

Advances in the Treatment of Acute Severe Craniocerebral Injury by Chinese and Western Medicine

Jiawei Liu¹, Ya Cheng¹, Yi Zhang^{2*}

¹Shaanxi University of Chinese Medicine, Shaanxi, China

²Affiliated Hospital of Shaanxi University of Chinese Medicine, Shaanxi, China. E-mail: SXgg1129@163.com

Abstract: Craniocerebral injury is a common disease in neurosurgery caused by trauma. According to the Glasgow coma score, a person who is unconscious for 6 hours or more after injury or is unconscious again is classified as a severe craniocerebral injury. The patients with severe craniocerebral injury are generally in urgent and critical condition, accounting for about 13%~21% of the proportion of cerebral trauma, and the mortality rate is 30% of the mortality rate of hospitalized patients^[1]. Without timely and effective treatment, patients often have poor prognosis and even death. Therefore, only by grasping the golden time of rescue can the patient be out of danger^[2]. This paper reviews the effective methods of traditional Chinese and western medicine in treating intracranial infection in recent years to provide more reference programs for clinical treatment.

Keywords: Traditional Chinese and Western Medicine; Acute Severe Craniocerebral Injury; Treatment; Progress.

1. Advances in western medicine treatment of acute severe craniocerebral injury

1.1 Hemostatic treatment

Intracranial hemorrhage is a common symptom of severe craniocerebral injury. According to the nature and location of the injury, intracranial hemorrhage is generally divided into: traumatic subarachnoid hemorrhage, cerebral contusion and hemorrhage, subdural and epidural hematoma. CT can often be used to confirm the nature of injury bleeding in the first time. Hemostatic drugs such as hemostatic sensitivities, hemostatic aromatic acids, hemothrombin and various hemostatic methods are selected for common hemorrhage. Tang hualai *et al.*^[3] divided 100 cases of craniocerebral injury patients into the control group and the hemagglutination group with 50 cases each by random number table method. The control group was

given conventional pre-hospital emergency treatment^[4], and the hemagglutination group was treated on this basis with 10 mg/kg tranexamic acid intravenous infusion. Conclusion: after treatment, the HCT, PAR and Hb levels in the coagulation group were significantly higher than those in the control group, and the poor prognosis and hypotension rates of GOS in the coagulation group were significantly lower than those in the control group. Yang shaoyong *et al.*^[5] randomly divided 80 patients with severe craniocerebral injury with Glasgow coma score of 3-8 points into control group and experimental group with 40 patients in each group. Patients in the control group were admitted to the hospital only after taking pre-hospital first aid measures, and patients in the experimental group were treated with hemostatic cyclic acid on this basis. The statistical results of all patients discharged from hospital and died showed that the number of deaths in the control group was significantly higher than that in the experimental group, and the .

Copyright © 2019 Jiawei Liu *et al.*

doi: 10.18686/aem.v8i1.149

This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

average length of hospital stay and coma in the experimental group were far lower than that in the control group.

1.2 Dehydration depresses cranial pressure

Hemorrhage of cerebral tissue after severe craniocerebral injury is often accompanied by edema, leading to midline deviation, cerebral herniation and increased blood pressure. Cerebral herniation patients generally recover after extremely poor, death and disability rate is high, displaced brain tissue compression of the brain nerve resulting in nerve injury, when the compression of the oculomotor nerve is often shown dilated pupil symptoms. When displaced brain tissue presses on blood vessels, tissue ischemia, necrosis and even blood vessel rupture can increase bleeding. If swollen brain tissue presses or pulls on the brainstem center, there is a high risk of death, so necessary dehydration treatment is of great significance for acute severe craniocerebral injury. Yu-mei jia^[6] using near infrared spectroscopy technology such as observation of craniocerebral injury in rats using mannitol (2g/kg) on brain edema after the changes, they will optimize the scattering coefficient (μ 's) as an index for monitoring changes in brain edema, monitoring results show that the use of mannitol for about 20 min, μ 's began to reduce, and μ 's stability and gradually after reduce 40 min lasted for about 2.5 h, after μ 's picks up, the change in line with the duration of mannitol and failure time effectively reflects the effect of dehydrating agent in the treatment of cerebral edema.

1.3 Correct water and electrolyte acidolysis balance

Electrolyte imbalance is common in craniocerebral injury, and the type of venous fluid resuscitation, permeable diuretics, massive blood loss and intracranial pathology are considered as potential factors to aggravate electrolyte abnormalities in patients^[7]. Wang Fuqiang etc.^[8] by 68 cases of severe craniocerebral injury with water electrolyte disorder patients into two groups, the treatment group of patients with individualized treatment fluids and electrolytes, the control group using conventional care programmes but limit intake of water and electrolyte, patients with the clinical therapeutic effect after 3 ~ 5 d observation, the treatment group

patients plasma osmotic pressure and serum sodium and potassium levels were back to normal range, the treatment effect is significantly higher than the control group.

