

### **Trauma Care in Pakistan**

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Trauma is a major health concern of the modern world and is the second leading cause of death and disability in the age group between 15-44 years.<sup>1</sup> Approximately twenty million people are killed or injured every year due to the road traffic accidents.<sup>2</sup> Similarly 1.66 million deaths were attributed to violence in the year 2000.<sup>1</sup> The economic cost for the care of trauma victims and its after effects, puts an enormous strain on the resources of the countries but the impact upon the family is far worse as most of the victims are usually the sole bread winners. However with timely and appropriate prehospital and hospital based medical care, it is possible to reduce the mortality and morbidity as a consequence of trauma. This has been clearly proved in a study, which showed that the mortality rates for seriously injured victims were six times more in the under developed countries than at the level 1 trauma centre in US.<sup>3</sup> Most of these deaths occurred in the early hours after trauma and were attributed to (A) airway compromise (B) respiratory failure and (C) uncontrolled haemorrhage. These problems can be managed very easily by simple measures, thereby preventing the fatalities or reducing the severity of damage.

The situation in Pakistan is worse because there is an ever increasing number of trauma victims due to road traffic accidents and increasing violence and there is lack of timely provision of appropriate prehospital/ hospital based medical care. Unfortunately the prehospital trauma care system does not exist in Pakistan. The initial help to the trauma victims is usually provided by relatives or people at the scene of accident and it is nothing more than putting the victim in any form of available transport on the way to hospital. Transportation of these victims has improved in the cities due to efforts by the NGOs and government (Rescue 1122) but the traffic congestion is becoming a major hindrance by consuming lots of the precious time. A study from Karachi reported that 58% of the victims of violence died before they could reach the hospital.<sup>4</sup> The rural areas still lack dedicated ambulance service.

Hospital based medical care for trauma victims also needs drastic changes. Across Pakistan, even in tertiary care hospitals, the doctors in accident and emergency department are not properly trained for the care of the trauma victims. It is exceptional to find a doctor in the accident and emergency department who is ATLS-, PTC-, BCLS- or

ACLS- certified. A study<sup>5</sup> from US showed 2.4% of the deaths of trauma victims occurring in a hospital with ATLS certified staff, due to errors in medical care and 58% of the errors were related to haemorrhage control, air way management and inappropriate management of the unstable patients. We can assume the severity and magnitude of the problem knowing that the accident and emergency room staff in Pakistan is not properly trained either.

There is lack of reliable data on the trauma victims and its impact upon the nation. National road safety secretariat<sup>6</sup> estimated that about two million accidents occurred in Pakistan in year 2006 and 0.418 million were of serious nature. The number of road traffic accidents multiplied 17.5 times during a thirty year period (1956-1996) while the number of vehicles multiplied by 15.8 times during same period in Pakistan.<sup>7</sup> Commercial vehicles were involved in 69% of the accidents even though they constituted only 12% of the total vehicles. Similarly, an increase of 55% was noted in homicidal attacks during a ten year period (1985-1994) in one study.<sup>8</sup> Over 90% of the victims of violence were males<sup>4,9</sup> mostly belonging to the age group of 20-40 years. Most of the victims of road traffic accidents were also young males. The economic cost of road traffic accidents in Pakistan was estimated to be 100 billion rupees for the year 2006 by the National Road Safety Secretariat.<sup>6</sup> Another study<sup>10</sup> estimated the loss of 31.94 healthy life years per 1000 population in Pakistan due to injuries in 1990.

Many of these injury related disabilities and deaths are amenable to low cost measures such as better training, better organization and planning of the services and availability of right skills and equipment at the appropriate time and place.

Considering these facts, it is high time for us as a country to take correct measures to reduce trauma related deaths and disabilities. The first step in this direction should be establishment of a sustainable, affordable and effective prehospital trauma care system that provides services to every one along with necessary improvement in hospital based health care system. In fact emergency medical care is a priority area for National Road Safety Secretariat.

The proposed prehospital trauma care system should

not be an advanced complex system as is the case in developed countries because they are not cost effective and sustainable for the under developed/ developing countries, nor they offer any superiority with few exceptions to the simpler systems which provide timely and consistently the basic and vital interventions. The prehospital trauma care system in Pakistan must be defined by the needs of community and capacity with due consideration given to local culture and health care capacity. The community served must be involved in its development and sustainability. It may be difficult to generate adequate financial resources to run the system but there are a number of options which can be tapped for this purpose. These include highway toll tax, octroi, allocation of part of motor vehicle registration fee and health insurance. Part of this money can be used to provide financial incentives to the basic health care providers.

For the system, it is mandatory to establish minimum standards of training, certification, required equipment and supplies. It should also ensure minimum sustainable prehospital trauma care along with the mechanism to assure and promote consistency. The system should be based upon three tiers.

Further more the system should rely more upon volunteers/ first responders such as highway police personnel, ambulance/ taxi drivers, teachers and local bone setters to provide the initial help on the scene. These first tier personnel (also called first responders) should be trained in basic principles of safe rescue, first aid and transportation. The second tier team selected from paramedics/ nurses should be trained in the principles of prehospital basic care along with hands on training to provide safe rescue, stabilization and safe transportation of trauma victims. First responders and basic prehospital care providers should be provided the necessary kits. The third tier would be hospital based care system.

There is an excellent WHO publication titled "Prehospital based trauma care systems", which provides guidelines for decision makers faced with challenge of developing a prehospital trauma care system in under developed/ developing countries. It provides the global over view of the system development and recommendations for the countries without prehospital care system. Its main focus is upon the trauma care in prehospital environment and recognizes the role of simple, basic and cost effective system. It also highlights the basic training and equipment required to run the system. Such a prehospital care system

can be extended to other types of medical, obstetrical and pediatric emergencies.

The prehospital trauma care system needs to be supported by well established hospital based trauma care system. In this regard, most important is availability of well trained staff in emergency departments who are capable of managing trauma victims. It must be made mandatory for all the personnel working in emergency departments to be well trained in trauma care and should be certified. The ultimate goal should be to have all the newly qualified doctors to under go a well defined trauma care training such as ATLS or PTC along with basic cardiac and life support (BCLS) training before their internship. Some form of financial incentives may be given to those working in the emergency departments as is being done in some federal government hospitals.

There is also a need to establish the trauma care protocols which can be applied consistently in all hospitals to achieve successful results and a reliable data for further analysis and improvement. Much guidance can be obtained from another WHO publication titled "Guide lines for essential trauma" in low and middle income countries.

Both these systems need to be supplemented by a rapid/ safe transportation of victims by improving ambulance service and good communication system.

Lastly we must not forget that these prehospital or hospital trauma care systems are not the substitute for preventive measures to reduce the incidence of trauma.

## References

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