



A study of morbidity and mortality profile of 500 road traffic accident cases in Malwa region of Punjab

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Abstract

Background: Road Traffic Accidents (RTA) are increasing in an alarming ways. Globally, nearly 1.2 million people killed in RTA during the year 2002. Developing and underdeveloped countries accounted for 80% of these deaths.

Aim: The aim of the study was to know the morbidity and mortality profile of 500 road traffic accident cases in Malwa region of Punjab.

Material and methods: Total 500 road traffic accident cases admitted at Guru Gobind Singh Hospital, Faridkot, Punjab from May 2013 to December 2013 were selected for the study.

Results: The age wise distribution of victims showed that 157 (31.4%) occurred in 21-30 years age group, 215 (43%) victims reached the health facility within one hour and the 242 (48.4%) victims stayed in the hospital for the duration of 1-7 days.

Conclusion: When enquired about the probable cause of accident most of the victims complained about the poor lighting condition on the roads at night time. The other major cause was alcohol or influence of others intoxication on the victim or the driver of the hitting vehicle.

Key words

Road traffic accidents, Mortality, Morbidity, Punjab, India.



Introduction

Road traffic accidents (RTA) can be defined as "An accident that occurred on a way or street open to public traffic; resulted in one or more persons being killed or injured and at least one moving vehicle was involved. Thus RTA is collisions between vehicles, between vehicles and pedestrians; between vehicles and animals; or between vehicles and geographical or architectural obstacles [1]."

Road Traffic Accidents (RTA) are increasing in an alarming ways. Globally nearly 1.2 million people killed in RTA during the year 2002. Developing and underdeveloped countries accounted for 80% of these deaths and 21% of total injury projected estimations reveals that fatalities due to RTA will be the 3rd leading cause of death by 2020 moving from its present 9th position [2].

In India, every year RTA accounts for over 1,00,000 deaths, 2 million hospitalization, 7.7 million minor injuries and an estimated loss of 55,000 crores or nearly 3% of the GDP every year. If the present scenario is continued, it is projected that deaths due to RTAs will be 1,50,000 and 2.8 million victims will be hospitalized by 2010. 1,85,000 deaths and 3.6 million victims will be hospitalized by 2015. The social and psychological suffering of the injured persons is increased and their families and also families with RTA deaths are phenomenal. It is sad to note that life saved due to advancements in health and health related sector is now being wasted on the roads [2].

Road traffic Accidents are mainly caused by rapid increase in personalized modes of transport (agent), a lack of road discipline (host) and improper roadway features (environment) [3].

Developing countries are very different from the industrialized countries with regard to the environment and mix of vehicles in the traffic stream [4].

The report of WHO meeting on 'Road Traffic Accidents in Developing Countries' highlighted that without adequate data, sources and facilities for data collection, analysis and interpretation, these could be no efficient counter measures, evaluations, strategies and perhaps most importantly no clear case to put to national policy makers, charged with allocating resources to different sectors of economy [5].

As this report stressed an improvement of basic accident reporting system, same is the motive of our study to assess the characteristics and demographic variables of road users involved, nature and severity of injuries and subsequent evolution.

Material and methods

This study was conducted at Guru Gobind Singh Hospital, Faridkot, Punjab. A cross sectional, hospital based descriptive study comprising study population of 500 road traffic accident cases reporting to casualty of Guru Gobind Singh Hospital, Faridkot from May 2013 to December 2013 was carried out. Any Injury on road without involvement of a vehicle was excluded. Ethical clearance was taken from the ethical committee of the institution and informed consent was taken from the population of the study. The study was conducted by paying daily visits to the casualty of Guru Gobind Singh Hospital, Faridkot to note down the relevant information regarding victims of road traffic accidents and also the respective surgical or orthopedic wards to record the detailed information about victims.

A pretested questionnaire was designed for elucidating the information about circumstances leading to accidents and the other demographic variables. Where the condition of the victims do not warrant the interview, the relatives or attendants were interviewed, who had either seen the accident happening or had visited the site of accident afterwards and had full knowledge of accident happening through the police enquiry. After getting information predesigned proforma was duly filled and final outcome was recorded from the case file after the discharge of accident victim from the hospital.

The nature and severity of road traffic accidents, the socio-demographic factors such as age, sex, education, socio economic status (according to BG Prasad’s classification) etc., pattern of injuries in accident victims, antecedent factors, vehicular factors etc. responsible for road traffic accidents were assessed and collected in pre-designed and pre-tested proforma. Information regarding health condition of drivers involved was also noted i.e. visual acuity, hearing impairment, hypertension, diabetes, epilepsy etc. Beside above, information as regards first aid was also obtained.

Results

Out of total 500 cases of road accidents, 434 (86.8%) were males and 66 (13.2%) were females with male to female ratio of 6.57: 1. The age wise distribution of victims showed that 157 (31.4%) victims were in 21-30 years age group, 150 (30%) males and 7 (14%) females. The second biggest group was in the age group of 31-40 years involving 89 victims (17.8%), 74(14.8%) were males and 15 (3%) were females. The least number of victims 10 (2%) were recorded in the age group of above 71 with 7 (1.4%) males and 3 (0.6%) females as per

Table - 1. Out of 500 victims, 246 (49.2%) got injury at one site of the body while majority 354 (50.8%) got injury at multiple regions of the body. 193 (38.6%) victims sustained only soft tissue injury, 21 (4.2%) sustained only fractures with no superficial injury while 286 (57.2%) sustained combined soft tissue and bony injury as per **Table - 2**. It was observed that 107 (21.4%) victims suffered simple injuries, 353 (70.6%) suffered grievous injuries and 40 (8%) dangerous injuries; out of the total 500 victims as per **Table - 3**. In a community based survey, superficial injuries were the most common (47.4%) followed by factures (20.7%) crush injuries (14.10%) and concealed injuries (12.4%). It was observed that 12 (2.4%) victims of accidents admitted in the hospital died while 22 (4.4%) were permanently disabled when discharged; who involved amputation of the limb or fingers and two victims lost their sight in one eye. 388 (77.6%) cases were partially cured and discharged with their plaster or the bandage which 78 (15.6%) cases were discharged cured as per **Table - 4**.

