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CLINICAL PROFILE OF NON-FATAL ROAD TRAFFIC ACCIDENT CASES ADMITTED IN TERTIARY CARE HOSPITAL IN CENTRAL INDIA

Community Medicine

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ABSTRACT

Title Clinical profile of non-fatal road traffic accident cases admitted in tertiary care hospital in Central India

Objective To study clinical profile of road traffic accident cases admitted in tertiary care hospital.

Methodology The present hospital based cross sectional study was carried out in tertiary care hospital of the city in central India. Road traffic accident cases admitted in tertiary care hospital in city during period of one year (20th may 2014 to 22nd may 2015) were included in the study with predefined inclusion and exclusion criteria. Clinical profile of study subjects was recorded in the proforma.

Results and conclusions It was observed that lower extremity (48.33%) was most frequently involved body part in accident cases. There was significant association between body part involved in accident injury and category of study subject (X2=34.58, DF=8, p<0.01).Head, Face & neck was more commonly involved in drivers (X^2=11.76, DF=1, p<0.01, OR=2.5, CI=1.47-4.42). There was significant association between type of injury and category of study subjects (X^2=12.92, DF=6, p<0.05). Contusions were more common among drivers 33(25.98%). Fractures were more common among pedestrians 62(74.70%).

KEYWORDS:

Introduction

A WHO Advisory Group in 1956 defined accident as an "unprem editated event resulting in recognizable damage." According to another definition, an accident is that "Occurrence in sequence of events which usually produces unintended injury, death or property damage." Accident have their own natural history and follow same epidemiological pattern as any other disease – that is, the agent, the host, and the environment interacting together to produce injury or damage. Some people are more prone to accidents than others and susceptibility is increased by the effect of alcohol and other drugs as well as physiological state such as fatigue. Majority of accidents are preventable. (1)

Global Status Report on Road Safety 2013 by WHO shows that there has been no overall reduction in the number of people killed on the world's roads. About 1.24 million deaths occur annually. However, this plateau should be considered in the context of a corresponding 15% global increase in the number of registered vehicles, suggesting that interventions to improve global road safety have mitigated the expected rise in the number of deaths. Road traffic injuries remain an important public health problem at world, regional and national levels. Data on magnitude of problems and risk factors involved are essential to developing a systemic approach to road safety. Only by systematic and data-led management of the leading road injury problems will significant reductions in exposure to crash risk and in the severity of crashes be achieved.

Hence in the background of high epidemiologic proportions of road traffic accidents and the fact that very few exploratory studies were reported from central India, the present study was undertaken to study epidemiological factors associated with road traffic accident. To study socio-demographic profile road traffic accident cases admitted in tertiary care hospital.

Methodology

The present hospital based cross sectional study was carried out in tertiary care hospital of the city in central India. Duration of study was from September 2013 to November 2015. The period of data collection was one year i.e. from 20th May 2014 to 22th May 2015. Approval from institutional ethics committee was taken before initiation of study.

Study population:

Road traffic accident cases admitted in tertiary care hospital in city during period of one year (20th may 2014 to 22nd may 2015) were included in the study with following inclusion and exclusion criteria.

Inclusion criteria:

1. Road traffic accident cases admitted in hospital.
2. Road traffic accident cases who were conscious & co-operative.
3. Road traffic accident cases who had given written informed consent.

Exclusion criteria:

1. Road traffic accident cases who were admitted in surgical intensive care unit (SICU) of hospital.
2. Road traffic accident cases who took discharge against medical advice (DAMA).
3. Road traffic accident cases brought dead in casualty department.
4. Road traffic accident cases who were unable to participate in the study due to impaired health status.

Distribution of road traffic accident cases reported to casualty department of tertiary care hospital was recorded on each day to identify accident cases admitted in hospital on that day. During data collection of one year, distribution of road traffic accident cases reported in casualty was as follows,

Table 1 Distribution of Road traffic accident cases reported to casualty

Distribution of road traffic accident cases reported at casualty	Number	Percentage
Managed on OPD basis	1877	70.86
Discharged against medical advice	196	7.40
Admitted in ward	481	18.16
Admitted in Surgical intensive care unit	27	1.02
Brought dead	68	2.56
Total	2649	100

There were total 481 road traffic accident cases admitted in hospital during period of one year. Distribution these 481 cases admitted in hospital was as follows. Out of these 481 road traffic accident cases 300 were interviewed and examined for the study.

Table 2 Distribution of 481 road traffic accident cases admitted in hospital

Distribution of admitted road traffic accident cases	Number	Percentage
Number of cases interviewed	300	62.37
Were not able to participate in study	131	27.13
Consent not given	50	10.50
Total	481	100

Study methodology:

A pre-tested proforma was used for collecting relevant information from study subjects by direct interview method. Clinical profile of study subjects was recorded in the proforma. Every body part was examined and assessed for exact anatomical site and type of injury and this was correlated with medical case records for confirmation.

Results

The present cross sectional study was carried out in a tertiary care hospital in central India. Three hundred road traffic accident cases were studied in detail with regard to their clinical profile and injury pattern.

TABLE 3 Distribution of study subjects according to body part involved in road traffic injury

Body part involved in road traffic injury	Category of study subjects							
	Drivers		Passengers		Pedestrians		Total	
	No.	%	No.	%	No.	%	No.	%
Head ,face & neck	42	33.07	17	18.89	11	13.26	70	23.33
Trunk	10	7.87	6	6.67	1	1.20	17	5.67
Upper extremity	2	1.57	10	11.11	5	6.03	17	5.67
Lower extremity	49	38.58	39	43.33	57	68.67	145	48.33
Multiple	24	18.91	18	20	9	10.84	51	17
Total	127	100	90	100	83	100	300	100

X^2=34.58, DF=8, p<0.01

Above table shows that in 145(48.33%) accident cases lower extremity was involved followed by involvement of head, face & neck in 70(23.33%) cases, multiple body part in 51(17%) cases, upper extremity in 17(5.67%) cases and trunk in 17(5.67%) cases.

