



Medical and Social Significance of Neurological Symptoms of the Acute Period of Concussion of the Brain

1. Shodiev A. Sh.
2. Norkulov N. U.
3. Niyazov Sh. T.

Received 25th Dec 2022,
Accepted 26th Jan 2023,
Online 9th Feb 2023

Abstract: Concussion of the brain is inherent in post-concussion neuropsychiatric disorders, which are of medical and social significance. A reliable diagnosis, adequate treatment, taking into account the main symptoms of an acute period of concussion according to the standard, contribute to reducing its medical and social consequences.

Key words: Concussion, postconcussion, medico-social.

^{1,2,3} Samarkand city, The Republic of Uzbekistan, Samarkand State Medical Universitete

Introduction A concussion is a mild traumatic brain injury (CBI), accounting for up to 90.0% of young and middle-aged victims. In the U.S., 235,000 victims are hospitalized each year with a mild concussion accounting for up to 86.0% of all hospital admissions, making it a major medical and social problem(1,9). The significant incidence of residual events and disability of victims after concussion is currently being fairly questioned, since the sample may include victims with mild to sometimes moderate brain contusions(2,4,7).

Despite the existence of numerous research papers devoted to the clinical course, diagnosis and treatment of concussion, there are still a number of controversial and mutually exclusive opinions. The reasons for the development of persistent postcombustion asthenic states, psychoneurological and vegetative visceral disorders, which occur according to the results of some authors up to 33.0%, are assessed differently (4,5,6,8,10).

The current lack of a clear understanding of the frequency, severity and duration of the main symptoms in the acute period of concussion often leads to diagnostic errors, reduced quality of treatment, and certain medical and judicial and social problems that require new research in this direction.

Purpose of the study The purpose of the present study is to investigate the medical and social significance of neurological symptoms of the acute period of concussion.

Material and methods of research. The present study includes data of clinical and instrumental examination and treatment of 60 patients diagnosed with concussion of the brain aged from 5 to 66 years who received inpatient treatment at the Clinic of Neurosurgery, Samarkand Medical University.

The examination of the victims was carried out according to a special chart of unified assessment of the severity of traumatic brain injury, including the most important signs of clinical, instrumental, and catamnestic examination. Age, period of hospitalization, signs of somatic and neurological status, dynamics of the course and treatment of the disease, data of radiological, ophthalmological, electroencephalographic, computer tomographic and catamnestic examinations.

Results of the study and discussion. The cause of brain concussion in 11 cases was a blow to the head, in 37 cases a fall from a height, and 12 people suffered as a result of a car accident.

The main clinical signs of cerebral concussion were short-term impairment of consciousness, amnesia, and general and focal symptoms. Among the patients analyzed, impaired consciousness (from a few seconds to several minutes) was observed in 55 (91.7%) patients, which was objectified by eyewitness accounts of the trauma or by a detailed questioning of the victim about the circumstances of the trauma. In the absence of loss of consciousness, the diagnosis was established on the basis of the detection of symptoms such as moderate or profound stunned consciousness, dizziness, brokenness, nausea, vomiting, general weakness, focal neurological microsymptomatology, and autonomic disturbances. The next important symptom was detected antero-con retrograde amnesia, lasting not more than one hour, which was also found in 91.7% of the examined patients. We shall distinguish the general cerebral symptom complex in the clinical course of the acute period of brain concussion. The patients complain mostly of headache (100,0%), sleep disturbance (66,6%), dizziness (63,3%), nausea (59,8%), and vomiting (32,1%) (Diagram 1).

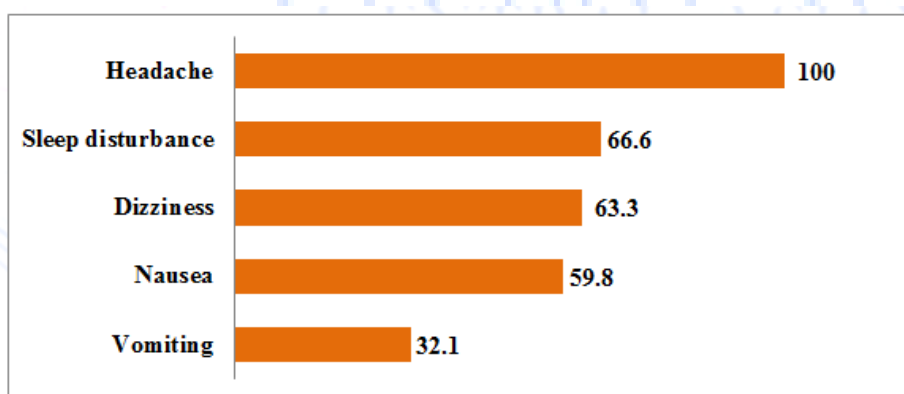


Diagram 1. Frequency of common cerebral neurological symptoms in the acute period of concussion (in %)

Among the focal symptoms, hyperhidrosis was the most common (84.5%) and continued up to discharge from the hospital. In the first days of hospitalization 53.3% of patients had horizontal nystagmus, Marinescu-Radovich symptom was detected in 40.1%, slightly pronounced tendon anisoreflexia was registered in 13.5% of patients (Diagram 2).

