Medical and Research Publications
International Open Access

Research Article **Journal of MAR Neurology (Volume 3 Issue 4)**

Differentiated Approach to The Treatment of Traumatic Intracerebral Hematomas of The Large Hemispheres

Arzikulov Jahongir Muzaffarovich[1], Boboev Khasan Lukmonovich[2], Kholmanov Zhasur Abdusalamovich[3], Alikhodjaeva Gulnora Alautdinovna[4].

1. Master in "Neurochyurgia", Tashkent Medical Academy, Uzbekistan, Tashkent city.
2. Master in "Neurohiuurgy", Tashkent Medical Academy, Uzbekistan, Tashkentcity.
3. Master in "Neurohiuurgy", Tashkent Medical Academy, Uzbekistan, Tashkentcity.
4. Professor, Doctor of Medical Sciences, Tashkent Medical Academy, Uzbekistan, Tashkent city.

Corresponding Author: Arzikulov Jahongir Muzaffarovich, Master in "Neurochyurgia", Tashkent Medical Academy, Uzbekistan, Tashkent city.

Received Date: October 25, 2021

Published date: November 01, 2021

Abstract

Despite the fact that acute traumatic intracerebrotic hematoma is considered a common traumatic brain injury with severe traumatic brain injuries and harms almost millions of lives around the world in a year, it remains unclear whether to treat TVMG, whether to perform surgery, or conservative treatment.

The purpose of the study is to improve the results of treatment of patients with traumatic intracerebral hematomas through the use of differentiated treatment methods.

Key words*: trepanation of the skull; intracerebral hemorrhage; traumatic brain damage.*

Introduction. *Even though acute traumatic intracerebral hematoma is a common intracranial injury due to severe traumatic brain injury and it deteriorates almost a million lives health globally per year, the management of TICH whether to perform surgery or conservative treatment is remaining tentative. The aim of study to improve treatment results of patients with traumatic intracerebral hematomas by using differential management tactics.*

Introduction

In the U.S., there are 1.6 million representations of traumatic brain injury(TBI)inemergency departments[1]. Countries' morbidity rates differ between 56 and 430 per 100,000 population per year [2], with the highest recorded rate in Asia (344 per 100,000) and the lowest in the United States (103 per 100,000). Mortality for severe isolated TBI in the UK fluctuated between 16% and 40% [4], compatible with the international rate, which vary between 15% and 38% [3].Intracranial hemorrhages appear in more than 60% of serious TPGM in one or more of the three types: extradural, subdural, and intracerebral. Early surgical removal of significant, subdural (SDH) and epidural hematomas (EDG) is well established and widely accepted. Intracerebral hemorrhages are more common than these other types and often leads to worse outcomes, but the role for surgery and its timing remains uncertain. Several terms are used to describe the condition, including traumatic intraparenchymal hemorrhage, traumatic intracerebral hemorrhage (TVMG), and concussion.

Usually, intracranial pressure (ICP) is considered as the main criteria in patients with severe TBI. Cranial trepanation would normally occur in patients with high ICP (≥30mm Hg), and those with low ICP (≤20 mmHg) would be treated conservatively. Patients with ICP between 20 and 30mm Hg would be closely observed and would undergo cranial trepanation, with an increase in ICP [5]. This ICP-based approach was recommended by the Trauma Brain Fund [6]. However, not all hospitals (including all hospitals in Uzbekistan) have or use IHD monitoring is controlled for patients with TVMG, despite the fact that they can be classified as having traumatic brain damage. Rapid management of patients with TVMG requires an evaluation to determine whether early surgery should become part of the standard of care in the same way as for EDG [7] and SDH [8].

