



USE OF THE “DIAMAG” DEVICE IN THE TREATMENT OF COGNITIVE IMPAIRMENT IN PATIENTS WITH CHRONIC CEREBRAL ISCHEMIA

**Karabaev J. A.,
Xidoyatova D.N.,
Alixanov S. A.**

Tashkent State Medical Universitet

ABSTRACT: Chronic cerebral ischemia (CCI) is one of the leading causes of cognitive impairment in middle-aged and elderly patients. In recent years, special attention has been paid to non-pharmacological therapies, including transcranial magnetic therapy. This paper presents an analysis of the use of the Diamag device (Almag-03) for cognitive impairment of vascular origin, discussing its mechanisms of action, clinical studies, and potential applications.

Keywords: chronic cerebral ischemia, cognitive impairment, magnetic therapy, Diamag, neurorehabilitation

Cognitive impairment is a decrease in memory, attention, and executive functions that occurs as a result of organic brain damage. One of the key causes is chronic cerebral ischemia — a progressive violation of cerebral circulation, accompanied by diffuse damage to neurons.

CIM underlies dyscirculatory encephalopathy and is associated with a high risk of dementia and stroke. Despite the development of pharmacotherapy, the effectiveness of treatment remains limited, which leads to the search for new methods, including physical factors of influence.

The main mechanisms of pathogenesis include:

- chronic гипоперфузия brain hypoperfusion
- oxidative stress
- dysfunction of neurotransmitter systems
- neuroplasticity disorder

Damage to the white matter and subcortical structures leads to so-called "vascular cognitive decline", characterized by impaired attention and executive functions.

Transcranial magnetic field is considered as a promising method of neuromodulation. Its effects include:

- improving microcirculation
- modulation of neuronal activity
- stimulating neuroplasticity
- reduction of inflammatory processes

Similar approaches are used in transcranial magnetic stimulation, but the evidence base is still limited.

Аппарат «The Diamag device» is a system of low-frequency traveling pulsed magnetic therapy that affects the structures of the brain.

Main effects:

1. improve brain blood flow
2. reducing vascular spasm
3. activation of neuronal metabolism
4. neuroprotective effect

Indications include chronic brain ischemia, stroke effects, and cognitive impairment

Применение use of low-frequency magnetic therapy with the Diamag device in the early recovery period of stroke improves neurological functions and accelerates rehabilitation.



According to published data, magnetic therapy can be used at all stages of treatment and rehabilitation of patients with CIM. There are few direct large RCTs for "Diamag", but there are:

- observational programs for cognitive impairment (for example, DIAMANT-type studies)
- studies on other neuromodulation methods that confirm the possibility of restoring neural connections

The use of the Diamag device has a number of advantages:

- non-invasiveness
- possibility of outpatient use
- combination with drug therapy
- influence on pathogenetic mechanisms

Restrictions:

- lack of large randomized trials
- variability of treatment protocols
- the need for standardization of methods

Current data suggest that magnetic therapy can be considered as a component of complex therapy, but not as an independent method.. Research prospects

Promising areas:

1. Conducting a cognitive scale RCT (MMSE, MoCA)
2. Neuroimaging (fMRI, DTI)
3. study of neuroplasticity
4. combined protocols (magnetic therapy + pharmacotherapy)

Аппарат «The Diamag device is a promising tool in the complex therapy of cognitive disorders in chronic brain ischemia. Despite the positive clinical observations, additional randomized trials are needed to definitively confirm its effectiveness and include it in treatment standards.

The inclusion of low-frequency transcranial electromagnetic stimulation in complex rehabilitation contributes to the regression of motor disorders, reduces the level of anxiety and depression, improves daily activity and, as a result, the quality of life.

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