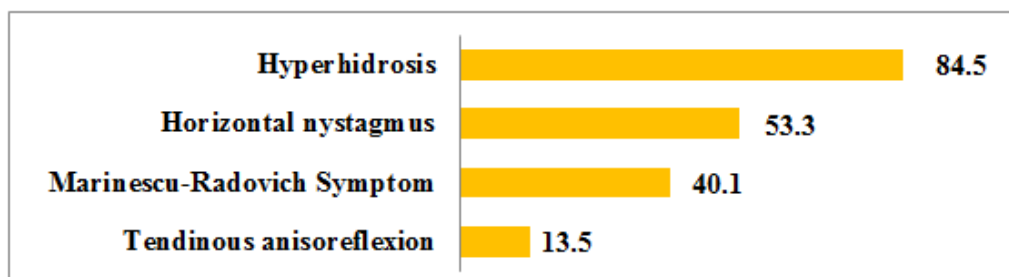


Diagram No 2. Frequency of focal neurological symptoms in the acute period of concussion (in %)

Almost all patients (98.3%) with brain concussion had an asthenic syndrome manifested by a significant decrease in mental performance, attention, and memory. In the vast majority of cases (84.5%) patients complained of general weakness, rapid fatigability, increased irritability, and sleep disturbances. In some cases a lumbar puncture was performed to exclude cerebral contusion, during which the cerebrospinal fluid was transparent in all cases, there was an increase in cerebrospinal pressure up to 190-210 mm a.c. in the supine position; no significant changes were noted on computed tomography examinations.

In order to determine the medical and social consequences of concussion, we conducted a follow-up study with 37 patients 6 months and one year after discharge from the hospital. The outcomes of concussion were assessed using a follow-up chart that we developed, reflecting the results of our clinical, neurological, and additional (computer or magnetic resonance imaging) examinations, electroencephalography, ocular fundus examination) examination methods. In the remote period of concussion, good recovery was observed in 29.8% of patients, recovery of function to a compensated state was observed in 62.1%, and moderate neurological disorders were observed in 8.1% of patients (Diagram No. 3).

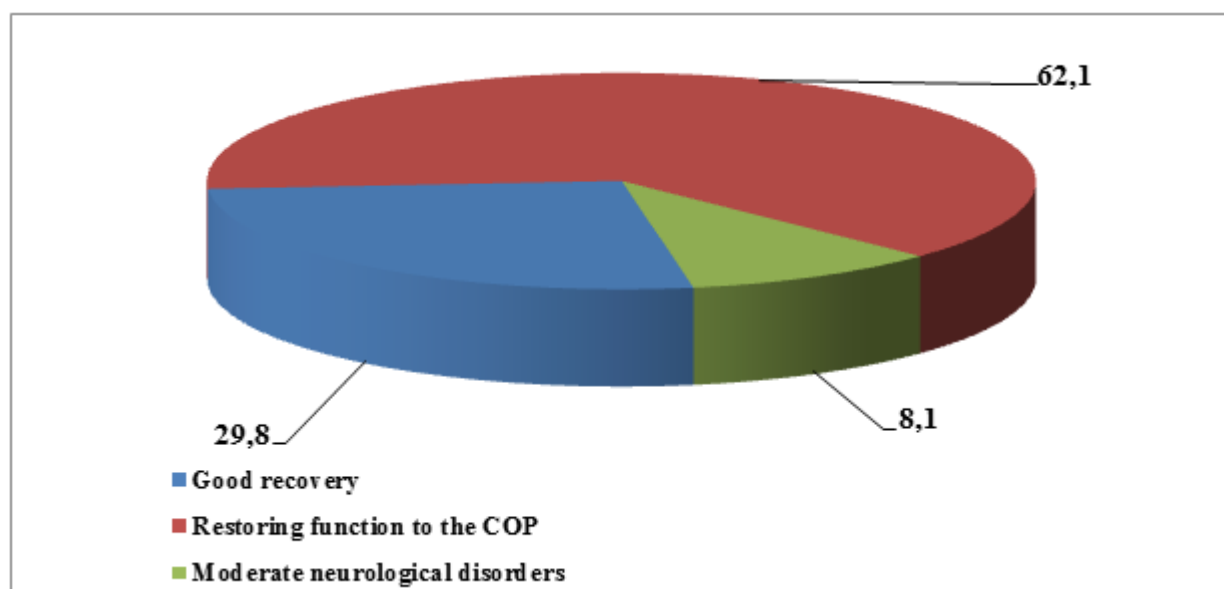


Diagram 3. Outcomes of concussion in the long-term period according to the results of follow-up study

