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Review article

# Review of Chinese Journal of Traumatology in the year 2016

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## Introduction

A total of 89 papers were published in Chinese Journal of Traumatology (CJT) in the year 2016, among which brain injury, road traffic injury, blast injury, 3D bioprinting and eye injury were discussed. The articles reported the latest research trends and progress in the field of trauma care. The present study gives a retrospective review on the special topics.

## Precision medicine

Precision medicine has now become a hot topic. The concept of precision medicine is derived from genetic testing and sites analysis targeting at cancer. Recently the idea has also been introduced into some other medical fields in order to improve the treatment efficacy. Prof. Wang (Issue 5, page 249–250), the chief editor of CJT, also an academician of Chinese Academy of Sciences, considered that since clinical medicine has entered a new era of precision medicine, the target of medicine should be demand-oriented, which will greatly reduce the morbidity & mortality as well as disability rate of major diseases. The quality of medical service should be improved by technical innovation.

In our opinion, precise evaluation of the injury severity and pathophysiologic condition of the patient, accurate and effective intervention at a proper time, together with minimal invasion to healthy tissues, may be the best interpretation of precision in trauma field.

## Traumatic brain injury (TBI) (Issue 1)

Due to the high mortality and disability rates of TBI as well as the varied treatment effects, severe TBI is one of the biggest challenges for neurosurgeons. Dr. Jiang (page 1–2) highlighted the significance of standard treatment of TBI. Meanwhile, five suggestions about how to improve the outcome of patients with TBI in China were proposed.

(1) Treatment guidelines and expert consensus documents should be highly recommended and mastered among neurosurgeons.
(2) Clinical randomized controlled trials (RCTs) on hypothermia, decompressive craniectomy, ICP monitoring, etc. should be encouraged.
(3) The importance of neurosurgical intensive care unit (NICU) should be stressed.
(4) The cluster of neurosurgical centers and experts in eastern China should be changed.
(5) International cooperation with neurosurgeons from developed countries should be reinforced.

While Dr. Maas pointed out that TBI was not only an emergency problem, but also a progressive chronic disease in which intrinsic pathophysiologic processes and systemic second insults (e.g. hypoxia and hypotension) aggravate the primary damage (page 3–6). With the rapid development of genomics, neuroimaging, as well as specific biomarkers, it is high time that precision medicine be applied to the diagnosis and treatment of TBI. Meanwhile, global collaboration was expected to solve this international problem of TBI care.

TBI has a high incidence worldwide, especially in developing countries. Due to the popularity of electric bicycles, riders of which are unlikely to be helmeted, its prevalence keeps increasing every year. Besides reinforcing the emergency treatment, we observed that effective intervention against secondary damage with the concept of precision medicine for the treatment of TBI would be the focus in the future. Global collaboration and data & resources sharing might be the main development model of TBI, even for the whole medical field.

## Road traffic accidents (RTAs) (Issue 2)

RTA-induced injuries are common and can result in great harm. The leading cause of RTAs is disorders among human, vehicles and roads. Scholars (page 63–69) from Belgium, Sweden, Germany,

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France and UK introduced the European New Car Assessment Programme (Euro NCAP) for the safety rating of vehicles. Established in 1997, Euro NCAP through its rigorous crash tests and authoritative data has worked out integrated evaluation data for the safety of vehicles. NCAP has been widely recognized in auto industry. It is a driving force to improve the design of vehicle active safety and passive safety rating system. After decades of development, NCAP has launched new rating systems, which made great contribution to the improvement of vehicle passive safety in car manufacturers. Two papers from Iran (page 70–74 and 79–84) summarized the risky driving behaviors like alcohol and drug abuse and analyzed the incidence rate of RTAs in different seasons and at different time of the day. Another paper by Indian scholars (page 75–78) stated that RTA has become the first cause of pediatric trauma in developing countries.

Reviewing the past and antique is helpful to learn new and modern things. The change of safety design in European vehicles reflects the consideration for not only drivers, but also pedestrians. Moreover, the design of cold nonhuman vehicles became more humanistic. Nowadays coupled with the low passive safety standards and unsatisfactory traffic laws in most developing countries, the focus on children protection in RTAs is far from enough. Experts in the 25th ITMA Congress held in Beijing appealed to the society to pay more attention to the global problem of road traffic safety.

