

## **Prevention and Treatment of Cognitive Dysfunctions in Patients with Discirculatory Encephalopathy**

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In the 60s of the last century, the terminology "discirculatory encephalopathy" was proposed, which is defined as a progressive disease that conducts cerebral circulation leading to a gradual deterioration in brain function. Irreversible lesions of the brain parenchyma, against the background of various multifactorial causes, lead to degeneration of brain structures, and subsequently to severe cognitive disorders. DE combines neurological, neuropsychological and mental disorders, in contrast to the term "chronic cerebral ischemia", which assumes the presence of one mechanism of damage (l). At one time, cognitive impairments are field-etiological conditions characterized by a decrease in memory and mental performance, with the allocation of a certain level of impairment from mild to severe (dementia or dementia) (k). According to statistics, among neurological patients, moderate cognitive impairment occurs in about 45%. And if mild and moderate disorders can be restored or stabilized to some extent, then dementia is such a pronounced persistent process that interferes not only with social and professional activity, but is characterized by irreversible signs (l). On average, up to 7.5 million new cases of dementia are reported annually, each of which becomes a heavy burden on society. The incidence of dementia increases with age, respectively, an increase in life expectancy, in parallel, increases the numbers of cognitive impairment. In addition, the disease is often combined with many somatic diseases. Therefore, cognitive impairment is an interdisciplinary problem for many specialists and remains relevant, both for establishing a diagnosis and for developing the principles of a modern approach to the rehabilitation of DE patients with cognitive dysfunction.

**Purpose.** To study the quality of life in patients with discirculatory encephalopathy and evaluate the effectiveness of the proposed therapy.

**Material and research methods.** On the basis of the neurological department of the 1-Clinic of SamMI, 64 patients aged 50-76 years (17 men, 47 women) were examined. The inclusion criterion was patients with cognitive impairments of varying degrees, the exclusion criterion was

patients with stroke, hereditary degenerative diseases, with the consequence of traumatic brain injury, congenital mental retardation. For the reliability of the results of the study, in addition to the main group, a comparison group of 10 relatively healthy individuals was selected for control, the average age was  $60 \pm 2$  years. All patients underwent a standard neurological, therapeutic examination. The function of cognitive impairment was assessed using the MMSE scale, Rankin scale, Schulte table. In accordance with this goal, the assessment of the quality of life was determined using the SF-36 questionnaire, which consisted of 6 scales and 36 points, where the indicators vary from 0 to 100. A high indicator indicates a high level of quality of life. Neuroimaging is an important diagnostic criterion, all patients underwent MRI of the brain, most of them were repeated in the course of treatment. In some cases, if necessary, in a hospital setting, the generally accepted methods of EEG and USDG examination were used. Statistical data were carried out by computer processing and study of research analysis according to Student's criteria on an individual computer.

**Research result.** Complaints upon admission to the main group, for increased pressure; when analyzing arterial hypertension, the duration of the disease, the regularity of pressure jumps and the effectiveness of hypertensive therapy, the number of patients with arterial hypertension-51 were taken into account. In addition, complaints about memory loss, difficulty concentrating (for example, when watching a movie, does not remember faces, does not understand the plot of the film); difficulty in switching attention during a conversation or any activity (Fig. 1). Subjective complaints of recurrent dizziness, poor sleep, “tearful” mood were observed in all patients of the main group. During the neurological examination, clinical syndromes were formed. Pyramidal signs in 62%, in the form of a difference in tendon reflexes of the left and right sides; indistinct pathological reflexes (Babinsky in 12%), the difference in strength in the left and right sides in 69%. Vestibulo-atactic syndrome was found in 94% of the examined patients with cognitive impairments. In patients of the older age category, signs of vascular parkinsonism were noted in 14 people, and in these patients, pseudobulbar syndrome and pelvic disorders were noted.

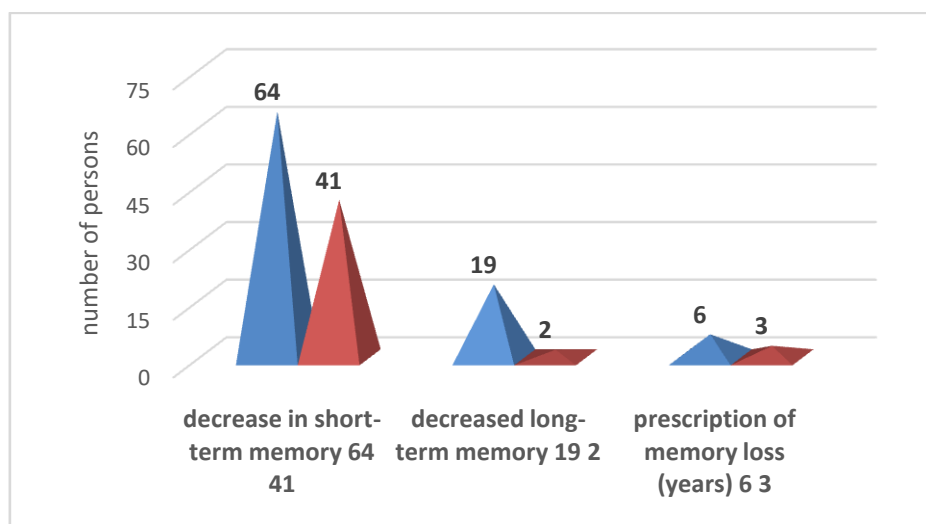


Fig. 1. Types of memory impairment in the examined patients.

