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Editorial

Pediatric Trauma -Broader Perspectives

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Trauma is the leading cause of death in children over one year of age in US, with approximately 15,000 deaths per year, which is more than the deaths related to infectious diseases, congenital malformations and cancer combined [1]. Globally childhood injury is a major public health problem, responsible for 950,000 deaths around the world in children younger than 18 years (WHO Global Burden of Disease: 2004 update). Unintentional injuries account for over 90% of these injuries and are the leading cause of death between 10 and 18 years of age [2]. Besides the mortality associated with trauma, a substantial number of children are left with either temporary or permanent disabilities. In addition, there is an enormous financial burden on health care systems. In the US, annually over ten million children visit emergency department for evaluation and treatment of injuries. It was estimated that the cost of pediatric trauma in 1996 was $ 14 billion in life time medical spending and $ 66 billion in present and future work losses [3]. The challenge we face today across the globe is that significant number of death and disability occur in lower and middle-income countries where injury prevention programs are non-existing or poorly organized. There is a paucity of injury data in these countries and hardly any information regarding injury prevention measures that have been disseminated across health systems. Recently, international panel of adolescent health experts recommended that injury prevention programs adapted in high-income countries should be expanded to lower- and middle-income countries [4]. Some of the examples include use of helmets, utilizing protective devices (air bags & seat belts), comprehensive driving laws, and education on road safety [5].

In addition to injury prevention strategies, which will ultimately reduce the number of injured children, comprehensive trauma care must incorporate appropriate pre-hospital care and transportation, fully equipped emergency room with adequately trained personnel to deal with pediatric trauma, efficient hospital course and rehabilitation facilities to ensure full functional recovery. Children's anatomy and physiology are vastly different from that of an adult, and they are not merely " small adults", rather they are unique and their organ systems are continuously evolving with respect to anatomic size and shape, skeletal composition, cardiovascular function, respiratory reserve and biotransformation of medications. Because of incomplete development of skeletal system, they are more likely to have internal organ injury from blunt trauma, in particular traumatic brain injury, the most common cause of death among injured children.

Multidisciplinary "team" approach to pediatric trauma victims is critical to achieve better outcome, however it can be more complex compared to adult trauma. The "team" may include pre-hospital care providers, emergency physicians, trauma surgeons, anesthesiologists, intensivists, interventional radiologists and pediatricians. The clinical scenario in pediatric trauma can change rapidly, which requires clear communication among team members and mutual understanding of each team member's roles and responsibilities, with well-defined leadership strategies. Children who are cared in pediatric hospitals with appropriate triage with specific pediatric trauma care guidelines may offer improved clinical outcome [6,7]. Recently American Academy of Pediatrics published guidelines with emphasis on interdisciplinary collaboration for trauma system planning, education and training competencies, and outcome measures [8]. Some of the guideline they published relevant to this topic include but not limited are [9]:

1. Pediatric surgical specialists and pediatric medical subspecialists should participate at all levels of planning for trauma, emergency, and disaster care.
2. Every pediatric and emergency care-related health professional credentialing and certification body should define pediatric emergency and trauma care competencies and require practitioners to receive the appropriate level of initial and continuing education to achieve and maintain those competencies.
3. Efforts to define and maintain pediatric care competencies should target both out-of-hospital and hospital-based care providers.
4. National organizations with a special interest in pediatric trauma should collaborate to advocate for a higher and more consistent quality of care within the nation.

Recently there was an effort made to assess quality indicators and research opportunities to improve quality care among pediatric trauma victims [10], and they report that as high as 32% of deaths are preventable in injured children. They suggest that gaps exist in quality care and further research is needed to develop and examine patient-centered pediatric-specific indicators that cover the wide range of trauma care. Recently formed organizations such as Pediatric Trauma Society (http://pediatrictraumasociety.org) have a mission to improve quality care among injured children. Their vision is to be a global player in this field through optimal pediatric care guidelines, education, research, and promotion.

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