Conclusions:

1. Concussion often occurs as a result of a fall from a height (61.7%), followed by a car accident (20.0%) and a blow to the head (18.3%), and is clinically manifested by generalized cerebral, focal symptoms, and asthenoneurotic syndrome;
2. General cerebral symptomatology of concussion manifested most frequently with loss of consciousness (91.7%), followed by dizziness (63.3%), nausea (59.8%), and vomiting (32.1%);
3. The main focal symptoms of concussion were hyperhidrosis (84.5%), horizontal nystagmus (53.3%), Marinescu-Radovich symptom (40.1%), and anisoreflexia (13.5%);
4. After a concussion, good recovery was observed in 29.8% of patients, recovery of function to a compensated state in 62.1%, and moderate neurological disorders in 8.1% of patients;

LITERATURE

1. Shtulman D.R., Levin O.S. Mild craniocerebral trauma // Journal of Neurology. 1999. - T. 4 - № 1. - C. 4 - 10. [Shtul'man D.R., Levin O.S. Legkaja cherepno-mozgovaja trauma // Nevrologicheskij zhurnal. 1999. - T. 4 - № 1. - S. 4 - 10. (In Russ.)].
2. V.V. Kolkutin (ed.), B.V. Gaidar, M.M. Odinak, P.A. Kovalenko et al. "In the case of craniocerebral traumas, a forensic medical assessment of the severity of damage to health (methodological recommendations) / M. - 2000. - 22 c. [V.V. Kolkutin (ed.), B.V. Gajdar, M.M. Odinak, P.A. Kovalenko i dr. "Sudebno-medicinaja ocenka tjazhesti vreda zdorov'ju pri cherepno-mozgovyh travmah" (metodicheskie rekomendacii) / M. - 2000. - 22 s. (In Russ.)].
3. Shodiev A.Sh., N.U. Norkulov "Age peculiarities of the course of mild closed traumatic brain injury" III Congress of neurosurgeons of Russia, St. Petersburg 2012. 45-46. [SHodiyev A.SH., Norkulov N.U.. "Vozrastnye osobennosti techenija legkoj zakrytoj ChMT" III s#ezd nejrohirurgov Rossii, Sankt-Peterburg 2002g. str. 45-46.(In Russ.)]
4. Ilkhomovna, K. M., Eriyigitovich, I. S., & Kadyrovich, K. N. (2020). Morphological Features Of Microvascular Tissue Of The Brain At Hemorrhagic Stroke. The American Journal of Medical Sciences and Pharmaceutical Research, 2(10), 53-59. <https://doi.org/10.37547/TAJMSPR/Volume02Issue10-08>
5. Khodjieva D. T., Khaydarova D. K., Khaydarov N. K. Complex evaluation of clinical and instrumental data for justification of optive treatment activites in patients with resistant forms of epilepsy. American Journal of Research. USA. № 11-12, 2018. C.186-193.
6. Khodjieva D. T., Khaydarova D. K. Clinical and neuroph clinical and neurophysiological ch ogical characteristics of teristics of post-insular cognitive disorders and issues of therapy optimization. Central Asian Journal of Pediatrics. Dec.2019. P 82-86
7. L. Likhterman et al., Concussion of the Brain, Moscow, 2008. -159 c. [L.Likhterman i soavt. Sotryasenie golovnogo mozga, M.-2008.-159 s. (In Russ.)].
8. N.U. Norkulov, A.Sh. Shodiev, S.N. Norkulov "The forensic medical estimation of consequences of a light craniocerebral trauma" All-Russian scientific and practical conference "Polenovskiy readings" Saint Petersburg 2008, April 27-30, pp. 63-64. [Norkulov N.U., Shodiev A.Sh., Norkulov S.N. "Sudebno-medicinaja ocenka posledstvij legkoj cherepno-mozgovoj travmy" Vserossijskaja nauch.prak.konf. "Polenovskie chtenija" Sank-Peterburg 2008, 27-30 aprel', str. 63-64. (In Russ.)].
9. Artaryan A.A., Corolev A.Y., Nepomnyashy V.P. et al. «Epidemiology craniocerebral trauma in children» Abstracts neurotraume. Symposium cruise Moscov- Volga River. – M.1997.
10. Asikainen I., Kaste M.,Sarna S. Early and late posttraumatic seizures in traumatic brain injury rehabilitation patients: brain injury factors causing late seizures and influence of seizures on long term outcome.// Epilepsia 1999 -V.40 -№5 -P. 584-589.