MEDICAL - SOCIAL SIGNIFICANCE OF NEUROLOGICAL SYMPTOMS IN ACUTE AND LONG-TERM PERIODS OF BRAIN CONCUSSION

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I. INTRODUCTION

Brain concussion (CM) is a mild traumatic brain injury (TBI), it accounts for up to 90% of all cases of traumatic brain injury [1,2,3,4]. According to a report to the US Congress, direct and indirect costs associated with traumatic brain injury in the United States amount to $60 billion per year. Treatment of one patient with mild TBI costs $2700 [5]. Annual economic losses of Russia due to injuries amount to 2.6% of GDP [6]. The significant frequency of residual effects and disability of victims after a concussion is currently fairly questioned, since the sample may include victims with mild, sometimes moderate brain contusions [7,8,9,10].

Despite the presence of numerous scientific studies devoted to the issues of the clinical course, diagnosis and treatment of concussion, there are still a number of controversial, mutually exclusive opinions due to the scarcity and ephemerality of the objective neurological symptoms of this disease. The reasons for the development of persistent post-concussion asthenic states, neuropsychiatric and vegetative-visceral disorders are assessed in different ways [11,12].

The current lack of clear ideas about the frequency, severity and duration of the main symptoms in the acute period of concussion often leads to diagnostic errors, a decrease in the quality of treatment, the emergence of certain medical and social problems [13, 14, 15], requiring new research in this direction.

Aim of the study: The purpose of this study is to study the medico-social significance of neurological symptoms in the acute and long-term periods of concussion.

Material and research methods: The present study includes data from clinical and instrumental examination and treatment of 63 patients with a diagnosis of concussion at the age from 7 to 69 years, of which 25 children under 14 years old (39,7%), people from 15 to 45 years old - 29 (46,0%) and over 46 years old was 9 (14,3%). The examination of the victims was carried out according to a special chart, including the most important signs of clinical, follow-up examination - age, hospitalization period, signs of somatic and neurological status, dynamics of the course and treatment of the disease, data of X-ray, ophthalmological, echo- and electroencephalographic (EchoEG, EEG), computed tomographic (CT) and follow-up examination.
Research results and their discussion: The causes of concussion in 37 (58.7%) cases were a fall from a height, in 15 (23.8%) - road traffic accidents and in 11 (17.5%) - a blow to the head.

The main clinical signs of concussion were short-term impairment of consciousness, the presence of amnesia, cerebral and focal symptoms. All analyzed patients (100%) complained of headache, impaired consciousness (from several seconds to several minutes) was observed in 58 (92.1%) patients. The next general cerebral symptom was antero-con-retrograde amnesia (90.5%), followed by sleep disturbance (66.7%), dizziness (63.5%), nausea (57.1%) and vomiting (31.7%).

Among the focal symptoms in most cases (84.1%), asymmetric hyperhidrosis was observed, which lasted until discharge from the hospital. In addition, the first days of hospitalization were marked by horizontal nystagmus (52.4%), the symptom of Marinescu - Radovic (39.7%) and tendon anisoreflexia (14.3%).

A concussion of the brain was often (96.8%) accompanied by asthenic syndrome, manifested by a significant decrease in mental performance, attention, memory, general weakness, and increased irritability.

Our studies have revealed that the age of the victims has a noticeable effect on the clinical course of concussion. So, in children, especially at an early age, there is a generalized reaction to trauma, as a result of which general cerebral symptoms sharply prevail (in 22 children) over focal (in 3 children). Various autonomic reactions were observed in 16 children. At the same time, out of 29 young and middle-aged patients, cerebral symptoms were observed in 11, focal in 22, and autonomic reactions in 13 patients. Meanwhile, concussion in 9 elderly and senile patients was also characterized by the predominance of focal symptoms (6 patients) over cerebral (4 patients), frequent (6 patients) dizziness and a protracted course, apparently due to the presence of various somatic diseases in the elderly.

In case of suspicion of the presence of meningeal signs, a lumbar puncture was performed to exclude cerebral contusion, in which the cerebrospinal fluid was transparent in all cases, an increase in cerebrospinal fluid pressure was noted on average to 190 - 210 mm. water. Art. in the supine position, no noticeable changes were observed on CT and EchoEG.

We give 3 examples, reflecting the age-related characteristics of the course of concussion in the acute period:

1. Patient R. F, 7 years old, case history No. 1018, was admitted on March 7, 2019, in the neurosurgical department of the clinic after a car accident. According to the accompanying persons, she lost consciousness for about 5 minutes. Complaints of headache, dizziness, nausea and general weakness.

   Objectively: The general condition is satisfactory, the function of internal organs is normal. Pulse 110 beats. in 1 min., neurostatus without disturbances, there is a horizontal nystagmoid. Craniograms were normal. No significant changes were revealed on CT.

   The lumbar puncture was performed - the cerebrospinal fluid was clean, transparent, the cerebrospinal fluid pressure in the supine position was 170 mm of the water column. March 8, 2019 Headache, dizziness persists. Pulse 98 beats per minute, horizontal nystagmoid is preserved.

   March 11, 2019 In dynamics, the headache decreased, appetite appeared. Objectively, the pulse was 86 beats per minute, the nystagmoid disappeared.

   March 16, 2019 Discharged in satisfactory condition.

2. Patient S.Kh., 40 years old, case history No. 2980, was admitted to the neurosurgical department on 5.04.2019 after falling from a height. Complaints of headache, dizziness, general weakness, poor sleep. Objectively: The general condition is satisfactory. Blood pressure 130/90 mm Hg. Pulse 100 beats per minute. In the neurological status, retrograde amnesia, horizontal nystagmus, Marinescu-Radovich symptom, anisoreflexia are determined.

