



EVALUATION OF THE RESULTS OF THE EFFECTIVENESS OF CRANIOCEREBRAL HYPOTHERMIA AS PART OF COMPLEX TREATMENT IN PATIENTS WITH SEVERE TRAUMATIC BRAIN INJURY

Mansur Aliyev

Samarkand state medical university, Samarkand, Uzbekistan

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ABSTRACT

The study is based on the analysis of 387 medical records of inpatients with severe traumatic brain injury. The objective of the study was to evaluate the effectiveness of CCH as part of the complex treatment of patients with brain compression by epidural hematoma after surgery, depending on the timing of its use from the moment of injury. The criterion for evaluating the results was the percentage of patient mortality in clinical groups. It has been proven that the effectiveness of CCH as part of complex treatment depends on the timing of its use from the moment of exposure to the traumatic factor. It was found that the use of CCH in the first 48 hours from the moment of injury reduces mortality, while its use after 48 hours after exposure to the traumatic factor does not affect the mortality rate in victims with severe TBI.

Traumatic brain injury (TBI) accounts for 36-40% of all injuries [3; 5]. It is the second leading cause of death in the Russian Federation, and the first among the working-age population. Severe forms of TBI occur in more than 40% of victims [4]. Despite the rapid development of medical technologies, the creation of new drugs and equipment, it has not yet been possible to significantly reduce the mortality rate of victims of traumatic brain injury [2; 7].

In our opinion, one of the reasons for the high mortality rate in severe TBI is the underestimation of physical treatment methods as part of complex treatment. One of the most promising physical methods of TBI, according to experimental studies on animals, is moderate therapeutic hypothermia [1]. At the same time, the data obtained in clinical studies devoted to this issue are contradictory and ambiguous.

Based on the above, an assessment of the impact of the effectiveness of craniocerebral hypothermia (CCH) at different times as part of the complex treatment of patients with compression of the brain by epidural hematoma after surgery is certainly relevant.

The aim of the study: to evaluate the results of the effectiveness of the use of CCG as part of the complex treatment of patients with compression of the brain by epidural hematoma after surgery, depending on the time of its use from the moment of injury.

Materials and methods. The study is based on the analysis of medical records of 387 patients who suffered severe TBI and were treated at the Regional Clinical Hospital No. 2 in Tyumen from 2011 to 2015. The main criteria for inclusion of patients in the study were:



1) the presence of an acute epidural hematoma in the temporal region upon admission to the medical department

institution with depression of consciousness up to deep coma according to the Glasgow Coma Scale (5-4 points);

2) performing surgical intervention within the first 12 hours from the moment of injury;

3) absence of previous surgical interventions on the central nervous system;

4) absence of organic CNS disease;

5) absence of acute inflammatory diseases and decompensation of chronic diseases at the time of admission to the clinic;

6. absence of mental disorders before the injury;

7) male gender;

8) Age not younger than 35 and not older than 45 years;

9) safety of medical documentation.

The patients were divided into four clinical groups. The criterion for dividing the patients into groups was the time of the start of CCG. The first group included 273 patients who did not receive CCG as part of their complex therapy. The second group included 47 patients who

Analyzing the data presented in Table 1, we can conclude that in the II and III clinical groups the mortality rate was statistically significantly ($p < 0.001$) lower than in the control (I) group. At the same time, in the IV clinical group the mortality rate was significantly ($p < 0.001$) higher than in the control. In the II clinical group the mortality rate was significantly ($p < 0.05$) lower than in the III group, while in the IV group it was significantly ($p < 0.001$) higher. In the III group, the subjects had a significantly ($p < 0.001$) lower mortality rate than in the IV group.

The data obtained indicate that the use of CCG in the first 48 hours from the moment of who were administered CCG in the first 48 hours after the injury. The third group consisted of 78 patients who were administered CCG after 48 hours but not later than 72 hours after the injury. The fourth group included 39 people who were administered CCG after 72 hours after the injury.

The criterion for assessing the results of the use of CCG was the percentage of mortality in clinical groups.

Statistical analysis of the material was carried out in accordance with international requirements for processing the results of scientific research data, using the personal computer program "SPSS 11.5 for Windows » (mean value, variance of means, parametric comparison by Student's criterion, frequency analysis).

Results of the study. The results obtained during the analysis of medical records of patients who suffered severe TBI are presented in Table 1.

of receiving an injury reduces mortality in patients with TBI. In our opinion, this is due to a decrease in cerebral metabolism, stabilization of the blood-brain barrier, which, in turn, affects the early stages of cerebral edema, thereby partially preventing the processes of secondary damage to the brain tissue, affecting the triggers of edema.

The use of CCG after 48 hours from the moment of injury sharply increases the mortality of patients. In our opinion, this is due to secondary damage to the brain tissue due to the development of cerebral edema, increased intracranial pressure and failure of the adaptive mechanisms of sanogenesis.



Conclusions

1. The effectiveness of using CCG as part of complex treatment in victims with severe TBI depends on the timing of its use from the moment of exposure to the traumatic factor.
2. The use of CCG in the first 48 hours after injury reduces mortality in patients with severe TBI.
3. Starting to use CCG after 48 hours does not affect mortality in victims with severe TBI.

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