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POST-STROKE COGNITIVE IMPAIRMENT

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Introduction. Cognitive impairments (CI) are disorders of mental functions: memory, attention, thinking, orientation, speech, gnosis, praxis, counting, etc., which ensure a person's ability to process information and use it to organize their actions.

Key words: cognitive impairment, ischemic stroke, memory, attention.

In general, progressive cognitive impairments can occur as a result of cortical neurodegenerative process (Alzheimer's disease, Pica, etc.), acute or chronic insufficiency of cerebral circulation, as a result of a combination of these processes or other causes. Vascular cognitive impairments caused by cerebral circulatory insufficiency account for a large percentage of all cognitive impairments. The prevalence of post-stroke cognitive impairment is extremely high. Only severe CNS in the stage of dementia occur after a stroke in 7 – 40% [4, 5]. According to H. Lin et al., stroke increases the risk of developing dementia by 4-9 times compared to the same the age group of people who have not suffered a stroke. Even more impressive results were obtained in the study of S.V. Verbitskaya and V.A. Parfenov, who found cognitive impairments in the stage of dementia in 30% of patients in the recovery period of stroke, and in 53% – cognitive impairments in the pre-stage [2]. Cognitive disorders before a stroke are often quite hidden and manifest themselves vividly after suffering an acute cerebrovascular accident.

In general, in our opinion, cognitive disorders of a vascular nature attract special attention of clinicians for several reasons:

1. Cognitive impairments of a vascular nature are only one of the symptoms of cerebrovascular decompensation and may undergo spontaneous reverse development during the recovery period of stroke;

2. Correction of risk factors for dyscirculatory encephalopathy or stroke may reduce the severity of vascular cognitive impairment;

3. The treatment of vascular cognitive disorders has a greater prospect than the symptomatic treatment of cognitive disorders of neurodegenerative origin.

How are cognitive functions assessed?

Screening scales are widely used for the diagnosis of CN, the main ones are described below.

1. A short scale for assessing mental status (Mini-Mental State Examination) MMSE. This scale evaluates orientation in place and time, counting, concentration, memory, speech, reading, writing, and constructive practice. The scale is quite sensitive and specific in relation to the diagnosis of the disease Alzheimer's disease, but is significantly less sensitive to cognitive impairments of a predominantly dysregulatory (frontal) type. As a result of scale testing MMSE can identify cognitive

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disorders of the Alzheimer's type –amnesic syndrome, agnosia, spatial disorders, acalculia, speech disorders. The scale includes 5 degrees of severity of CF, from normal to severe dementia.

2. Battery of tests to assess frontal dysfunction (Frontal assessment battery) FAB. The technique contains 6 neuropsychological tests, which are used to study frontal functions: generalization ability, fluency of speech, kinetic praxis, grasping reflexes, programming of motor acts and voluntary attention. This technique is highly sensitive in the study of patients with cognitive disorders of a predominantly dysregulatory (frontal) type. Assessment of cognitive impairments on the FAB scale allows us to state normal regulatory functions, mild cognitive disorders and frontal type dementia.

3. The clock drawing test provides an opportunity to differentiate violations of the regulation of voluntary activity (with damage to the frontal lobes) with spatial disorders (damage to the posterior cortex). Advantages of the technique: speed and ease of execution, high sensitivity. The result is assessed by the ability to draw a circle correctly., arrange the numbers in it, as on a dial, and place the hands according to the set time. The inability to draw the dial correctly, but the ability to position the hands of the clock appropriately, is more typical for frontal type dementia. With Alzheimer's type dementia, not only does the drawing function suffer, but it also becomes impossible to draw the hands even on a ready-made dial. This test is indispensable in outpatient practice, as it is possible to confirm or exclude the presence of pronounced cognitive impairments within a few minutes of completing tasks.

4. MOCA (Montreal Cognitive Assessment) is an integrative scale that allows assessing the condition of both the anterior and posterior parts of the cerebral cortex. It is a set of tests aimed at assessing the state of various cognitive spheres: attention and concentration, executive functions, memory, speech, visual-constructive skills, abstract thinking, counting and orientation. The time for the test is 10-20 minutes, depending on the degree of declines. This is one of the few neuropsychological scales that make it possible to differentiate not only dementia, but also moderate cognitive disorder.

The MINI-COHG scale is used for screening examination in outpatient settings. This technique includes a memory task (memorizing and reproducing 3 words) and a clock drawing test. The advantages are high information content, speed and ease of implementation. The test takes no more than 3-5 minutes to complete. The main disadvantage This technique is characterized by its low sensitivity: being very simple, it reveals only sufficiently pronounced disorders of cognitive functions, such as dementia. The interpretation of the test results is also extremely simple: if a patient cannot reproduce at least one of the three words or makes significant mistakes when drawing a clock, it is highly likely that he has a cognitive impairment. The test results are evaluated qualitatively: if there are violations, there are no violations. The methodology does not provide for the grade level, as well as the degree of severity of cognitive disorder.