## Blast injury (Issue 3)

Blast injury is a main cause of trauma in modern warfare. When the wounded has a burn area of more than 10% of total body surface area (TBSA), together with combined skull and maxillofacial fractures as well as penetrating trunk injuries, the patient should be suspected to have blast injury. Injuries of hollow viscera (e.g. lung) might occur. Dr. Dhar et al (page 129–133) from India and Ng et al (page 134–135) from Australia listed some common war injuries and corresponding management measures. Dr. Zhang (page 139–140), a famous Chinese expert on trauma, shared his own opinions on the prognosis of blast injuries. In addition he pointed out that the acute care for blast injury should follow the “ABC” rule (airway-breath-circulation) rather than the “CAB” principle (circulation-airway-breath).

Under the background of frequent incidence of regional military conflicts, terrorist attack and shootings worldwide, we believe that attention should be attached to the fast diagnosis and treatment of blast injuries.

## 3D bioprinting (Issue 4)

3D bioprinting is a rapid biotechnology to print living structures based on three-dimensional digital model. Objects are created by laying down successive layers of adhesive materials such as powder, liquid metal and hydrogels. Dr. Zhang et al (page 187–192) comprehensively introduced the bioprinting systems, including bioink jetting, extrusion, and laser-induced printing. Key points for the success printing are nutrient supply, reinforcement of the structures and delivery of bioactive agents.

3D bioprinting is a new technique representing hope and great demand. We believe that 3D bioprinting for the prothesis implantation will be of great significance for functional repair and restoration after trauma, especially aesthetic reconstruction, in the future.

## Corona mortis (Issue 5)

Corona mortis is an anastomosis between the obturator and the external iliac or inferior epigastric arteries or veins, located behind the superior pubic ramus. Dr. Talalwah from Saudi Arabia (page 251–254) redefined corona mortis. In his paper, he gave a detailed introduction of the variant locations, distributions and classification of obturator artery based on anatomical study of 208 hemipelvises, which is very significant for surgeons in clinical pelvic operations.

We recommend that clinicians should not only keep an eye on the progress of clinical technology, but also concern about the basic medicine. Solid cooperation of basic medicine with clinical skills is essential for the improvement of traumatic treatment.

## Eye injury (Issue 6)

Though not fatal, eye injuries often seriously impair the life quality of patients. Dr. Wang and Ma (page 311–316) and Dr. Chen et al (page 317–318) reviewed the treatment progress of eye injuries in recent years. Eyeball removal and no light perception are the most serious types of eye injuries. Apart from traumatic optic neuropathy, eye injuries with no light perception can be induced by severe injury of the ciliary body, retina and choroid. The subsequent proliferative vitreoretinopathy (PVR) is the most important physiological and pathological pathway leading to no light perception. Strategies on new measurements against PVR, best intervention timing for vitrectomy in open eye injury, medication preventing endophthalmitis and new ideal filling material of vitreous body may decrease the incidence of eye injuries with no light perception. Chinese researchers had made contributions in exploring new fold capsular vitreous body.

Ocular foreign bodies account for a substantial proportion of eye injuries. Dr. Shukla (page 319–321) from India proposed a new classification of common foreign bodies. Compared with metal foreign bodies, nonmetal foreign bodies such as plastic and wooden foreign bodies are difficult to locate and remove, bringing difficulty to the diagnosis and treatment of such kinds of injuries. Li et al from China (page 322–325) shared his experience in treating 14 cases of eye injuries caused by nonmetal foreign bodies. They summarized the clinical symptoms, CT and MRI features, and other related characteristics in eye injury patient caused by non-metal foreign bodies; meanwhile some misdiagnosis and mistherapy were discussed in this paper. The experience they shared would be of great reference value.

We assumed that, functional recovery after trauma, especially the life quality of patients after injury receives more and more attention. Although neither fatal nor frequently happen, eye injuries always seriously impact the life quality of patients. It is pitiful that few methods have been found to be effective in the treatment of eye injuries and its complications. Prospects are still gloomy and unremitting efforts are required.