

Short Communication

Pattern of trauma in the districts of Doha/Qatar: Causes and suggestions

Ahmed Subhy Al Sheikhly (CABS, FRCSI, MISS/SIC)

General and Emergency Surgery Accident and Emergency Dept. Hamad Medical Corporation Doha-Qatar;
P.O Box 3050; E-mail: ahmadmomz@yahoo.com

Accepted 20 February, 2012

The objective of this research is to study and analyze all trauma injuries managed in the Accident and Emergency department of Hamad Medical Corporation over a two-year period in order to suggest possible preventive measures. The research design is a retrospective hospital and traffic departmental records-based study. All managed trauma patients managed by the author were presented to the Accidents and Emergency Department, during two year interval. The study highlighted the incidence of different types of trauma injuries in Qatar. An increase in motor vehicle accidents as a result of increase in population and increase in rate of acquisition of vehicles; both remain a major cause of all injuries, therefore all efforts must be directed toward prevention of accidents, by proper safety measures , promotion as well as improved traffic and public education.

Keywords: Injuries; Trauma; Vehicle accidents

INTRODUCTION

Trauma is one of the main causes of morbidity and mortality among people under the age of 35 years worldwide. In 1983, the death rate due to road traffic accidents in the Gulf area was 37/100000 population compared with 21/100000 population in the USA (Al-Saif, 1984), on the meantime, more than six million people die every year from injuries (Murray and Lopez, 1996).

The top three leading causes of death and disability in both developed and developing countries, regardless of age or gender, in decreasing order are: motor vehicle accidents (MVA), self-inflicted injuries and inter-personal violence (Al-Musleh et al., 2002).

It was also observed that for each fatality, there were 10 more patients admitted to hospitals and hundreds more treated in the emergency department (James, 2000); therefore trauma in general and (MVA) especially, continue to be our most expensive health problem with considerable physical, psychological and socioeconomic impact.

Adequate measures for dealing with the preventable aspects of trauma are still poorly understood and need more studies, not only because of its fatalities but also due to its socioeconomic burden.

The aim of this study was to focus on the causes, mechanisms, systems involved and age groups, all types of injuries have been analyzed over a two-year interval, in

order to consider injury prevention and safety promotion.

METHODS

This is a retrospective hospital-based study on a sample of trauma patients attending the Accidents and Emergency department and managed by the author over a two-year period from September 2004 to August 2006. It represents the analysis of 9600 trauma victims.

After initial resuscitation and evaluation, the patients were discharged, kept under observation or admitted to the wards of Hamad General Hospital, based on the severity and systems involved by the accident. These were to orthopedic, surgical, neurosurgical or intensive care units. Each patient was analyzed in terms of age, sex, mechanism of injury, systems involved and where appropriate; operative findings.

RESULTS

A total of 9600 patients suffering from accidents managed by the author in two year interval formed the basis of this study. As shown below in table 1, there were

Table 1: Age and gender distribution of trauma cases.

Age (Years)	Male	Female	Total	Percentage
0-9	1413	353	1766	18.4
10-19	1913	478	2391	24.9
20-29	1298	324	1622	16.9
30-39	1130	282	1412	14.7
40-49	799	199	998	10.4
50-59	651	165	826	8.6
>60	468	117	585	6.1

Table 2: Mechanism of trauma by number & percentage

Mechanism of injury	Number of patients	Percentage
Road traffic collisions	5400	56.25
Falling down	1499	15.61
Fall from a height	1490	15.52
Assault	300	3.12
Stab & Machinery	299	3.12
Miscellaneous	612	6.38

Table 3: The system(s) involved in trauma patients

System(s) involved	Total No. of patients	Percentage
Orthopedic	3015	31.4
Cranial	2093	21.8
Chest including heart	1200	12.5
Abdominal including genito-urinary	1200	12.5
Multisystem injuries	2092	21.8

80% males and 20% females. Males were dominant in all age groups, with a male to female ratio of 4:1.

The mechanism of trauma is shown in table 2. Road traffic collisions were the most frequent causes of injuries and constituted 56.25% of all cases and predominant among the 11-40 age group. Falls were the second most common cause of injuries; they were responsible for 15.61% of all cases followed by fall from a height representing 15.52% of all cases.

Table 3 the musculoskeletal system is most commonly affected by trauma (31.4%) followed by the cranial (21.8%), intra-abdominal including genitor-urinary (12.5%) and cardiothoracic (12.5%) systems respectively. Multisystem injuries were representing only 21.8% from the whole number of cases involved in this study.

It was found that as many as 70% victims of road traffic crashes were not wearing seatbelts at the time of their accidents, in addition to only 40% of males and 33% of females wore seatbelts according to the study.

Moreover, Children below 15 years formed a very substantial number of patients admitted following trauma due to road traffic accidents (33.3%), also the study

showed an increase incidence of admissions during the winter months and a decreased incidence during summer season.

DISCUSSION:

Trauma and accidents are the leading causes of death and disabilities worldwide (Mock, 1998). In both developed and developing countries, accidental deaths were mostly due to road traffic injuries (Landin, 1997).

