



## DETERMINATION OF THE EFFICACY OF THE USE OF NOOTROPES IN THE TREATMENT OF BRAIN CONCUSSION IN THE ACUTE PERIOD

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### Abstract

It is of great importance to study the leading clinical symptoms and determine the effectiveness of the use of nootropics in the acute period of concussion for the correct diagnosis and treatment.

**Keywords.** Concussion, regression.

### Relevance

Shake head brain ( SHM ) is light craniocerebral \_\_ trauma (TBI), it accounts for up to 90% of all cases of traumatic brain injury. The frequency of hospitalizations of victims with mild TBI ranges from 132 to 367 cases per 100 thousand of the population, which is from 60 to 82% of all hospitalizations for this reason [1,2,3,4]. According to a report to the US Congress, direct and indirect costs associated with traumatic brain injury in the US amount to 60 billion dollars a year. Treatment of one patient with mild TBI costs \$2,700 [5]. Russia's annual economic losses due to injuries amount to 2.6% of GDP [6]. A significant frequency of residual effects and disability of victims after CGM is currently subject to fair doubt, since victims with mild, sometimes moderate brain contusions can get into the sample [ 7,8,9,10 ]. Despite the presence of numerous research papers devoted to the issues of the clinical course, diagnosis and treatment of CGM, there are still a number of debatable, mutually exclusive opinions that negatively affect the quality of treatment, expert medical assessment of the condition of the victims, a reasoned interpretation of the occurrence of various asthenic, neuropsychiatric and vegetative-visceral





postconcussion complications [11].

### **Target**

The purpose of our study is to study the leading clinical symptoms and determine the effectiveness of nootropics in the acute period of concussion.

### **Materials and Research Methods**

The study included 60 patients aged 6 months to 60 years who were in the neurosurgical department of the clinic No. 1 of SamMI in the period from 2011 to 2021. The patients were divided into 2 equal groups of 30 patients. The patients included in the first group received traditional treatment, the second group, in addition to the traditional one, took nootropic drugs (20% solution of piracetam 1-2 g / day from 10 to 15 injections and followed by a transition to the oral method of treatment 400 mg 2-3 times a day, at least 15-20 days for adults, and for children, the dose of the drug was determined according to age (injections from 600-800 mg / day and tablets or capsules 100-200 mg 2-3 times a day) at the same time).

The results of the examination and treatment were included in a specially developed map of patients with SGM, which includes important signs of clinical and instrumental examination: the duration of hospitalization, signs of somatic and neurological status, data from X-ray, electroencephalographic, ophthalmological, computer and magnetic resonance imaging examinations and drug treatment.

Results of the study and their discussion. To determine the effectiveness of the therapy, an objective assessment of the degree of improvement in neurological signs (regression of cerebral and focal neurological symptoms) was of decisive importance. On the first day after injury, all patients complained of headaches. It should be emphasized that the pain was diffuse in nature. By 6-8 days in patients of the second group, headaches disappeared, and in the traditional group they persisted in 6.6% of patients (Table 1).

Dizziness was registered in 63.3% of patients in the traditional group and in 56.6% of patients in the control group. Within 2-3 days, 10.0% of patients complained of dizziness when changing position in bed and sudden movements of the head in the control group, 13.3% in the traditional group. For 6-8 days in patients in the control group, dizziness disappeared, and in the traditional group there were another 3.3% of patients.

In the first days of hospitalization, nausea was observed in 56.6% of patients in the control group, and 60.0% of patients in the traditional group. Nausea was usually





mild. Already on the 6th day, nausea was not observed among patients in the control group, while among patients of the traditional group it was noted in 3.3% of patients. In the first days, vomiting, mostly single, was noted in 33.3% of patients in the traditional group, 30.0% of patients in the control group.

Table 1 Dynamics of regression of cerebral and focal neurological symptoms in concussion

signs	I group (traditional)				II group (control)			
	days				days			
	1 (%)	2-3 (%)	4-5 (%)	6-8 (%)	1 (%)	2-3 (%)	4-5 (%)	6-8 (%)
Headache	30 (100)	26 (86,6)	6 (20,0)	2 (6,6)	30 (100)	24 (80,0)	4 (13,3)	-
Dizziness	19 (63,3)	4 (13,3)	2 (6,6)	1 (3,3)	17 (56,6)	3 (10,0)	1 (3,3)	-
Nausea	18 (60,0)	4 (13,3)	2 (6,6)	1 (3,3)	17 (56,6)	4 (13,3)	1 (3,3)	-
Vomit	10 (33,3)	2 (6,6)	-	-	9 (30,0)	1 (3,3)	-	-
General weakness	30 (100)	28 (93,3)	20 (66,6)	12 (40,0)	30 (100)	24 (80,0)	13 (43,3)	3 (10,0)
Sleep disturbance	20 (66,6)	19 (63,3)	9 (30,0)	4 (13,3)	20 (66,6)	18 (60,0)	8 (26,6)	2 (6,6)
Hyperhidrosis	25 (83,3)	18 (60,0)	12 (40,0)	4 (13,3)	24 (80,0)	15 (50,0)	9 (30,0)	3 (10,0)
nystagmus	16 (53,3)	6 (20,0)	2 (6,6)	-	9 (30,0)	2 (6,6)	-	-
Anisoreflexia	5 (16,6)	3 (10,0)	2 (6,6)	1 (3,3)	5 (16,6)	2 (6,6)	-	-
Symptom of Marinescu - Radovic	12 (40,0)	9 (30,0)	6 (20,0)	3 (10,0)	11 (36,6)	5 (16,6)	2 (6,6)	-

General weakness in the first days after the injury; in some patients, slight weakness persisted until discharge. The observed sleep disturbance continued in the same proportion in both groups until the end of the hospital stay.

One of the focal symptoms, horizontal nystagmus, was observed in 53.3% of patients in the first group and in 30.0% of patients in the second group.

Unexpressed anisoreflexia on the day of admission was registered evenly in both groups by 16.6%. On the 4-5th day after the injury, it disappeared in the second group, and in the first group it was noted in 6.6% of the victims.

Symptom of Marinescu - Radovic on the first day it was found in almost the same amount in both groups (40.0% -36.6%). However, on the 6th-8th day after the injury, this symptom disappeared in the second group, and in the first group it is found in 10.0% of patients.



On the 6-8th day in the second group of patients, cerebral and focal symptoms almost completely disappeared, and in the first group these symptoms were observed among some patients.

On the EEG of patients who received piracetam (nootropil), the degree of positive changes was noted (increase in background alpha, - and beta activity, reduction of theta - range waves), which indicated the degree of clinical improvement.

## Conclusions

1. The acute period of concussion is characterized by impaired consciousness, cerebral, focal symptoms and stato-coordination disorders.
2. Among the cerebral symptoms dominated by headache (100%), general weakness (100%), dizziness (63.3%), nausea (60.0%), vomiting (33.3%) of patients. Of the focal symptoms, nystagmus is the most common (53.3%), followed by the Marinescu-Radovic symptom (40.0%) and anisoreflexia (16.6%).
3. The use of nootropics in the acute period of concussion improves the general condition of patients, regression of cerebral and focal symptoms.
4. The revealed features of the clinical course of concussion allow establishing the correct diagnosis, reducing the medical and social consequences of concussion.

## Literature

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