IMPORTANT ASPECTS OF ANALYTICAL COMPARISON OF BRAIN INJURIES BASED ON LITERATURE REVIEW

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Abstract. This article was developed in order to determine the theoretical and methodological knowledge and skills of researchers who are developing as a result of scientific and research work in Uzbekistan and to provide them with additional knowledge and skills necessary for conducting scientific research.

The problem of studying the mechanisms of occurrence and pathology of traumatic brain injury remains highly relevant for both forensic and clinical medicine. For forensic medical expert practice, the assessment of various aspects of mechanical brain damage is of great practical and theoretical interest. This includes establishing the nature of damage (Al-Sarraj S. et al., 2012), and differential diagnosis of primary and secondary origin of damage (Mustafaeva A.S., et al., 2008; Konovalov A.N., et al., 2012; Chew B., et al., 2012), and clarifying the mechanism of their formation (Karataeva L.A., et al., 2015) and clarifying the criteria for the vitality of damage (Toshboev S.M. et al., 2010). Separately in expert practice, there is a question of diagnosing the immediate causes of death, the conditions of the course and objectification of the sequence of stages of the dying process (thanatogenesis) of victims with various types of TBI.

Head injuries are characterized by a variety of clinical courses and high mortality (Likhterman L.B., et al., 2016). The morphogenesis of various types of TBI has been studied in sufficient detail (Kolkutin V.V., et al., 2008) The sequence of occurrence of various stages of pathological processes in TBI and non-traumatic intracerebral lesions is described (Likhterman L. B., 2014). The mechanisms of development of individual complications in TBI are indicated (Konovalov A. N. et al., 2012). The variety of circumstances of the incident in which blunt head trauma occurs determines a wide range of issues submitted by judicial investigative bodies for resolution by a forensic medical expert. In particular, about the immediate cause of death in TBI, the mechanism of its formation, the ability of victims to perform independent active and purposeful actions after the injury, etc. It is possible to answer these questions during the examination of TBI accompanied by the

formation of subdural and epidural hemorrhages only if the forensic expert has objective criteria for assessing the differences between primary and secondary hemorrhages in the brain (Porodenko V.A. et al., 2009, Potapov A.A. et al., 2010). In recent years, forensic experts have been paying increasing attention to the problem of expert assessment of trauma in connection with the constant increase in the number of fatal and non-fatal injuries. Traumatic brain injury (TBI) remains a pressing problem due to its prevalence and severe consequences, the annual increase in the proportion of consequences of concussion and brain contusions. Mortality from TBI prevails among young and middle-aged people. The proportion of neurotrauma increases by 2% or more every year, and accounts for 35% to 80% of all injuries to the body. According to many authors, there is a continuing increase in the number of injuries among the population, including children, 25% of injuries were among children, and trauma was one of the main causes of death and disability in children, which is a significant medical and social problem.

According to WHO, the increase in road accidents is expected to be 20%, domestic injuries by 7-9%, injuries received as a result of various conflicts by 15-17%. Every year, traumatic brain injuries are observed in 4-5 residents per 1000 population per year. The age of most victims is 20-30 years, there is also a slight increase in the frequency of TBI among people over 65 years old. There are 2.5 times more males than females who have suffered from TBI, mainly among people with a low economic standard of living. About 12,000 victims of TBI are hospitalized in Moscow neurosurgical hospitals per year, of which up to 40% of victims have severe injuries, about 30% of patients undergo surgery. The frequency of outpatient visits due to TBI is about 180 to 220 per 100,000 population per year. Mortality among all patients admitted with TBI reaches 7%. WHO cites data that the number of traumatic brain injuries tends to increase further. The problem of traumatic brain injury in all countries is acquiring important national significance due to the large economic damage and significant losses in the production sector..

The incidence of traumatic brain injury in the Republic of Uzbekistan has increased significantly in recent years. According to V.V. Yartsev, in the Republic of Uzbekistan, in particular among the adult population of Tashkent, the most common type of traumatic brain injury is cerebral contusion (88.8%), brain contusion - 6.5%, compression - 4.7% (29).In 30-96% of cases, people who have suffered a head injury experience various consequences, which make up to 10% of all patients with a neurological profile.