Most victims of road traffic collisions are young adults and children, both males and females. Trauma continues to be the leading cause of death and disability for children and young adults as these age groups show most activity and are highly exposed to high-speed transportation in the community (AL-Othman et al., 1994). The incidence of road traffic collisions has increased significantly in the last twenty years (Mortality Statistics, England and Wales, 1980). Bad driving, ignoring the traffic laws, in addition to environmental conditions such as, alcoholic intoxication,

natural drivers' diseases, street lighting, the layout of crossroads and cars' defects are suggested to be the leading causes of accidents and injuries (Jacob et al., 1980).

By the year 2020 it is expected that motor vehicle accidents alone will be counted the 3rd highest cause of global burden of disease, jumping from its current ranking of 9th (Alshaheen et al., 2003). Developing countries are the most responsible for this sharp rise. However, worldwide road traffic accidents continue to be listed as the leading cause of injury.

A study of Qatari community like any Arabic communities is of great value in planning for injury prevention strategies. In general, motor vehicle collisions are the 2nd leading cause of children's accidents (Gaballah, 2000).

As observed in this study, road traffic collisions were the most frequent causes of injuries and constituted 56.25% of all cases and predominant among the 11-40 age group, they appear like an infectious disease where the vehicle plays the microorganisms role to transmit disease of injured or dead individuals. The road is the environment that helps spread of the disease to the drivers and whole population.

Actually, there must be an adequate measure for dealing with the preventable aspects of trauma, it is highly indicated; not due to the morbidity and mortality of that trauma but because of the socio-economic burden as well.

There is an increase in Qatari population with increase in traveling by motor vehicles as well as roads overcrowded by traffic; this is significantly more dangerous especially in this country and in the developing countries in general, so road traffic injuries will increase as a result. Therefore, all efforts must be directed to prevent accidents by proper measures with improved work and public safety, traffic education and emphasizing the importance of continuous trauma audit registry.

It has been found that in the USA; legally mandated application of safety belts in vehicles is an effective way in lowering the incidence of injuries (Kendrik, 1993). In Sweden, for example, the traffic mortality reported 6 deaths per 100,000 while in Jordan it is 15.2 deaths (Nantulva and Reich, 2003).

In Qatar the need is programs that promote the use of all safety measures such as traffic education, traffic law enforcement, the use of seatbelts. In fact these programs should be in the context of public health priorities for every community. Such measures may prevent trauma, particularly, motor vehicle accidents, or at least limit its severity and reduce the disabling outcome.

Based on the findings of our study, the main suggestions and recommendations could be summarized by the followings:

Establish and strengthen lead agencies and manage performance through target setting.

Make safe, healthy, environment-friendly transport choices; design transport around walking, cycling, private and public transport.

Focus on implementing the most effective interventions to reduce chances of injury during a crash:

- Control speed.
- Implement seatbelt laws.
- Promote child restraint in cars.
- Enforce use standard motorcycle helmets.
- Ascertain the role of any drug including alcohol in road crashes and control it.
- Allow only safe vehicles on the roads.
- Ensure safe road design through safety audits at all stages of road construction and maintenance.
- Improve trauma care in the pre and intra-hospital levels.
- Harmonize data collection methodology.
- Enhance institutional capacity for data gathering and dissemination including collaborative relationships between health, police and traffic authorities.

CONCLUSION:

It is clear that road traffic injury, falls, stab wounds, assault and machinery injuries were the most common causes of trauma in this study. This emphasizes the need for deep understanding and studying of these medical and social problems to reduce the incidence of these accidents and the preventable causes of trauma. Educating the public on how to use the safety methods in dealing with these issues remarkably will reduce the number of injured patients and reduce the cost and other losses from injury.

REFERENCES

- Al-Musleh AW, Tawfiq FA, Al-Kilani H, El Tawil MS, Khalid MK, Mohammed T, Price P, Orlando P, Hammoud S (2002). The medical cost of motor vehicle collisions in Qatar. *The Middle East J Emerg Med*, 2:4-8.
- AL-Othman M, et al(1994). Pattern of pediatrics trauma seen in a teaching hospital. *Bahrain Medical Bulletin*; 16:87-90.
- Al Saif A(1984). Development methods and organization of traffic department. Riyadh, Esheaa press; 17-32.
- Alshaheen T, et al(2003). Epidemiology of hand injury in Qatar. *The Middle East J Emerg Med*; 3:20-42.
- Gaballah KY. Fracture of facial bones in Benghazi. *Qatar Medical Journal* 2000; 9:36-39.
- Jacob CJL, et al(2000). Estimating global road fatalities. *Crwthron*, Transport research laboratory. (TRL) report No. 445.
- James H. Creel Jr (2000). *Basic Trauma Life Support*, 4th edition, prentice hall health, 2-22.
- Kendrik D. (1993). Prevention of pedestrian accidents. *Arch Dis Child*; 68:669-672.
- Landin LA.(1997). Epidemiology of children fractures. *J Pediatrorthop B*, 6: 79-83.

Mock CN.(1998). Trauma mortality patterns in three nations at different economic levels: implication for global trauma system development. *Journal of Trauma*,44:804-814.

Mortality Statistics (1980), England and Wales: Accident and violence, series DH4, no: 7 London HMSO

Murray CJL, Lopez AD(1996). *The global burden of disease: a comprehensive assessment of mortality and disability from disease, injuries, and risk factors in 1990 and projected to 2020*. Boston, MA, Harvard School of Public Health.

Nantulva VM, Reich MR.(2003) Equity dimension of road traffic accident in low and middle-income countries. *Injury control and safety promotion*, 10:13-20.