The goal of early surgical removal of TVMG is to prevent secondary brain injury, which is thought to be caused by many mechanisms. Blood released outside the vessel is believed to be neurotoxic, leading to secondary trauma that can be avoided by early surgical removal. Large TVMH may be associated with ischemic penumbra of brain tissue that may have been saved, and some TVMHs expand to the point

where they cause a massive effect leading to secondary brain injury. The shell-shocked brain does not seem to recover and appears later as an encephalomalacial loss of brain tissue on a convulsive phase mapping. Removing a permanently damaged brain contusion with TVMG does not increase tissue loss. As with spontaneous intracerebral hemorrhage (SVMG), patients who will worsen clinically, and the question of early surgery arises to expect such secondary damage. Surgical treatment is less common in Europe or North America than Asia. In patients carrying TVMG, the level of disability has a greater impact on the ability to return to employment and economic output, as they had a tendency to be younger than those who carry SVMG. TVMGs more tend to be fractional, superficial, and have a medium-sized volumeof [9]. These differences between conditions mean that the role of surgery for TVMG cannot be directly derived from the results from surgical trial data for SVMG. If early surgery benefits TVMG patients, then the introduction of early referral and diagnosis with urgent treatment can reduce the rate of death and disability in this particular group of TBI patients.

Methods

The study was a national, mono-center, presumptive, randomized trial. Patients who had a computed tomography (CT) examination (which confirmed the diagnosis, size, and location of the hematoma) reviewed for the trial. Patients were included, if they were adults, within 48 hours of TBI and had evidenceof TVMG on KT with a merging volume of attenuation significantly elevated above that of the secondary white and gray substances greater than 10 ml calculated: (length • width • height) / 2 in cm10.

The exclusion criteria were: significant intracranial superficial hematomas like EDG or SDG and needy surgery; three or more individual hematomas that meet the inclusion criteria; hemorrhage / concussion of the cerebellum; the operation could not be performed within 12 hours after randomization; a serious pre-existing physical or mental disability or comorbidity that would lead to a poor outcome even if the patient made a full recovery from TBI; and if the patient and/or relative have expressed a strong preference for one treatment modality.

Written attested informed consent of patients or their relatives was obtained by a neurosurgeon before randomization.

Early surgery - early evacuation of the hematoma by the method of choosing a surgeon (within 12 hours after randomization), combined with the appropriate best treatment; and initial conservative treatment the best treatment combined with delayed (more than 12 hours after randomization) evacuation, if it became appropriate, later there were two large interventions of the trial. Both groups were tested according to local standard neurosurgical practice.

All patients had a CT scan 5 days (-2 days) after randomization to assess changes in hematoma size with and without surgery.

Information was collected on the status(Glasgow Coma Score [GCS])of patients during the first 5 days of their progress trial and subsequent surgery in patients initially randomized to conservative treatment.

Results

Conservative treatment was carried out in 24 patients, which accounted for 44.5% of all observed patients. The results of conservative treatment are assessed on the Glasgow outcome scale. The results of conservative treatment, depending on the degree of impaired consciousness upon admission, are presented in Table. 4.1.

Consciousness level	15 points	13-14 points	9-12 points	8 or less points	Altogether
Good recovery	50%	16.6%	8.3%		75%
Moderate disability		8.3%	8.3%		16.6%
Profound disability			4.1%	4.1%	8.4%
Death					
Altogether	50%	25%	20.8%	4.1%	100%

Table 4.1. Outcomes depending on the level of consciousness upon admission

Thus, the best recovery results of patients at a level of consciousness of at least 12 points on shKG. In patients with a level of consciousness of less than 12 points, recovery results are worse, which is associated with more gross changes in the brain and associated with severe brain contusion. Thus, the results of conservative treatment depend on the degree of oppression of consciousness upon admission, localization and size of the hematoma, dislocation of the median structures of the brain.

Surgical treatment was performed according to indications in an emergency and urgent manner. Bone-plastic trepanation in 1 patient, removal of hematoma through an expanded milling hole in 2 patients and decompresciv ny trepanation in 27 patients. The indication for decompressive trepanation was intraoperative malignant edema of the brain and the presence of a fracture and indentation of the bone. All patients were operated on in the next day after verification of the hematoma. Trepanation of the skull

with subsequent removal of the hematoma was carried out according to generally accepted rules. Repeated operations for repeated hemorrhage were performed in 2 patients.

