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Intracranial Hypertension of Traumatic Genesis in Combined Traumatic Brain Injury

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The study data are based on an analysis of 615 patients who underwent comprehensive examination and treatment in the neurosurgery, traumatology, and neuroreanimation departments of the Andijan branch of the Republican Scientific Center for Emergency Medical Care (ABRSECMC). Patients ranged in age from 16 to 76 years, with men constituting the majority in both study groups. Patient follow-up data spanned from 2005 to 2013 г2015. Our ABRSECMC has specialized admissions departments for patients with multiple injuries. This includes simultaneous qualified care from a neurosurgeon, traumatologist, ophthalmologist, ENT specialist, neurologist, gynecologist, surgeon, and urologist, followed by clinical and paraclinical examinations. This factor enabled timely, comprehensive clinical diagnosis and the provision of targeted emergency medical care for multiple injuries.

The aim of the work is to study the optimal methods of diagnosis and surgical treatment of intracranial hypertension syndrome in combined traumatic brain injury.

Materials and methods. Road traffic injuries were identified in 394 (64%) cases, household injuries in 160 (26%), falls from height in 37 (6%), industrial injuries in 18 (3%), and sports injuries in 6 (1%). Among the causes of TBI, road traffic injuries and household injuries were the most common (90%). Other causes, such as falls from height, industrial injuries, and sports injuries, accounted for a total of 10% of cases.

Concussion was diagnosed in 264 (43%) victims, mild brain contusion in 178 (29%), moderate in 62 (10%), severe in 80 (13%), and diffuse axonal brain injury in 31 (5%).

Among patients, ICH syndrome developed in 178 victims (29%).

The following additional studies were used for diagnosis: radiography; CT; angiography; MRI; lumbar puncture; Echo-EG; EEG, transcranial Doppler.

Ventriculostomy was used for ICP monitoring (in 167 patients), with which other measurement methods were compared. The advantages of ventriculostomy included its relatively low cost and the crucial therapeutic option of draining cerebrospinal fluid for ICP control and/or sanitation, with the possibility of intraventricular drug administration. The main disadvantages of a ventricular catheter included difficulty in inserting it into compressed or dislocated ventricles, as well as the significant risk of associated infection during long-term ventricular ICP monitoring.

Results: According to radiological methods, skull fractures were detected in 375 (61%) patients, of which 70% had depressed fractures of the cranial vault.

A study of the structure of intracranial injuries shows that subarachnoid hemorrhages predominate in 400 (65%) cases. Intracranial traumatic hematomas, often associated with subarachnoid hemorrhage, were present in 264 (43%) patients. Subdural hematomas were diagnosed in 105 (17 %) victims, intraventricular hemorrhage in 92 (15%), and epidural hematomas in 80 (13%). Closed TBI was diagnosed in 412 (67%) patients, and open TBI in 203 (33%).

In 178 (29%) victims, intracranial hypertension developed, identified on the basis of data from ultrasound Dopplerography of the cerebral vessels, electroencephalography, craniography, computed

tomography, neuromonitoring, cerebrospinal fluid, neuro-ophthalmological and psychophysiological examinations.

The main criteria of intracranial hypertension syndrome were: changes in memory and attention (91.8%), including pronounced ones (32.9%); absence of pulsation of the central retinal vein (89.5%); decrease in the vasomotor reactivity index to 64% (79.7%), hydrocephalus according to magnetic resonance or computed tomography (61.8%), pathological types of electroencephalograms (53.9%) and additional criteria: radiological signs (24.2%), headache accompanied by nausea (23.7%), epileptic syndrome (14.5%); congestion in the fundus (9.2%).

In most patients with severe condition, emergency computed tomography (CT) of the brain helped resolve the emerging symptoms (in 141 (23%) victims). In all cases of impaired consciousness, sometimes combined with acute respiratory or cardiac failure, in traumatic brain injury, neuroimaging, in particular CT and magnetic resonance imaging (MRI) of the brain, was considered justified. Intracranial pressure monitoring was performed in patients with severe TBI (3-8 points on the Glasgow Coma Scale) with and without pathology on CT (in the latter case, in the presence of at least two of the following: age over 40 years, the presence of unilateral or bilateral decerebration, systolic blood pressure < 90 mmHg).

Modern comprehensive diagnostics of congenital heart disease allows for a reduction in mortality rates, thereby improving the results of treatment of traumatic brain injury in the acute period.

Used literature:

1. Del Verme J., Conti C., Guida F., Use of gelatin hemostatic matrices in patients with intraparenchymal hemorrhage and drug-induced coagulopathy. J Neurosurg Sci. 2019; 63: 737-742 https://doi.org/10.23736/S0390-5616.16.03362-2
2. Garza, N.; Toussi, A.; Wilson, M.; Shahlaie, K.; Martin, R. The Increasing Age of TBI Patients at a Single Level 1 Trauma Center and the Discordance Between GCS and CT Rotterdam Scores in the Elderly. *Front. Neurol.* 2020, *11,* 112.
3. Isakov, B. M., Mamadaliev, A. B., Khakimov, M. N., & Isakov, K. B. (2022). On the issue of surgical methods for the treatment of dislocation syndrome in supratentorial brain tumors. International journal of social science & interdisciplinary research ISSN: 2277-3630 Impact factor: 7.429, 11 (04), 14-16.
4. Nicoletti GF, Umana GE, Graziano F., Florio A., Scalia G. Repair of a spinal pseudomeningocele in a delayed postsurgical cerebrospinal fluid leak using titanium U-clips: technical note. Interdiscip Neurosurg Adv Tech Case Manag. 2020; 21: 100742 https://doi.org/10.1016/j.inat.2020.100742