Data from medical statistical reporting, in the structure of craniocerebral injuries in Astana, according to a clinical and epidemiological study of craniocerebral trauma in the railway hospital, showed that concussion accounts for 66.5% of mild craniocerebral injuries, out of the total number of those treated in the hospital. At the same time, there is a low appeal rate of victims, especially young people from among internal migrants, most likely due to social problems (low wages, housing and living conditions, lack of permanent work, unwillingness to have contacts with law enforcement agencies, low sanitary culture, etc.) most likely associated with these reasons. But at the same time, timely treatment by external migrants and foreigners coming to work has been noted, which leads to adequate treatment and, in most cases, to full restoration of working capacity.

In the pathogenesis of traumatic brain injury, biomechanical indicators of traumatic brain injury occupy a significant place. Earlier in the process of studying the problems of TBI, the following were proposed: the theory of molecular oscillations of Petit Leninger B.E., experimental studies of I.N. Pirogov, works of Wang C.C., B.I. Sharapov, the "rotational" theory of Holbourn, S.G. Zagrobyan, the theory of cerebrospinal fluid push Duret, the gradient theory of Goggio, N. Burdenko. In the development of remote consequences of traumatic brain injury, several types of course are distinguished: regressive, stable, remittent, progressive. The prognosis of the disease is determined by the frequency and severity of periods of decompensation and post-traumatic state. The pathogenesis of the consequences of TBI and the mechanisms determining the onset of decompensation are a problem that has not been fully studied. In the formation of traumatic brain disease, all changes developing after trauma represent a complex of pathological processes caused by a combination of trauma and compensatory-adaptive mechanisms. Pathological processes and the main mechanisms of their decompensation of the consequences of TBI occur already in the acute period of trauma. The following main pathological processes are known: damage to the brain tissue at the time of trauma, cerebrospinal fluid dynamics disorders, cerebrovascular accident, formation of cicatricial-adhesive processes, autoneurosensitization processes.The trigger mechanism of TBI is based on the sudden impact of mechanical energy on the head with damage to the brain matter and skull bones, which is represented by the force of this applied mechanical energy per 1 cm2 of the area of the skull bones. Taking this into account, one can judge the localization of intracranial hemorrhages, combined, diffuse or focal damage to the brain. There are 3 types of TBI depending on the biomechanics of TBI. With mild TBI, there is often mild

damage to nerve fibers and microvessels. Contusion foci are most often formed in the basal parts of the frontal and anterior parts of the temporal lobes, which are in close contact with the protruding bone relief. Vascular factors play an important role in the pathogenesis of TBI.

According to Abeuov B.A. (1996), trauma causes an increase in intracranial pressure, resulting in anemia of large areas of the brain. The most vulnerable section, according to Cushing, is the medulla oblongata, where irritation of the vasomotor centers occurs and leads to an increase in blood pressure. With closed craniocerebral trauma, direct damage to the blood vessels of the brain is observed with the occurrence of many small hematomas.

Brain damage can be directly related to trauma (primary), or develop as a complication of trauma (secondary). At the moment of injury, there is a twisting of the massive cerebral hemispheres relative to the rigidly fixed trunk, which in turn causes tension and twisting (rotation) of the long axons in the depths of the white matter of the hemispheres, the corpus callosum, the trunk, connecting the cortical sections with the subcortical and trunk structures (diffuse axonal injury). Brain contusions occur with direct local impact of a traumatic agent (contact trauma) with fractures of the skull bones. Often, there are foci of brain crushing, which are explained by the mechanical theory of contusions. Henschen, having introduced the term "traumatic asynapsis", also implies that with mild TBI there are functional and structural disconnections between neurons. This is confirmed by the results of the study of N.I. Grashchenkov and colleagues. Physiological changes occurring in the body of the victim are the result of traumatic damage to the hypothalamic-pituitary-stem structures with dysfunction of the reticular formation, hypothalamus, pituitary gland with the development of disorders of the autonomic, metabolic and neuroendocrine regulation systems.

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