Level / Exodus	15 points	13-14 points	9-12 points	8 or less points	Altogether
Good recovery	6.7%	33.3%	13.3%		53.3%
Moderate disability	3.3%	6.7%	6.7%		16.7%
Profound disability		3.3%	6.7%	3.3%	13.3%
Death		3.3%		13.4%	16.7%
Altogether	10%%	46.6%	26.7%	16.7%	100%

Table 4.2. Outcomes depending on the level of consciousness upon admission

Level / Exodus	1-3 days	3-6 days	6-<.. day	Altogether
Good recovery	43.3%	0%	10%	53.3%
Moderate disability	6.7%	6.7%	3.3%	16.7%
Profound disability	6.7%	0%	6.7%	13.3%
Death	16.7%	0	0	16,7%
Altogether	73.3%	6.7%	20%	100%

Table 4.3 Outcomes depending on the timing of the operation upon admission

Generalized results of outcomes of brain injury are presented in Table. 4.4. For a more reliable comparison of surgical conservative methods of treatment, consider patients with a hematoma volume of up to 50 cm due to the fact that, as mentioned above, among the surviving patients in the conservative

treatment group, there was not one with a larger hematoma. We did not reveal a reliable dependence of the severity of the patient's condition on the volume of the hematoma, since other factors influenced the patient's condition: brain contusion, its edema, angiospasm, age, somatic pathology, alcohol intoxication, etc. Significant differences in the degree of compensation in groups are noted.

Method	**Conservative treatment**		**Craniotomy**		**Altogether**	
Exodus	Absolute value	**%**	Absolute value	**%**	Absolute value	**%**
Good recovery	18	33	16	29	34	63.1
Moderate disability	4	7,4	5	9,2	9	16,6
Gross disability	2	3,7	4	7,4	6	11,1
Death	0	0	5	9,2	5	9,2
Altogether	24		30		54	100

Table 4.4. Outcomes by treatment

All patients with a hematoma volume of up to 15 cm3 were in clear consciousness. The average value of the point assessment of the level of consciousness in patients with small hematomas (MG) according to the SCG was 12.3 points. In an unconscious state were patients with concomitant severe brain injury. The level of depression of consciousness correlated with the volume of the hematoma. There were significant differences in the degree of oppression of consciousness in the groups of operated and unoperated patients.

Thus, the state of consciousness can be one of the criteria for determining the indications for surgery in MG: at a level of consciousness according to the SHKG of 14-15 points, patients can be treated conservatively, and at 10 points or less, an operation is necessary. With SCG values of 12-13 points, it was necessary, to a greater extent, to focus on other parameters and take a wait-and-see tactic. Neurological disorders in MG in patients, received in satisfactory condition or in a state of moderate severity, had a secondary character and appeared after 2-3 days. We have not identified a reliable dependence of focal neurological disorders on the volume of hematoma. This is due to the fact that neurological symptoms in MG are more dependent on the localization and volume of the entire pathological focus. We have not identified a reliable dependence of the presence of stem symptoms on the volume of the hematoma, but the appearance of dislocation symptoms depended on the volume of the hematoma. Dislocation of the brain stem occurred with the volume of the brain stem. hematomas

more than 30 cm3 and the presence of other intracranial pathology (cerebral edema, brain contusion, schdroma on the same side). All patients with stem symptoms were operated on. Thus, the presence of stem and dislocation symptoms is one of the criteria for determining the indications for surgery in patients with TVMG.

All patients with a volume of more than 30 cm3, located on the basis of the temporal lobe, were operated, because this localization is the main factor in the development of temporal-tentorial dislocation. Traumatic SAH also causes increased cerebral edema, difficulty in resorption of the cerebroscular cerebrosse and an increase in ICC. According to this indicator, reliable differences were revealed in operated and unoperated patients. Operations were performed on patients with an average hematoma volume of 40 cm3. In unoperated patients, the average volume of hematoma was 21 cm3.