1.4 Surgical treatment

Surgery is often the preferred treatment for severe craniocerebral injury. The operation mode, position and approach are also different according to the patient's injury and bleeding site. The common operations are removal of craniotomy hematoma and decompression of bone plate. For patients with skull fracture, fixation should be performed after fracture film shaping. When the fracture film is contaminated or cannot be shaped, the fracture film should be removed and the second stage cranioplasty should be performed. China-yangshou^[9] 60 patients with severe craniocerebral injury were divided into 30 cases of control group with traditional rapid decompression surgery and 30 patients adopted gradually controlled decompression surgery group, compared two groups of blood gas index, consciousness and the incidence of complications, the results indicate: (1) The observation group of patients with PaO₂ indicators are significantly higher than the control group, PaCO₂ index significantly lower than the control group; (2) postoperative GCS score of the observation group was significantly better than that of the control group; (3) the incidence of complications in the observation group was significantly lower than that in the control group. It indicates that the treatment of stepwise controlled decompression surgery is more safe and effective than the traditional rapid decompression surgery and has certain clinical application value. RuanJun equal^[10] in 199 patients with GCS score less than eight points of severe craniocerebral injury patients as observation object, including 94 cases with normal bone flap craniotomy treatment of the control group) and 105 cases in a standardized big bone flap craniotomy treatment group, finally the results of the study is: (1) two groups of postoperative 1 month neural function defect scale score decreased more significantly decreased but group; (2) CCP, CEO₂, SvO₂ and other brain metabolic indexes in the observation group on the first and fifth day after surgery were all increased, which were significantly higher than those in the control group. (3) the proportion of patients in the observation group with GCS score of

4-5 points was higher than that in the control group; (4) the rate of postoperative complications in the observation group was lower than that in the control group.

2. Advances in the treatment of acute severe craniocerebral injury by traditional Chinese medicine

In addition to the treatment of western medicine, the treatment of craniocerebral injury of Chinese medicine also has a significant effect and a larger space for application. As early as in the spring and autumn period and warring states period, the ancient people had a certain understanding of + cranial injury. Ge hong wrote "elbow backup emergency prescription": "head broken cerebral hemorrhage, can not speak, wear eyes directly, pharynx boiling voice, mouth urgent spit out, both hands untimely lift, also dead hou, can not be cured. If the brain out and no princes can cure ". "On the etiology of various diseases" put forward: "the husband was hit by bone injury brain, the head can not lift, wear eyes directly, the mouth can not speak, throat boiling voice such as child panting, mouth urgent, the hands to take, one day die, three days short. In The Three Kingdoms period, hua tuo, a divine doctor, used ma fei SAN to carry out the earliest open-road surgery in Chinese history. Wei yilin put forward and applied suhexiang pill to treat craniocerebral injury in his "world medicine gets the effect prescription". To the qing dynasty, wu qian compiled the "jin jian" is a detailed discussion of the head parts of the treatment methods: "or injury, such as death, the body is stiff. Appropriate bend one's knees side lie, adjust first high vinegar mix yuan paste apply at the top, with regular pain detuminate, invigorate blood to pull poison, again the toilet paper roll is on fire, make smoke fume its mouth nose". However, in the development of contemporary Chinese medicine, TCM has a deeper and more detailed understanding of craniocerebral injury.

Jing-dong huang and so on acute severe craniocerebral injury^[11] be divided into "yuan god outside (virtual), blood stasis MengQing orifices (solid), blood stasis resistance brain collaterals (solid)" three card type, on the basis of the 70 cases of acute severe craniocerebral injury patients were randomly divided into treatment group and control group, control

group to conventional western medicine therapy and nursing, necessary treatment group except for western medicine treatment corresponding Chinese medical treatment according to the individual dialectical. Finally, by comparing the scores of neurological defects after treatment, the treatment group was significantly higher than the control group, suggesting that the clinical efficacy of the treatment group was better than that of the control group. Wang wei and so on use^[12] recovery by stasis soup to treat brain fu stasis type of severe head injury, using random indicator method to 120 cases of severe craniocerebral injury patients were divided into observation group and control group, after treatment group's back injury edema volume peak time, hemorheology index and fasting plasma glucose levels were significantly lower than the control group, the GCS score was significantly higher than the control group, suggests that the clinical curative effect is distinct. Astragalus can effectively improve cerebral edema after severe craniocerebral injury, reduce intracranial pressure, and then reduce secondary brain injury, improve the prognosis of patients. Yu mengjin *et al.*^[13] concluded through clinical trials that astragalus can effectively improve the edema of brain tissue secondary to severe craniocerebral injury, reduce cranial pressure, avoid further brain injury, speed up patient recovery and improve prognosis. Saving the life of patients with severe craniocerebral injury is only the first step of treatment. Some complications, such as epilepsy, infection and hiccup, should not be ignored in the later stage. Traditional Chinese medicine can not only improve the symptoms of severe craniocerebral injury directly, but also play a good role in the treatment of some complications in the middle and late stages of the disease. For example, for the common symptom of hiccup in craniocerebral injury, lu deke^[14] treated 35 patients with intractable hiccup associated with severe craniocerebral injury with xuanfudaizhe decoction, the final cure rate was 88.6%, and the total effective rate was 100%. Liu uitai *et al.*^[15] selected neiguan acupoint for injection of vitamin B6, 654-2 and chlorproazine to treat intractable hiccup after severe craniocerebral injury with the treatment of integrated Chinese and western medicine, and achieved good results. Tong zhong *et al.*^[16] divided 102 patients with sequelae of craniocerebral injury into

