

TACTICS OF MEDICAL CARE FOR PATIENTS WITH TRAUMATIC INTRACRANIAL HEMATOMAS AFTER A SEVERE TRAUMATIC BRAIN INJURY

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ABSTRACT

The analysis of the stages of emergency medical care, examination and treatment of 300 patients with traumatic intracranial hematomas after severe traumatic brain injury was carried out. According to our data, a clear implementation of treatment and diagnostic measures ensures maximum urgency and quality of medical care for patients with traumatic intracranial hematomas. Indications for emergency surgical treatment in patients with traumatic intracranial hematomas are: the presence of a picture of acute compression of the brain against a background of gross clinical decompensation. Conservative treatment is required for patients with traumatic brain injury of all degrees of severity without signs of compression of the brain. Conservative treatment of sheath hematomas of small volume, intracerebral hematomas and contusion hemorrhagic foci is allowed only in conditions of constant MSCT or MRI control. Timely provision of emergency medical care, comprehensive diagnosis and differential treatment of patients with traumatic intracranial hematomas in severe traumatic brain injury allows us to establish a diagnosis in the acute period of the injury and determine the treatment tactics. This helps to reduce mortality, disability and hospitalization for patients with severe traumatic brain injury.

KEYWORDS— hematomas, compression, intracranial, brain, MRI

I. INTRODUCTION

Analysis of neurotrauma indicators shows an increase in the frequency of traumatic brain injury (TBI). The frequency of severe head injury is also great, accounting for 9-19% of its total amount. The significant severity of these injuries, the high incidence of complications and disability creates many difficulties in providing medical care to patients with a head injury. In addition, a significant portion of patients - children, people of young, working-age [1,2,3]. According to the literature, cerebral compression by traumatic intracranial hematomas accounts for 10-15% of the entire head injury [4,6,9,10]. In many areas, cities, and regions of our republic, the need is constantly being felt for improving the provision of medical care for a head injury. Such assistance is provided mainly in the surgical and trauma departments of district and city hospitals, where a significant number of victims with traumatic brain injury enter, which requires the training of specialists from these institutions [1,2,5]. According to various schools of neurosurgeons, the tactics of treating severe head injuries caused different approaches to the treatment of this category of patients. However, a large percentage of unsatisfactory results remain after conservative and surgical treatment of severe traumatic brain injuries. Analyzing modern literature, the tactics and differentiated treatment of traumatic intracranial hematomas and other traumatic intracranial substrates after severe traumatic brain injury have not yet been clarified.

II. MATERIALS AND METHODS

An analysis of the stages of emergency medical care, examination, and treatment of 300 patients with traumatic intracranial hematomas after severe traumatic brain injury who were treated at the Republican Specialized Scientific and Practical Medical Center for Neurosurgery was carried out. The age of patients ranged from 7 to 87 years. There were 260 men (65%), 140 women (35%). All patients underwent a general clinical examination and topical-neurological examination. The severity of the condition and the level of depression of consciousness were evaluated on a Glasgow coma scale. All patients underwent brain MSCT/MRI, craniography, echoencephalography, and an ophthalmologist examination.

III. RESULTS AND DISCUSSION

Medical care for severe traumatic brain injury (TBI) includes first aid, qualified medical care, and specialized care. At

all stages, it combines emergency diagnostics with the use of emergency medical benefits, the choice of surgical or conservative treatment.

In the first and second stages, medical care is provided by medical institutions located closer to the scene. Forces by the ambulance team, the medical personnel of these institutions takes over patients with traumatic brain injury. Specialized medical care is provided in sub-branches of the Republican Scientific Center for Emergency Medical Aid and in large hospitals that have the necessary equipment and personnel to provide emergency medical care to patients with severe traumatic brain injury. The next stage in the provision of medical care is the branches of the Republican Scientific Center for Emergency Medicine, regional or city hospitals that can provide high-tech specialized neurosurgical care. All of the above and practice shows that the phased provision of therapeutic and diagnostic measures ensures maximum urgency and quality of medical care to the population. The main task is to identify the leading pathology after a severe head injury, which is often difficult, due to the presence of combined trauma, traumatic or other types of shock, alcohol intoxication, and the lack of accurate history. Based on this and given the difficulties in diagnosis, doctors are encouraged to use the so-called syndromic approach. It is necessary that emergency doctors should be able to recognize the following syndromes: impaired consciousness - clear consciousness, stunning (moderate, deep), stupor in combination with psychomotor agitation, coma of varying degrees; syndromes of acute compression of the brain - light gap, anisocoria, bradycardia, epileptic syndrome, hemisymptomatics (hemiparesis, hemiplegia); external signs of a penetrating head injury, or an impressed fracture of the skull; various types of respiratory failure - central, mechanical, mixed.

Impairment of consciousness is one of the most common symptoms in patients with severe TBI, which may be due to the following reasons - intracranial hypertension, compression and dislocation of the brain, impaired blood circulation, and impaired axonal conduction in the brain, as well as a combination of these reasons. It is advisable to assess the level of consciousness in the diagnosis of TBI on the Glasgow coma scale (G.Teasdale, B.Jenett). When assessing the level of consciousness, it is necessary, first of all, to make sure that the violation is connected precisely with a traumatic brain injury. You need to know that the cause of impaired consciousness can be: stroke, various intoxications of the central nervous system, hyper- and hypoglycemia, shock, electrical trauma, and other causes. All of the listed reasons for impaired consciousness should be excluded with the help of specialists. On the other hand, in cases of emergency medical care for a patient with a coma of unclear etiology, there should be paramount alertness in terms of TBI.

