COGNITIVE REHABILITATION OF PATIENTS WITH FOCAL BRAIN DAMAGE

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https://doi.org/10.5281/zenodo.7885717

Abstract One of the important problems of modern neurology is the cognitive impairment caused by focal brain damage in stroke and traumatic brain injury. Cognitive deficit has a negative impact on the quality of life of the patient and his environment, to a large extent hindering the possibility of a full social and professional recovery. Such patients need a comprehensive rehabilitation treatment, including cognitive rehabilitation, motor rehabilitation and drug correction. The use of cerebrolysin, the effectiveness of which in patients after stroke and head injury is confirmed by many studies, is discussed.
Keywords: cognitive rehabilitation, stroke, traumatic brain injury, neuroplasticity, recovery, cerebrolysin.

In the modern world, the problem of managing patients with acute focal brain damage is becoming increasingly relevant. One of the most significant consequences of focal brain damage is the development of cognitive deficits. Emerging disorders lead to a decrease in the quality of life, a violation of a person's domestic, social and professional activity, often to disability and complete dependence on others. Usually, cognitive functions include the following brain functions [1]: complex attention, perception and psychomotor function, learning and memory, speech, thinking, social intelligence [2]. Cognitive impairments can lead to profound limitations affecting daily functional capabilities, professional activities and socialization. Among the leading causes of the development of focal brain damage, stroke and traumatic brain injury (TBI) can be distinguished. Post-stroke cognitive impairment Cerebrovascular diseases are one of the leading causes of mortality and disability of neurological patients. More than 400 thousand new cases of stroke are registered annually, with ischemic stroke taking a leading place. Disability due to stroke is the main cause of primary disability among all causes. Only 8-10% of strokes are caused by the restoration of impaired functions in the first 3 weeks of the disease. More than 1 million people who have suffered a stroke live in Uzbekistan, while 1/3 of them are people of working age, while only 25% return to work[3]. Cognitive impairment is probably the most common consequence of stroke. However, quite different data are given in different studies — from 42 to 96% [4]. Assessment of the cognitive status of patients without impaired consciousness, severe motor, sensory disorders and aphasia in the acute period of stroke showed the presence of disorders of higher mental functions in 68% of cases [5]. At the same time, most researchers note the presence of cognitive deficits in the overwhelming number of patients (more than 90%) [6,7]. According to our study, the frequency of post-stroke cognitive disorders was also 95% [8]. It is worth noting that in about 1/3 of cases, post-stroke cognitive impairment reaches the degree of pronounced disorders, i.e. dementia [9,10]. Like other post-stroke symptoms, cognitive deficits may show spontaneous recovery, but this process is largely time-limited.

