How to improve the outcome of patients with traumatic brain injury in China

Chinese Head Trauma Data Bank shows that the mortality and unfavorable outcome of patients with severe traumatic brain injury (TBI) (Glasgow Coma Scale 3–8) are 27.23% and 53.17% respectively, which is really comparable to the outcome of severe TBI patients according to the American Head Trauma Coma Bank and European Head Trauma Data Bank. This indicates that the outcome of severe TBI in China may be similar with that in developed countries. However, we must recognize that there are still remarkable gap of clinical management and researches of TBI between China and western countries. So, we must carry on hard work to further improve the outcome of acute TBI in the future.

How to improve the outcome of TBI patients in China?

First of all, it is extremely essential for all Chinese neurosurgeons to understand and execute the TBI treatment guidelines or consensus issued by the American Association of Neurological Surgeons as well as Chinese Congress of Neurological Surgeons. There are at least 6 consensus or guidelines for management of TBI that have been established and published on Chinese Journal of Trauma or Chinese Journal of Neurosurgery, including Chinese guidelines of surgical management of traumatic brain injury, Chinese guidelines of cerebral protective drugs for traumatic brain injury, Chinese consensus of ICP for traumatic brain injury, Chinese consensus of nutritional support for comatose head trauma patients, Chinese consensus of decompressive craniectomy for traumatic brain injury and Chinese consensus of management of traumatic hydrocephalus. More and more Chinese neurosurgeons are carrying out the guidelines and consensus to treat TBI patients, which will definitely promote the rate of accurate diagnosis and correct treatment as well as hopefully improve the outcome of acute head trauma patients in China.

Second, all Chinese neurosurgeons should objectively analyze the randomized clinical trials (RCTs) for TBI, including RCTs of hypothermia, decompressive craniectomy, ICP monitoring, corticosteroids, progesterone, Nimotop, etc. This kind of studies from developed countries has been published on the New England Journal of Medicine or the Lancet. Therefore, to publish our evidence-based medicine data of TBI on world-famous journals should be an important target.

Third, neurosurgical intensive care unit (NICU) is important for monitoring of life-threatening signs in severe TBI patients. Then neurosurgeons can give immediate diagnosis and treatment, which is essential for improving the outcome of severe TBI patients. However, only a few hospitals have set up NICU now, and majority of TBI patients were admitted to surgical intensive care unite (SICU) or emergency intensive care unit (EICU), where there are no neurosurgeons to particularly take care of TBI patients and may cause misdiagnosis and mismanagement. So, I strongly appeal the establishment of NICU as much as possible in China.

Fourth, it is clear that a lot of modern neurosurgical centers are mainly located in the more developed areas of China such as Shanghai and Beijing. However, the shortage of neurosurgical facilities in remote areas is really grim, especially in middle and western areas of China, where a large number of TBI patients need to be saved and treated. Therefore, it seems really difficult to improve the outcome of TBI patients in remote areas and countryside in China. So, Chinese government must take efficient measures and great efforts to improve the current status.

Fifth, Chinese neurosurgeons need to strengthen clinical exchanges and scientific cooperation with international neurosurgeons, especially those in developed countries. CENTER-TBI permitted by Europe and inter-TBI by USA are underway now. Shanghai Renji hospital, Shanghai Jiaotong University/School of Medicine has been approved as one of the 38 centers in the World, the only one in Asia, to join CENTER-TBI grant to do TBI clinical research together with the other 37 centers from 2013 to 2020. Fig. 1 is the neurosurgery team. Hopefully Chinese neurosurgeons will make great contributions to CENTER-TBI and set up the frontier of TBI research in the world.

In addition, prevention of TBI is also important to reduce the total mortality and morbidity of TBI patients in China. In response to a high rate of traffic deaths and injuries associated with alcohol use, the Chinese Ministry of Public Security issued the national alcohol penalty law on May 1, 2011, which stated that all drunk drivers should be sent to jail. Since then, alcohol-related accidents have declined rapidly. The Chinese Ministry of Public Security has...
reported that the number of automobile accidents, deaths and injured people declined by 35.2%, 21.1% and 34.7% respectively over the period May 1, 2012 to April 30, 2013. So, it is certain that government documents play an important role to prevent traffic accidents-related TBI.

Finally, to fundamentally improve the outcome of TBI patients is still difficult because of impossible repair of neurons following brain damage as well as the severity and complexity of pathology of TBI. Chinese neurosurgeons have a long and hard way to improve the outcome of TBI patients in the future.

Fig. 1. Department of Neurosurgery of Shanghai Renji Hospital affiliated to Shanghai Jiaotong University/School of Medicine. It is recognized as a national key department of neurosurgery in China by Chinese Ministry of Health in 2012, including more than 40 neurosurgeons, 100 nurses, 5 techniques and 3 researchers. There are 155 neurosurgical beds and more than 3000 neurosurgeries are performed in this department every year.

Ji-Yao Jiang*
Department of Neurosurgery, Shanghai Renji Hospital, Shanghai Jiaotong University/School of Medicine, Shanghai, China

* Tel.: +86 21 68383747.
E-mail address: jiyaojiang@126.com.

15 August 2015
Available online 15 January 2016