   On craniograms, a fracture of the skull bones is not noted, CT-signs of discirculatory encephalopathy.

   Ophthalmologist - retinal vein enlargement. With lumbar puncture, the cerebrospinal fluid is clear, transparent, the cerebrospinal fluid pressure is 200 mm of water column.

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April 6, 2019 Complaints of headache, general weakness, sleep disturbance. Objectively: nystagmus, Marinescu-Radovic's symptom.

April 9, 2019 Complaints of a minor headache. Objectively: a persistent symptom of Marinescu-Radovic.

April 16, 2019 Discharged in satisfactory condition.

3. Patient B. I, 68 years old, case history No. 3965. He was admitted to the clinic on May 7, 2019, 16 hours after falling from his height.

According to the patient and his entourage, he lost consciousness for about 7 minutes, there was an urge to vomit. Complaints of headache, dizziness, nausea, sleep disturbance. Objectively: The general condition is satisfactory. A / D 140/90 mm Hg, Pulse 86 beats per minute, retrograde amnesia, increased reflexes and a pathological Babinsky reflex on both sides.

Craniograms showed no signs of bone damage, CT scan showed moderate atrophic changes in the brain. Ophthalmologist-angiospasm of retinal vessels, Echoes-normal.

May 8, 2019 Produced lumbar puncture-clear cerebrospinal fluid, the pressure of the cerebrospinal fluid in the position on the side 220 mm of the water column.

May 11, 2019 the dynamics of the reduction of headache and dizziness. General weakness and poor sleep are noted. Objectively: regression of focal symptoms.

May 14, 2019. Discharged in a satisfactory condition.

From the moment of admission to the hospital, the patients received conventional treatment, including nootropics, diuretics (injections), sleeping pills and sedative pills.

In order to determine the medical and social consequences of a concussion of the brain, we carried out a follow-up study covering 37 patients 6 months to one year after discharge from the hospital. Evaluation of the outcomes of concussion in these patients was carried out according to the classification proposed by B. Jennet, M.Bond (1975) - good recovery (recovery), restoration of functions to a compensated state (CS), moderate neurological disorders (UNI).

In the long-term period of concussion, recovery was noted in 11 (29.8%) patients, restoration of function to CS in 23 (62.1%) and UNI in 3 (8.1%) patients.

Here are the results of a follow-up study of three patients included, for example, in the acute period of a concussion:

1. Girl R. F, 7 years old, case history No. 4329, 6 months after the injury, no complaints. Objectively: the general condition is satisfactory; the internal organs are without features. Performs stato-coordinator tests confidently. A trial of finding numbers according to the Schulte-1min table. 25 sec. Study of the ability to memorize words: the first time she memorized 7 words, with the 3rd and 5th repetitions - 8. Echo- and EEG showed no noticeable changes.

The outcome is a good restoration of all vital functions.

2. Patient S.Kh., 41 years old, case history No. 5746. 9 months after the injury, he complains of fatigue during exertion, loss of memory and attention. Objectively: the general condition is satisfactory, no significant abnormalities were found in the internal organs. When performing stato-coordinator tests, instability in the Romberg position is determined. Asthenoneurotic syndrome is noted. A trial of finding numbers according to the Schulte-1min table. 25 sec. Study of the ability to memorize words: the first time he memorized 6 words, with the 3rd repetition - 7 and with the 5th repetition - 8 words.

EEG shows moderate cerebral changes in the BA of the cortex, CT of the brain shows discirculatory encephalopathy.

The outcome is the restoration of functions to a compensatory state.
3. Patient B.I., 69 years old, case history No. 7398. After 11 months, she complains of moderate headache, dizziness, fatigue with minor physical and mental stress, sleep and appetite disturbances. Objectively: the general condition is satisfactory. Instability of hemodynamics is periodically noted. There are no gross focal neurological symptoms. Uncertainty and instability are determined when performing stato-coordinator tests.

A test for finding numbers according to the Schulte-37sec table. Study of the ability to memorize words - at the first attempt, she memorized 6 words, at the 3rd and 5th repetitions, 7 words.

EEG shows pronounced cerebral changes, CT-expressed circulatory changes with atrophy of the brain substance.

The outcome is moderate neurological impairment.

For clinicians (neurosurgeons, neurologists), forensic medical experts and commissions to determine the degree of work capacity of victims, clinical symptoms, the results of modern additional research methods, detected in acute and remote periods of concussion, are of great importance.

II. CONCLUSIONS

1. Concussion of the brain often occurs as a result of a fall from a height (58.7%), then a car accident (23.8%) and a blow to the head (17.5%), clinically manifested by cerebral, focal symptoms and asthenoneurotic syndrome;

2. The general cerebral concussion symptoms are manifested by headaches (100%), impaired consciousness (92.1%), amnesia (90.5%), sleep disturbances (66.7%), dizziness (63.5%), nausea (57.1%) and vomiting (31.7%). Focal concussion symptoms are hyperhidrosis (84.1%), horizontal nystagmus (52.4%), Marinescu-Radovic symptom (39.7%) and anisoreflexia (14.3%). Asthenic syndrome (96.8%) is manifested by a decrease in performance, attention, memory, general weakness, irritability and sleep disturbance.

3. Concussion of the brain is characterized by age-related features of the course in acute and medico-social consequences in the remote periods. In children, the acute period of a concussion of the brain proceeds with a predominance of cerebral symptoms over focal ones, and in adults, focal symptoms dominate over general cerebral symptoms. After suffering a concussion, good recovery was noted in 29.8%, recovery of function to a compensated state in 62.1%, moderate neurological disorders in 8.1% of patients. Post-concussion effects are more common in adults than in children.

LITERATURE / REFERENCES


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