the control group and the observation group. The control group received simple western medicine treatment (edaravone), while the treatment group received dialectical Chinese medicine and acupuncture treatment.

3. Conclusion

Acute severe craniocerebral injury, as a kind of critical disease, should be treated with the most effective and safe method and the combination of the advantages of western medicine and traditional Chinese medicine is the inevitable direction of the future development of contemporary Chinese medicine.

References

1. Qiu W. Disability level and its influencing factors after comprehensive rehabilitation of traditional Chinese and western medicine in patients with severe traumatic brain injury. *Chinese Medical Science* 2018; 8(18): 174-176 236.
2. Ding L. Pre-hospital first aid countermeasures and nursing effect in patients with acute severe traumatic brain injury. *Primary Medical Forum* 2019; (27): 3922-3923.
3. Tong H, Yi L, Zhang P, *et al.* Efficacy and safety analysis of prehospital use of hemagglutinase in craniocerebral trauma with scalp laceration. *Journal of Surgery* 2018; 27(04): 300-303.
4. Liu W, Zhao Q. Guidelines for surgical treatment of traumatic brain injury. *Chinese Clinician* 2006; (11): 29.
5. Yang S. Observation on the curative effect of hemostatic drugs in the prehospital treatment of severe traumatic brain injury. *Chinese Prescription Medicine* 2017; 15(03): 69-70.
6. Jia Y, Qian Z, Li W, *et al.* A study on real-time monitoring and evaluation of dehydration in the treatment of traumatic brain injury. *Journal of Biomedical Engineering* 2014; 31(04): 861-864 874.
7. Pin-On P, Saringkarinkul A, Punjasawadwong Y, *et al.* Serum electrolyte imbalance and prognostic factors of postoperative death in adult traumatic brain injury patients: A prospective cohort study. *Medicine* 2018; 97(45).
8. Wang F. Clinical study on individualized treatment of patients with traumatic brain injury with water and electrolyte disorders. *Guidelines for Chinese Medicine* 2012; 10(11): 275-276.
9. Yang S. Effect of step-by-step controlled decompression surgery on severe traumatic brain injury. *Heilongjiang Medicine* 2019; 32(04): 889-890.
10. Ruan J, Ouyang Z, Wang H. Clinical observation of standardized large bone flap craniotomy for severe traumatic brain injury. *Contemporary Medicine* 2019; 25(21): 154-155.
11. Huang J, Li Y, Huang L, *et al.* Experience of integrated traditional Chinese and western medicine in the treatment of acute severe traumatic brain injury. *Chinese Community Physicians* 2019; 35(22): 79-80.
12. Wang W, Zhou C, Li P, *et al.* Clinical study of Zhuyu Fuyuan decoction in the treatment of brain accumulation and blood stasis syndrome in severe craniocerebral injury. *Sichuan TCM* 2018; 36(05): 128-131.
13. Yu M, Liu J, Sun D, *et al.* Effect of Astragalus membranaceus on post-cerebral edema and intracranial hypertension in severe traumatic brain injury. *Journal of Cardiovascular and Cerebrovascular Diseases of Integrated Chinese and Western Medicine* 2016; 14(12): 1331-1334.
14. Lydco. Treatment of 35 cases of intractable hiccup after traumatic brain injury with Xuanfu Daizhe decoction. *Zhejiang Journal of Traditional Chinese Medicine* 2018; 53(02): 112.
15. Liu R, Li R, Li X. Acupoint injection for intractable hiccup after severe traumatic brain injury in 88 cases. *Chinese Folk Therapy* 2002; (09): 24.
16. Tong Z, Wang J, Huang H, *et al.* Clinical effect of acupuncture on sequelae of traumatic brain injury. *Inner Mongolia Traditional Chinese Medicine* 2016; 35(02): 132-133.