As stated above, patients underwent a series of neurological testing studies to create an objective picture of cognitive dysfunction. The Rankin scale averaged 1.13 points in patients with mild cognitive impairments (LCI), and 1.49 points with moderate and severe impairments (MCI and

MCI). The MMSE indices, 24 points in LCI patients, 22 points in MCI, and with SCI reached an average of 16 points. Finding the numbers according to the Schulte table in patients with LCI took from 65 to 70 seconds; with MCI in the aisles 70-75 sec., and TCN, two patients could not cope with the task (lack of understanding of the conditions of the tasks), the rest were tested within 2-3 minutes. The results of testing according to the SF-36 quality of life scale in patients with LCI obtained the following results in terms of general health (OH) and vital activity (VA) (Table 1).

Table 1

Assessment of the quality of life according to the SF-36 scale in the examined patients (M  $\pm$  m)

SPF-36	LCN	UKN	TKN
General health	37 $\pm$ 1,5	33 $\pm$ 1,5	25 $\pm$ 2
Vital activity	38 $\pm$ 1,8	37 $\pm$ 1,5	20 $\pm$ 1,7

Thus, the quality of life of patients with moderate to severe cognitive impairment suffers to a large extent.

The complexity and multifactorial nature of disorders of brain metabolism in patients prompted the addition of MetoProve to the main, standard treatment, which complements other drugs pathogenetically. MetoProve has a favorable safety profile and is well tolerated, penetrates the blood-brain barrier, (N-PEP-12) is a product of enzymatic hydrolysis from purified nerve cell proteins and has a unique mechanism of action. Neuropeptides protect brain cells and neural networks from the processes leading to cognitive disaster. At the same time, they are a stimulant in the formation of neurogenic connections, again to improve cognitive and restore the affected structures. All examined patients were prescribed 1 tablet 2 times a day for a month. A month later, 52 patients underwent a re-examination of the dynamics (12 patients refused to be re-examined). The result of treatment was assessed taking into account the division of patients by degree (LCN-20 people, UKN-19, TKN-13). According to the results of neuropsychological testing, a significant improvement was found in all patients (Fig. 2).

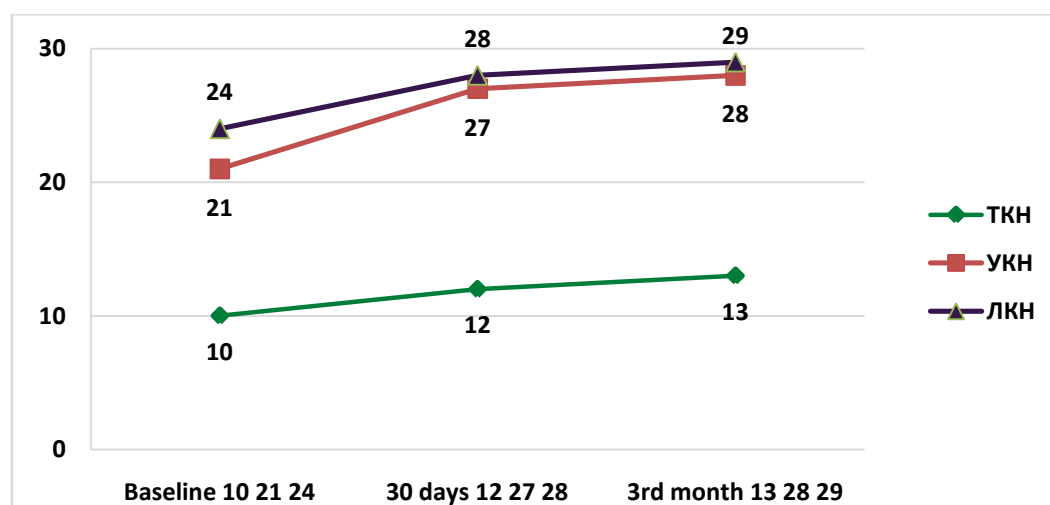


Fig. 2. Dynamics of cognitive impairments according to MMSE before and after treatment.

The best results were obtained in patients with LCI and MCI, TCI indices increased very slightly, but did not remain unchanged, which confirms the need to continue treatment for a more stable predetermining positive dynamics. On the SF-36 scale, after treatment in the subgroup with LCN OZ  $38 \pm 1.7$ , VA  $40 \pm 1.5$ ; in UKN and TKN indicators on average OZ  $36 \pm 1.5$ , VA  $39 \pm 1.5$ . The Schulte test showed positive changes, as patients with LCI reduced the task performance speed to  $45 \pm 1$ , in MCI and TCI to  $75 \pm 10.1$ .

Thus, discirculatory encephalopathy is a common brain disease, one of the main clinical manifestations of which is a decrease in memory and vitality, and other cognitive functions. Diagnosis of cognitive impairments should be carried out using neuropsychological tests, especially at an early stage, during a period of mild cognitive impairment, when pathological processes are at the stage of incomplete completion; the use of an integrated treatment approach with the administration of vasoactive, metabolic and neurotropic drugs with the addition of the latest neuroprotective drugs will make it possible to protect brain tissue and suspend cognitive dysfunction.

## OUTPUT

Dyscirculatory encephalopathy manifests itself in the form of clinical sensorimotor disorders and the syndrome of cognitive impairment, which is a factor in reducing the quality of life in terms of general health and vital activity.

The method of using the MetoProve drug is effective in correcting cognitive impairments in patients with discirculatory encephalopathy, as a drug for restoring and preventing lost functions.

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