With regard to speech functions, it has been shown that 95% of patients reach their peak recovery within 6 weeks — 3 months after a stroke, although spontaneous improvement is possible at a later date [11]. An important feature of post-stroke cognitive disorders is their further progression. According to our data, during the first 6 months after the stroke, an increase was registered from 17.9 to 21.4% in the number of patients with severe cognitive impairment. Despite the fact that the majority (76.8%) of patients had marked improvement or lack of dynamics in cognitive status, 23.2% of cognitive deficits progressed [8]. Dynamic observation by S.V. Verbitskaya et al. [12] showed that if in the acute period of stroke the frequency of severe cognitive impairment was 21%, then after 1 year it increased to 23.2%, after 3 years — to 29.5% and after 5 years — to 34.5%. These data indicate that stroke patients have a significantly higher risk of developing dementia for a sufficiently long time. For 5 years, patients after stroke have a 4-5-fold higher risk of developing dementia compared to that in the population[13]. It is interesting to note the absence of a link between the severity of motor and cognitive deficits in stroke patients. The patient's post-stroke cognitive impairments have a negative impact on all aspects of his life. The results of a prospective study of ASPIRE-S (the Action on Secondary Prevention Interventions and Rehabilitation in Stroke) showed that cognitive impairment after 6 months was independently associated with a deterioration in the quality of life, a decrease in the level of independence, and an increased likelihood of developing depressive symptoms [14]. The state of the cognitive sphere is largely a determining factor in the functional recovery of the patient as a whole [15]. The negative impact of post-stroke cognitive deficit is so significant that it can be considered as an independent risk factor for the development of recurrent stroke [16]. Thus, violations of executive functions or attention led to an increase in the relative risk of stroke by 1.14 times (95% CI 1.06— 1.24), memory disorders — by 1.07 times (95% CI 1.02—1.12), speech disorders — by 1.08 times (95% CI 1.02—1.16) [17]. One of the possible reasons for this effect may be a violation of adherence to the recommendations for secondary prevention of stroke associated with cognitive deficits [18]. It should be noted that by reducing adherence to therapy, cognitive impairments hinder the management of patients with any pathology [19]. Cognitive impairment after TBI Another important cause of the development of acute focal brain damage is TBI. According to the data, for people with TBI, cognitive problems can be the biggest obstacle to returning to a "normal" life. The prevalence of cognitive impairment is quite high and affects most patients. In patients with a concussion, cognitive deficit is noted in 93.75% of cases, with a mild injury — in 90%, with a moderate injury — in 98.6%[20]. According to the researchers, it is the cognitive deficit that is the determining factor in the disability of patients who have undergone TBI. The prevalence of cognitive impairment in TBI is significantly higher than other neurological symptoms [21, 22]. At the same time, neuropsychological disorders associated with TBI are characterized by relative resistance, and recovery can last up to 12 months [23]. By their structure, neuropsychological disorders associated with TBI include attention disorders and neurodynamic disorders, which are noted with varying severity of damage. With moderate and severe TBI, cognitive disorders corresponding to the localization of the lesion are certainly associated, but even after severe TBI, disorders associated with diffuse brain damage are the most characteristic [24]. Aphasia and apraxia In the management of patients with focal brain lesions, in most cases, attention is paid to individual disorders of higher mental functions. The speech function provides for the possibility of communication, communication between people, and its violation always

becomes dominant in the neuropsychological syndrome. Aphasia syndromes usually occur as a result of damage to the dominant hemisphere of the brain. Aphasia affects up to 38% of stroke survivors[25]. Aphasia causes serious restrictions in communication and social life and can be the reason for the inability to restore working capacity and the development of social isolation. The severity of aphasia, impaired social activity, and the emotional stress associated with it significantly negatively affect the quality of life of patients with aphasia [26]. A population-based study of the impact of 60 diseases and 15 syndromes on the quality of life of caregivers was undertaken in Canada. The results showed that the highest negative association was with aphasia, followed by cancer and Alzheimer's disease[27]. The resulting aphasia has a negative impact not only on the life of the patient himself, but also on his immediate environment. Caregivers of patients with aphasia significantly more often note depressive symptoms, a decrease in the quality of life and social functioning [28]. Clinically, aphasia improves significantly during the first 2 weeks after a stroke. In the future, the rate of recovery decreases somewhat, but for about the next 12 months, aphasia can significantly regress. In all cases, an early start of therapy is possible to achieve maximum results. The restoration of speech functions occurs due to the activation of intact parts of the dominant hemisphere. At the same time, the non-dominant hemisphere plays an important role during recovery after aphasia, which is associated with the development of plasticity mechanisms [29]. It should be noted that today the presence of aphasia in the patient is obvious, the diagnosis of aphasic syndromes is at a fairly high level and the need for rehabilitation measures for patients with aphasia is beyond doubt. At the same time, a number of other disorders of higher mental functions are not so obvious and, accordingly, need additional assessment by doctors. An example of this is apraxia. In the case of a combination with speech disorders, the patient is unable to file appropriate complaints. Patients with apraxia often do not realize the presence of a deficit and, accordingly, do not complain. The presence of motor disorders prevents the diagnosis of this symptom, and there is a misconception that the restoration of the motor sphere automatically entails regression of apractic manifestations. Although the implementation of rehabilitation measures aimed at correcting this defect is necessary and largely contributes to improving the quality of life in the future. Currently, the restoration of cognitive disorders is approached from the position of a comprehensive impact: — restorative training; — some approaches to motor therapy; — drug correction. Cognitive neurorehabilitation The main goal of any rehabilitation intervention is maximum functional recovery, independence of the patient, restoration of working capacity and improvement of quality of life.

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