One of the important conditions for conservative treatment of MG is round-the-clock observation of the patient by a neurosurgeon and the possibility of round-the-clock CT or MRI control. Of the 54 patients, 30 (55.5%) and 24 (44.5%) patients underwent conservative treatment. There was a significant difference in the timing of operations: decompressive trepanation was performed by more severe patients and on average during the first 3 days, and bone-plastic - on average 6 days after the injury. That is, decompression was carried out with acute, and bone-plastic surgery - with subacute hematomas.

We traced long-term results in patients with MG in terms of 1 to 3 years. Excellent and good results in the distant period were achieved in 88%, which is a high indicator for patients with severe TBI. Analysis of MRI and CT changes in studies conducted in dynamics in patients with MG showed that resorption of TVMG with a volume of up to 30 cm3 occurs in period from 14 to 35 days (in 18 out of 20).

Reference

1. Olson D. Head injury. eMedicine. October 2018. P.1.

2. Fearnside, M., and Simpson, D. (1997). “Epidemiology, in: Head Injury”. P. Reilly (ed). Chapman & Hall: London, pps. 1–23.

3. Tagliaferri, F., Compagnone, C., Korsic, M., Servadei, F., and Kraus, J. (2006). “A systematic review of brain injury epidemiology in Europe. Acta Neurochir”. (Wien) 148, 255–268; discussion, 268.

4. Gabbe, B.J., Biostat, G.D., Lecky, F.E., Bouamra, O., Woodford, M., Jenks, T., Coats, T.J., and Cameron, P.A. (2011). “The effect of an organized trauma system on mortality in major trauma involving

serious head injury: a comparison of the United Kingdom and victoria, Australia". Ann. Surg. 253, 138–143.

5. Gallbraith, S., and Teasdale, G. (1981). "Predicting the need for operation in the patient with an occult traumatic intracranial hematoma". J. Neurosurg. 55, 75–81.

6. "Brain Trauma Foundation; American Association of Neurological Surgeons; Congress of Neurological Surgeons; Joint Section on Neurotrauma and Critical Care", AANS/CNS, Bratton, S.L., Chestnut, R.M., Ghajar, J., McConnell Hammond, F.F., Harris, O.A., Hartl, R., Manley, G.T., Nemecek, A., Newell, D.W., Rosenthal, G., Schouten, J., Shutter, L., Timmons, S.D., Ullman, J.S., Videtta, W., Wilberger, J.E. and Wright, D.W. (2007). Guidelines for the management of severe traumatic brain injury. VIII. Intracranial pressure thresholds. J. Neurotrauma 24, Suppl. 1, S55–S58. Erratum in: J. Neurotrauma (2008) 25, 276–278.

7. Mendelow, A.D., Karmi, M.Z., Paul, K.S., Fuller, G.A., and Gillingham, F.J. (1979). "Extradural haematoma: effect of delayed treatment". Br. Med. J. 1, 1240–1242.

8. Seelig, J.M., Becker, D.P., Miller, J.D., Greenberg, R.P., Ward, J.D., and Choi, S.C. (1981). "Traumatic acute subdural hematoma: major mortality reduction in comatose patients treated within four hours". N. Engl. J. Med. 304, 1511–1518.

9. Siddique, M.S., Gregson, B.A., Fernandes, H.M., Barnes, J., Treadwell, L., Wooldridge, T.D., and Mendelow, A.D. (2002). "Comparative study of traumatic and spontaneous intracerebral hemorrhage". J. Neurosurg. 96, 86–89.

10. Broderick, J.P., Brott, T.G., Duldner, J.E., Tomsick, T., and Huster, G. (1993). "Volume of intracerebral hemorrhage. A powerful and easy-touse predictor of 30-day mortality". Stroke 24, 987–993.