead>
<tr>
<th>Table 1. Dynamics of subjective symptoms in disabled patients in late recovery period of stroke</th>
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<tbody>
<tr>
<td>Parameters</td>
</tr>
<tr>
<td>--------------------------------</td>
</tr>
<tr>
<td>Headache</td>
</tr>
<tr>
<td>no</td>
</tr>
<tr>
<td>mild</td>
</tr>
<tr>
<td>moderate</td>
</tr>
<tr>
<td>severe degree</td>
</tr>
<tr>
<td>Dizziness (vertigo)</td>
</tr>
<tr>
<td>no</td>
</tr>
<tr>
<td>mild</td>
</tr>
<tr>
<td>moderate</td>
</tr>
<tr>
<td>severe degree</td>
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<tr>
<td>Memory loss</td>
</tr>
<tr>
<td>no</td>
</tr>
<tr>
<td>mild</td>
</tr>
<tr>
<td>moderate</td>
</tr>
<tr>
<td>severe degree</td>
</tr>
</tbody>
</table>
Parameters | Before rehabilitation measures | After rehabilitation measures
---|---|---
Sleep disorders | | |
no | 33 (45.2%) | 40 (54.8%)*
мild | 24 (32.9%) | 21 (28.8%)
moderate | 14 (19.2%) | 11 (15.1%)*
severe degree | 2 (2.7%) | 1 (1.4%)***
Weakness | | |
no | 20 (27.4%) | 25 (34.2%)*
mild | 25 (34.2%) | 24 (32.9%)
moderate | 23 (31.5%) | 20 (27.4%)*
severe degree | 5 (6.9%) | 4 (5.5%)*
Walking difficulties | | |
no | 11 (15.1%) | 20 (27.4%)***
mild | 26 (35.6%) | 22 (30.1%)
moderate | 26 (35.6%) | 23 (31.5%)
severe degree | 10 (13.7%) | 8 (11%)*

Note: * - indicates significant differences P<0.05; ** - P<0.01; *** - P<0.001.

The table shows that patients with disabilities in the late stroke recovery period on a background of complex rehabilitation with adequate doses of Nootropil (3.6g) and Cavinton-Forte (30 mg) had decrease in the expression of subjective symptoms. Thus, the symptoms of moderately severe and mild headache decreased in 1.2 and 1.3 times, respectively, in comparison with the initial data. Patients with regression of headache symptoms after rehabilitation treatment amounted 58.9%. Severity of vertigo (dizziness) in disabled patients of this group also decreased, mainly for mild and moderate expression of vertigo.

Our study showed that 66 (90.4%) disabled patients had memory loss, which caused certain difficulties in daily life. According to the results of comprehensive rehabilitation treatment, therapeutic effect was in a small group of patients who complained of memory decline. The number of subjects with regression of symptoms of sleep disorders to complete disappearance was 21.2%, whereas the share of persons with disabilities complained of the severity of this symptom decreased 2 times compared with the initial data. In our studies, reduction of such symptom as fatigue was insignificant and accounted to only 25%. Following the complex rehabilitation included optimum medical therapy, advanced kinesotherapy, therapeutic massage, acupuncture and hirudotherapy, 20 (27.4%) patients felt no difficulty in walking.

USDG data on a background of complex rehabilitation showed that in the patients there was observed increase of linear velocity of blood flow through the vessels of carotid and vertebrobasilar basins by 19.3%. Moreover, the hemodynamic parameters in anterior cerebral (ACA) and middle cerebral arteries (MCA) improved by 26.6% and 31.2% from initial values, respectively.

Study of EEG before rehabilitation measures revealed diffusive cerebral changes in the form of reduction of alpha-rhythm, occurrence of dominant low-amplitude, low-frequency beta-activity and prevalence of slow-wave activity (SWA) in the form of disorganized type.

Dynamics of EEG parameters on a background of complex rehabilitation was manifested in the reduction of SWA, consolidation and increase of alpha-index and the amplitude of alpha-rhythm. SWA-index before and after rehabilitation treatment was 40.2 and 24.7 (improvement by 38.5%, P<0.05), respectively. Parameter of alpha-index during rehabilitation process has increased by 46.1%.

**Conclusion**

Studies have revealed positive dynamics of objective neurological parameters in patients in the late recovery period of stroke, which showed a significant decrease in the degree of...
paresis, gradual regression of sensory and coordination disturbances regardless of the initial severity degree of patient state. Thus, the therapeutic effect of various severity degree was observed in 68 (93.1%) patients, including very good effect in 12 (16.4%) patients, good - in 29 (39.7%) and satisfactory - in 27 (37%) patients. Only in 5 patients of I group with rough and persistent hemiparesis and muscle contractures, clinical and neurological status remained unchanged, i.e. there was no therapeutic effect.

References


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