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## POSTTRAUMATIC HEADACHES IN MEN

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**ABSTRACT** — The status of emotional sphere, cognitive functions and the quality of life was evaluated in 19 men with post-traumatic cephalgia. The following instruments were used: The Zung Self-Rating Depression Scale (adapted in Russian), Hospital Anxiety and Depression Scale, Recovery Locus of Control, Psychological General Well-Being Index, MMSE (Mini - Mental State Examination), Luria Test, Shulte Tables. Our main findings were as follows: average age of the group was  $38.7 \pm 11.1$  years against the mean duration of pain  $10.8 \pm 4.7$  years. Gross cognitive deficits were reported in 5 (26.3%) men with severe brain injuries. An increased level of anxiety was found in 6 (31.6%) whereas clinical depression was diagnosed in 7 men. Thus, different types of cephalgia are attributed to the presence and various rates of anxiety, depression and cognitive disorders.

**KEYWORDS** — posttraumatic headaches (cephalgia), emotional sphere, cognitive functions, anxiety, depression and cognitive disorders.

### INTRODUCTION

Headaches (cephalgia) are a characteristic symptom of all forms of craniocerebral trauma. It usually occurs immediately (less often — during the first two weeks from the moment of injury) or, if there was a loss of consciousness, when the consciousness returns to the patient.

In acute craniocerebral trauma, headaches can be caused by the damage to the soft tissues of the head and neck, the changes in cerebrospinal fluid dynamics, and in brain injuries or intracranial hematomas by the structural changes with an involvement of the blood vessels, meninges, sensitive cranial and spinal nerves [1, 2, 3, 4]. Clinically, immediately after the injury, various kinds of pain may occur, some of which proceed as the type of primary headache — most often as the

type of tension headache, the cases of migraine with or without an aura, bundle headache have been described.

Cephalgic syndrome in men is an urgent problem of clinical neurology, the significance of which is determined by such circumstances as the high prevalence of headache in the population, the low attendance of men for medical care and the preference to be treated independently or not to be treated at all. Most men, especially those of a young working and socially active age, do not consider headaches as a serious enough reason to see a doctor, or, on the contrary, are afraid of identifying any serious illness [9].

### *The objective*

of this work was to study characteristics of the clinical picture, the emotional status and cognitive functions, as well as to assess the quality of life in men of young (25–44 years old according to WHO) and middle (45–59 years old according to WHO) age with post-traumatic headache.

### MATERIALS AND METHODS

19 men with post-traumatic cephalgia were examined.

The neurological status was studied according to the classical scheme of the examination of a neurological patient. Nosological affiliation was determined in accordance with the International Classification of Headaches (ICHD, 2003, 2013) [5] and the International Statistical Classification of Diseases and Related Health Problems (ICD-10, 1995) [6]. The statistical processing of the material was carried out using Excel 2007.

In addition to standard neurological examination and paraclinical examination methods, all patients underwent an assessment of emotional status and cognitive sphere.

***The battery of tests for assessing the emotional status and quality of life*** of patients with post-traumatic headaches (HA) included the self-questionnaires [7] — The Zung Self-Rating Depression Scale (Russian adaptation by A.F. Kudryashov, 1992), The Hospital Anxiety and Depression Scale, HADS, Zigmond A.S., Snaith R.P., 1983, consisting of the Subscale of anxiety and the Subscale of depression, CL, «Recovery Locus of Control» Patridge C., Johnstone M., 1989; Wade D., 1992 and the PGWB (The Psychological General Well-Being Index), Dupuy H., 1984).

**The complex of neuropsychological examination** to assess cognitive impairment included the following methods: MMSE (Mini-Mental State Examination), Digit span test from Wechsler Intelligence Scale for adults and Wechsler Memory Scale [7], the study of short-term memory according to the method of A.R. Luria (test of 10 words, A.R. Luria, 1973) [8] and the Schulte Tables (adapted by S.Ya. Rubinshtein, 1970) [9].