Table - 1: Distribution of victims according to age and sex

Age group (in years)	Male		Female		Total	
	No	%	No	%	No	%
0-10	14	2.8	7	1.4	21	4.2
11-20	77	15.4	7	1.4	84	16.8
21-30	150	30	7	1.4	157	31.4
31-40	74	14.8	15	3	89	17.8
41-50	63	12.6	12	2.4	75	15.0
51-61	24	4.8	9	1.8	33	6.6
61-70	25	5	6	1.2	31	6.2
> 70	7	1.4	3	0.6	10	2
Total	434	86.8	66	13.2	500	100
P-Value <0.001						

Table – 2: Profile of injury

Profile	Cases	%
Sites		
Single site	246	49.2
Multiple site	254	50.8
Total	500	100

Tissue involved

Soft tissue	193	38.6
Bony	21	4.2
Combined	286	57.2
Total	500	100

Body part involved in injury with single site involvement

Head	112	45.52
Face and neck	30	12.20
Upper limb	24	9.75
Lower limb	42	17.10
Abdomen	7	2.84
Chest	15	6.09
Spine	6	2.43
Hip and pelvis	10	4.07
Total	246	100

Table – 3: Nature of injuries

Nature of Injury	Cases	%
Simple	107	21.4
Grievous	353	70.6
Dangerous	40	8.0
Total	500	100

Table – 4: Final outcome at the time of discharge

Final outcome	Cases	%
Death	12	2.4
Permanently disabled	22	4.4
Partially cured	388	77.6
Cured	78	15.6
Total	500	100
P- value <0.001		

Since most of the victims suffered grievous injuries; most of the victims were discharged with plaster or bandage. The early discharge of patients also reduces the cost of treatment and burden on health facilities.

Discussion

Over the past 20 years, there is rapid urbanization and population is increasing to an alarming proportions. Death rates in most of the countries have declined and life expectancy has increased; but traffic injuries have emerged as a highly visible cause of morbidity, disability and mortality. In particular, injuries disproportionately affect young adults, the poor and men. Accidents have got multi factorial causation. Interaction among the agent (vehicle), host (road user) and environment are concerned including the working condition of the vehicle, awareness, attitude and behavior of road user and the road quality and other environmental circumstances. The present study is a sincere effort to highlight the various factors involved in the happening of accidents and their final outcome. 500 cases of road side accidents admitted in emergency department of G.G.S. Medical College and Hospital, Faridkot were studied for the various demographic variables and the risk factors involved in the occurrence of these accidents. The following observations were made during the study.

The maximum number of victims in our study were in the age group less than 50 years 426 (85.2%) and that too in the age group of 11-50 years i.e. 405 (81%). About 70.2% of the victims were under 40 years age group. In all the age groups, males were predominant victims. Similarly male predominance was observed in different other studies with sex ratio of (male: female), 5.4: 1 [6], 9: 1 [7], 7.1: 1 [8], 7: 1 [9], 4.9: 1 [10], while in present study the observed

male: female ratio was 6.57: 1 with maximum victims in the age group of 21-30 years (31.4%). Similarly the age wise distribution of victims involved in our study is comparable with other studies, with maximum number of persons injured in age group of 20-29 years (32.7%) [6], 21-30 years (28.26%) [7], 21-30 years [11], 21-30 years (26%) [9], 20-29 years (31.3 %) [10], 18-30 years [12].

In the present study, it was observed that the majority of the cases were in the age group of 21-30 years. More number of cases were in the age group can be explained on the basis that this is the most active period of life with tendency to take risks and also the care free attitude of the younger population. The male predominance (M: F = 6.57: 1) was due to the fact that females lead less active life and mostly remain indoors [7], while males form the predominant working class and as such more active and outgoing.

Majority of trauma victims, admitted in the hospital got fracture of one or the other region of the body mostly involving the limbs and head region. On further analysis of the site of injury; it was observed that 254 victims got inflicted injuries at multiple sites mostly involving the lower limb, upper limb, the head, chest and abdomen. Those who got injury at single site 246; it was the head, most commonly involved in 112 (45.52%) cases followed by lower limb 42 (17.1%), upper limb 24 (9.75%), hip and pelvis 10 (4.07%), chest 15 (6.09%), face and neck (12.2%), abdomen 7(2.84%) and spine in 6 (2.43%) cases.

It was observed from the present study that the head, the limb and chest were most commonly involved regions of the body involved in accidental injuries. Most of these injuries were inflicted in involvement of two wheeled vehicles. Head injuries were mostly due to negligence of safety measures like wearing of

helmets by the victims. Jha N, et al. in 2003 also reported that head was the commonest site to sustain internal injury followed by lower limbs [10]. Similar were the observations made by Mehta SP in 1968 [6]. Thus majority of the accident victims suffered grievous injuries and most of these were from involvement of two-wheelers which are most unstable vehicles and also because of non-use of safety measure by the driver and the pillion rider. This study showed that 106 (21.2%) of the victims, out of 500; needed blood transfusion. This reflects that the injuries sustained were severe causing large amount of blood loss. It also stresses upon the importance of efficient blood bank services needed to tackle the trauma cases.

Conclusion

The study concluded that the major cause of RTA are the poor lighting condition on the roads at night time, influence of alcohol, others intoxication and high speed.

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