Fundamentals of the diagnosis and treatment of traumatic brain injury

Brain compression syndrome is one of the main syndromes of severe head injury, which is the main threat to the patient's life and a fundamental indication for emergency surgical treatment.

Cerebral compression is usually caused by a traumatic intracranial hematoma, a contusion-hemorrhagic focus, a post-traumatic hydroma, a depressed fracture of the skull, traumatic pneumocephalus, or a combination thereof. The basis for the diagnosis of severe TBI is the syndromic diagnosis of compression of the brain, as well as characteristic features, the topic, and localization of the traumatic substrate (HDTV, etc.). Which includes: assessment of the clinical and neurological picture; assessment of radiographic data; local data assessment; assessment of the nature and biomechanics of the injury; assessment of the results of additional research methods. Diagnosis should be carried out simultaneously with emergency treatment measures. Tactics should be subject to the principle of urgency - with the accumulation of a sufficient amount of data - the examination immediately stops and surgical treatment is performed. Assessment of the clinical and neurological picture, nature, biomechanics, and diagnostic data for traumatic brain injury. According to our data, we found that in a non-specialized hospital, especially in the absence of a neurologist, the diagnosis of the main signs of acute compression of the brain is effective.

The main signs of cerebral compression are light gap, bradycardia, anisocoria, epileptic seizures, hemiparesis. These signs should be considered the main ones since they are pathogenetically caused by compression of the brain, intracranial hypertension, and a beginning dislocation.

The luminous gap is one of the most informative signs of brain compression. The luminous gap can be expanded when, after the initial loss of consciousness to a coma, it is restored to clear consciousness, and then again lost to a coma. The erased light gap is when the recovery of consciousness is not complete, reaches a degree of moderate and deep stunning, or when the depth of impaired consciousness before and after the light gap does not reach the level of coma.

There is also a luminous gap without primary loss of consciousness - in this case, immediately after an injury, consciousness does not suffer, and after a while, its violation develops. Such a bright gap is more often observed in children. The duration of the bright interval from several minutes to several days and weeks - it depends on the characteristics of the traumatic brain injury.

Bradycardia is the second most informative sign of acute compression of the brain (with a heart rate of fewer than 60 beats/min). Bradycardia occurs when the brain stem is compressed, after the dislocation of the temporal lobe. The presence and increase of bradycardia dictate an emergency examination and the provision of medical care, as is a sign of impending decompensation.

Anisocoria is the third most informative sign of compression of the brain. Anisocoria is associated with compression of the leg of the brain during dislocation. Anisocoria is taken into account in the presence of a persistent pupil width difference of 2 mm. and more, with a decrease in the photoreaction of the pupil on the side of mydriasis. The presence

of gross anisocoria indicated increasing compression of the brain stem and requires urgent examination and preparation for surgical treatment. Epileptic seizures with traumatic intracranial hematomas are rare, but nonetheless, the presence of this symptom is great. Epileptic seizures occur due to compression of the cerebral hemispheres and irritation of the cortex by epi-subdural and intracerebral hematomas or during dislocation and infringement of the temporal lobe. The appearance of this symptom should alert doctors with the danger of an increase in epileptic seizures with a transition to epileptic status with a rapid increase in the severity of the condition of a patient with traumatic brain injury. Thus, the presence of epileptic seizures requires an emergency examination of the patient and preparation for surgical treatment. Hemiparesis is a sign of compression of the hemisphere of the brain by a traumatic intracranial hematoma or compression of the brain stem due to dislocation.

At the same time, all five main signs of compression of the brain are not observed, almost never. More often in patients, 1-2 signs of acute compression of the brain are detected. The presence of at least one main sign of compression of the brain in a patient is a serious reason to suspect a traumatic intracranial hematoma.

The absence of the main signs of acute compression of the brain in traumatic epidural, subdural, intracerebral, multiple hematomas according to our data was noted in 20% of cases.

IV. CONCLUSION

1. The provision of timely medical care to our population is an important and priority area of public health in our Republic. According to our data, clear implementation of treatment and diagnostic measures ensures maximum urgency and quality of medical care for patients with traumatic intracranial hematomas.
2. The basis for the diagnosis of severe head injury is the syndromic diagnosis of compression of the brain, as well as signs characterizing the topic of the location of traumatic intracranial hematomas, hydrooma, post-traumatic pneumocephalus, impressed fractures of the skull, etc.
3. The main signs of cerebral compression in HDTV are light gap, bradycardia, anisocoria, epileptic seizures, and hemiparesis.
4. Indications for emergency surgical treatment in patients with HDTV are the presence of a picture of acute compression of the brain against the background of a state of gross clinical decompensation (deep stunning and more, an increase in the depression of the level of consciousness, the appearance of dislocation symptoms, and violation of vital functions).
5. Conservative treatment is required for patients with a traumatic brain injury of all degrees of severity without signs of compression of the brain. Conservative treatment of sheath hematomas of small volume, intracerebral hematomas, and contusion hemorrhagic foci is allowed only in conditions of constant MSCT or MRI control.
6. The timely provision of emergency medical care, comprehensive diagnosis, and differentiated treatment of HDTV for severe traumatic brain injury allows you to establish a diagnosis in the acute period of the injury and determine the treatment tactics. This helps to reduce mortality, disability, and hospitalization for patients with severe traumatic brain injury.

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