## RESULTS AND THEIR DISCUSSION

We examined 19 patients with a history of traumatic brain injury aged 24 to 58 years — the average age of the group was  $38.7 \pm 11.1$  years.

All the patients examined suffered a traumatic brain injury of varying severity. Based on the history, nature and mechanism of the injury, the patients were divided into 3 injury subgroups:

- a concussion of a domestic nature (falling from a height, including from a height of one's own height, blows to the head) — 8 patients (42.1%);
- a severe open or closed craniocerebral injury due to a car accident, accompanied by a brain contusion, traumatic subarachnoid hemorrhage or traumatic intracerebral hematoma, damage to the cranial nerves, fractures of the skull and facial skeleton, with trepanation of the skull — 5 patients (26.3%);
- a mine-blast injury, accompanied by a concussion or bruise of the brain, a fracture of the bones of the skull or facial skeleton, rupture of cranial nerves, gunshot and fragmentation wounds of the trunk and extremities — 6 people (31.6%).

In all the patients examined, the headache appeared either immediately after the injury (with severe injury) or gradually over a period of 3 months, remaining in varying degrees of severity to date, and therefore in all 19 cases it was classified as a chronic post-traumatic headache, which includes in the composition of post-traumatic syndrome [5].

By age, the examined patients with post-traumatic headache were as follows: 20–29 years old — 5 (26.3%), 30–39 years old — 6 (31.6%), 40–49 years old — 4 (21%) patients, 50–59 years old — 4 (21%) patients.

The duration of the disease varied widely — from 2 to 20 years and the group average was  $10.8 \pm 4.7$  years. Up to 5 years, 2 patients suffered from headache, 5–10 years — 5 patients (26.3%), 10–15 years — 9 patients (47.4%), 15–20 years — 3 patients.

### *Cognitive functions in patients with post-traumatic headache*

When performing the MMSE test, the  $26.7 \pm 2.9$  points were determined as the normal level but the low

one taking into account the age of the patients. At the same time, 5 of the examined men (26.3%) who had severe traumatic brain injury showed signs of gross cognitive deficit from the border level of 24 points (3 people) to 20 points (2 people).

In the process of studying the auditory — speech memory using the *10 words* test by A.R. Luria, the patients with post-traumatic headache, despite their young age, on average memorized  $6.6 \pm 1.9$  words for five presentations. When performing a Wechsler test for attention and auditory memory for numbers, the patients correctly called in direct order an average of  $54.1 \pm 6.4$  digits (at 60 maximum possible digits), in the opposite -  $41.1 \pm 11.5$  digits (at 50 maximum possible digits).

When assessing the attention and performance using a sample with Schulte Tables, the patients performed one table in  $41.5 \pm 3.4$  seconds (norm) on average.

### *Psychological status in patients with post-traumatic headache*

When assessing the emotional status of patients with post-traumatic headache using HADS, despite the severity of the traumatic brain injury, the group as a whole showed no anxiety  $6.3 \pm 4.4$  points on the Anxiety Scale and no depression  $7.1 \pm 2.98$  score on the Depression Scale.

Nevertheless, with a detailed analysis of the Anxiety Scale, an increased level of anxiety was detected in 6 (31.6%) of the 19 patients examined: in 2 patients, a subclinical level of anxiety was detected and in 4 patients a clinically expressed level of anxiety was detected.

A detailed analysis of the The Zung Self-Rating Depression Scale (Russian adaptation by A.F. Kudryashov, 1992) revealed depression in 7 patients (36.8%), of which subclinically expressed depression was noted in 4 patients and clinically expressed depression in 3.

In 2 patients out of 19 examined, a simultaneous increase in both indicators to the levels of subclinical and clinical anxiety and depression was noted.

When analyzing the level of depression on the The Zung Self-Rating Depression Scale (Russian adaptation by A.F. Kudryashov, 1992) as a whole in the group, a state without depression was also recorded as  $44.6 \pm 10.4$  points. At the same time, the mild depression (50–59 points) was revealed in 4 patients from the group and a subdepressive state (60–69 points) in 2 patients.