Risk factors for the development of post-stroke cognitive impairments are age, the presence of recurrent stroke, the development of stroke in strategically important areas of the brain, the severity of neurological symptoms, the volume of brain damage, low level of education, the presence of pre-stroke cognitive impairments, the presence of cerebral atrophy and changes in white matter during neuroimaging.

Stroke can contribute to the clinical manifestation of latent Alzheimer's disease or worsen the symptoms that have already developed.

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Primary and secondary prevention of stroke can reduce the incidence of vascular cognitive disorders. Taking oral antidiabetic drugs in patients with type 2 diabetes mellitus reduces the risk of cognitive impairment. There is evidence that untreated hypertension in the middle years of life is associated with dementia in the later years of life, and this association is more pronounced for vascular cognitive impairment than for the disease Alzheimer's disease.

In the treatment of cognitive impairment, it is important to prescribe both pathogenetic and symptomatic therapy. Currently neuroprotective drugs (neurometabolic, neurotrophic, vasoactive, selective neurotransmitter effects) with moderate positive symptomatic effects are used in domestic clinical practice for the treatment of non-dementia vascular cognitive disorders, but they do not or have little effect on the risk of dementia. There is a large evidence base in the treatment Severe cognitive impairment is caused by the so–called anti-dementation drugs of neurotransmitter (anticholinesterase) action - donepezil, rivastigmine], galantamine. Scientific reviews also indicate the proven positive effect of memantine on both vascular and neurodegenerative cognitive disorders [2].

Currently, the rehabilitation field of cognitive impairments is actively developing in the world. Cognitive rehabilitation, as defined by D.I. Katz (2008), is a "systematically applied complex of therapeutic effects aimed at improving cognitive functions and increasing the patient's ability to participate in activities that are limited due to disorders in one or more cognitive areas."

Cognitive rehabilitation is based on the achievements of neuropsychology, cognitive and behavioral psychology, occupational therapy, and psychotherapy. Special rehabilitation centers have great prospects in restoring cognitive functions. classes with a neuropsychologist or trained staff. The main task of cognitive rehabilitation is to restore and compensate for the daily skills of the patient affected by cognitive impairments and increase the patient's ability to participate in activities limited due to disorders in one or more cognitive areas [3]. It is recommended to start training impaired cognitive functions after their spontaneous recovery stops [3]. The most common way to exercise is cognitive functions include classes with a neuropsychologist, where the patient performs various tasks using special stimulus material (correcting text, filling out tables with numbers, performing counting operations of various levels of complexity) and repeatedly repeating the material to improve the functions of memory, attention, praxis, gnosis, etc. It is necessary to gradually complicate the tasks and increase their volume, as well as reward for the successes achieved. S. L. Barker-Collo et al. (2009) analyzed the results of treatment of stroke patients. In patients attention disorders were reported. The results of the study showed that attention significantly improved in those patients who received complex treatment – training in combination with standard stroke therapy, in contrast to patients receiving only drug treatment. S. Braun et al. (2008) suggested using mental training in rehabilitation after stroke. In order to restore (or correctly perform) any action, the patient is asked to first describe the sequence of his actions, mentally imagine them. In some cases, the patient is shown on pictures or videos; for example, how to "drink from a mug". During the performance of the action, the doctor asks questions aimed at consolidating the action in various fields.

A feature of modern neurorehabilitation is the widespread introduction of new technologies. For example, a number of computer programs have been developed in cancer patients to restore cognitive functions after stroke, traumatic brain injury. H. Westerberg et al. (2007) found that a computer program aimed at memory training improves not only memory, but also other functions such as attention and thinking in stroke patients. Cognitive training programs effectively improve one of the trained They also transfer a positive effect to other CD. It has been proven that learning increases

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memory capacity, stimulates brain activity, and improves attention, thinking, and problem-solving functions.

Computer games such as Cogmed, Cognifit, and MindSparke are used abroad to improve cognitive functions., PositScience and Lumosity; online training programs – Lumosity, FitBrains, HAPPYneuron, presented with a set of tasks with the ability to choose the difficulty level, instantly get an answer about the correctness Complete the test and go to the next level.

At the same time, in our opinion, there is another problem in diagnosis, assessment and, consequently, in treatment approaches. Russian-language versions of cognitive test scales are used to assess the cognitive functions of Uzbek citizens. Indeed, most Uzbek citizens know Russian well.

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