In 4 of the examined patients with post-traumatic headache, the depression detected on this scale coincided with pathology by two HADS scales of varying

severity, in addition, they had extremely low (up to 21 points) levels of the control locus and low levels on the MMSE scale (up to 20 points), which indicates a pronounced cognitive deficit. Previously, all these patients who had suffered a mine-explosive injury were consulted by a psychiatrist and already had a diagnosis of post-traumatic stress disorder, in connection with which they received specialized therapy.

#### *Life quality in patients with post-traumatic headache*

In whole by group the Psychological General Well-Being Index (PGWB), reflecting the quality of life of the examined patients, was quite low i.e.  $70.6 \pm 11.9$  points. At the same time, its intensity coincided with the data of the scales for detecting anxiety and depression - it was maximum low (up to 34 points) in patients with clinically pronounced anxiety and depression.

In the group as a whole, in the group of patients with PTHB, the locus of Control (LC) was also low -  $24.6 \pm 4.2$  points, reaching a minimum of 21 points in patients with post-traumatic stress disorder.

The low scores obtained during the survey on the Recovery Locus of Control scales and Psychological General Well-Being Index (PGWB) reflect the psychological status of patients with post-traumatic headache, which is in contradiction with unexpressed levels of anxiety and depression.

## CONCLUSION

The obtained results correlate with our findings in previously examined patients with traumatic facial pain (caused by domestic violence, street fights, falls from a height combined with a concussion). There is no significant difference in severity of anxious moods and depression among other forms of headaches and facial pain which can be explained by the relatively young age of the patients, and, despite the traumatic brain injury, the hope for a complete cure [3, 10].

## REFERENCES

1. **SUSLINA Z. A., MAKSIMOVA M. YU., SINEVA N. A., VODOPYANOV N. P., KHOKHLOVA T. YU.** Private neurology. Moscow, Praktika, 2012: 272 p [In Russ.].
2. **TUCHIK E.S., CHOCHLOVA T.YU., GRUDOGLOVA N.A.** To the question of expert assessment of the severity of a concussion. Medical expertise and law. 2011; 4: 26–28 [In Russ.].
3. **CHOCHLOVA, T. YU., DALELOVA I. L.** Features of the emotional sphere and higher cortical functions in patients with head and facial pain of traumatic and non-traumatic origin. Medical expertise and law. 2015; 2: 20–26 [In Russ.].
4. **KHOKHLOVA T.YU., DALELOVA I.L., BARINOV E.KH.** Features of the clinical picture, emotional sphere and higher cortical functions in patients with traumatic headaches. Forensic medicine. 2018; 4(1): 26–33 [In Russ.].
5. **Headache Classification Committee of the International Headache Society (IHS).** The International Classification of Headache Disorders, 3rd edition. Cephalalgia 2018, 38(1): 211 DOI: 10.1177/0333102417738202
6. **International Classification of Diseases (ICD) 11 Revision.** WHO, 2020
7. **Scales, tests and questionnaires in medical rehabilitation.** Guide for doctors and researchers ed. by A. N. Belova and O. N. Shchepetova, M., Antidor, 2002: 440 [In Russ.].
8. **Scheme of neuropsychological research (textbook)** edited by A. R. Luria. M., 1973: 59 p [In Russ.].
9. **RUBINSTEIN S. YA.** Experimental methods of pathopsychology and experience of their application in the clinic (Practical guide), M., 1970: 215 p [In Russ.].
10. **SHISHKINA M.V., KUZNETSOVA S.E., CHOCHLOVA T.YU., FISHCHENKO O. N., ZHIKHOREVA I.A., GRUDOLOVA N.A., LOPATKO D. N., KUZMINA I. V.** Features of the emotional sphere and cognitive functions in patients with prosopalgia of traumatic and non-traumatic Genesis. The Kremlin medicine. Clinical Bulletin. 2010; 4: 27–31 [In Russ.].