There was significant association between body part involved in accident and category of study subject (X^2=34.58, DF=8, p<0.01). Head, Face & neck was more commonly involved in drivers 42(33.07%) as compared to rest of study subjects 28(16.28%) and this difference was statistically significant(X^2=11.76, DF=1, p<0.01, OR=2.5, CI=1.47-4.42).

Upper limb was more commonly involved in passengers 10(11.11%) as compared to rest of study subjects 7(3.33%) and this difference was statistically significant(X^2=7.12, DF=1, p<0.01,OR=3.6,CI=1.3-9.8).

Pedestrians 57(68.67%) had lower extremity involvement more common than rest of study subjects 88(40.55%) and this difference also statistically significant (X^2=11.01, DF=1, p<0.01, OR=3.2, CI=1.8-5.4).

TABLE 4 Distribution of study subjects according to type of injury

Type of injury	Category of study subjects							
	Drivers		Passengers		Pedestrians		Total	
	No.	%	No.	%	No.	%	No.	%
Contusion	33	25.98	15	16.67	10	12.04	58	19.33
Fracture	67	52.76	57	63.33	62	74.70	186	62
Multiple injuries	21	16.54	11	12.22	8	9.65	40	13.33
Other injuries	6	4.72	7	7.78	3	3.61	16	5.34
Total	127	100	90	100	83	100	300	100

X^2=12.92, DF=6, P<0.05

Table no. 23 shows that fracture 186(62%) was most common injury found among accident cases followed by contusion 58(19.33%), multiple injuries 40(13.33%) and other injuries 16(5.34%) which include abrasions, lacerations and incised wound.

There was significant association between type of injury and category of study subjects (X^2=12.92, DF=6, p<0.05).Contusions were more common among drivers 33(25.98%) as compared to rest of study subjects 25(14.45%) and this difference was statistically significant (X^2=6.24, DF=1, p<0.05, OR=2.07, CI=1.16-3.71).

Fractures were more common among pedestrians 62(74.70%) as compared to rest of study subjects 124(51.14%) and this difference was also statistically significant (X^2=7.85, DF=1, p<0.01, OR=2.21, CI=1.26-3.8)

Discussion

In the present study among 48.33% accident cases lower extremity was involved followed by involvement of head, face & neck in 23.33%cases, multiple body part in 17% cases, and upper extremity in 5.67% cases and trunk in 5.67% cases. Ganveer GB et al (2005)(3)found that the site of the body mostly affected by injury included lower extremity in 45.39% cases and multiple sites in 26.95% cases. Kein P et al (2006)(4) observed that most injuries occurred in the lower extremity (46 %) with the lower leg being most often affected (13 %), followed by knee (11 %) and thigh (9 %). Upper extremity injuries accounted for 28 % of all injuries. Patil SS et al (2008)(5) found that the fracture was most common injury noted among the victims. The commonest site of fracture was the lower limb 46.3% followed by upper limb 24.7% and skull 13.2%. Other sites were spine 6.3%, ribs 5.8% and pelvis 3.7%. Fatality rate in our study was 0.8%. Thomas V (2013)(6)found that among the fractures, the commonest site of fracture was the lower limb (48.2%) followed by upper limb (18.9%) and skull (14.86%). Chauhan A (2014)(7) found that lower limb (60.3%) was the most common site of injury, followed by head (39.0%). Mansuri FA (2015)(8) found that the most frequently injured body regions as reported in the latest studies were head and neck, followed by upper and lower extremities, which was found to be opposite to that of the studies reported earlier.

There was significant association between body part involved in accident and category of study subject (X2=34.58, p<0.01) in the present study. Head, Face & neck was more commonly involved in drivers (33.07%) as compared to the rest of study subjects (16.28%) and this difference was statistically significant(X2=11.76, p<0.01, OR=2.5, CI=1.47-4.42). This may be due to the fact that maximum drivers were driving motorized two wheelers without wearing helmets at the time of accidents. Only two drivers of motorized two wheelers had helmets at the time of accidents.

In the present study upper limb was more commonly involved in passengers (11.11%) as compared to rest of study subjects (3.33%) and this difference was statistically significant(X^2=7.12, p<0.01, OR=3.6,CI=1.3-9.8).

In the present study pedestrians (68.67%) had lower extremity involvement was more common than the rest of study subjects (40.55%) and this difference was also statistically significant (X^2=11.01, p<0.01, OR=3.2, CI=1.8-5.4). This may be attributed to the mechanism of road traffic injury in pedestrians. When a motor vehicle collides with a pedestrian, he/she gets injured by primary impact and secondary impact. Primary impact is an impact of motor vehicle on body parts of pedestrian in which lower extremity involvement is more common, and secondary impact is impact of pedestrian him/her self on ground and/or other objects.

The present study showed that fracture (62%) was the most common injury found among the accident cases followed by contusion (19.33%), multiple injuries (13.33%) and other injuries (5.34%) which included abrasions, lacerations and incised wounds. Ganveer GB et al (2005)(3)found that fracture was the most common injury afflicted to the victims followed by multiple injuries that is abrasions, lacerations and contusions. Pathak MSM et al (2013)(9) found that among severe injuries, the commonest was lower limb fractures (19.8%). Manna N et al (2013)(10)observed that out of the 206 accident victims, 68.44% had fractures, 28.64% had head injury and 19.91% had abrasions, bruises, hematomas and visceral injuries followed by 11.65% patients who sustained lacerated injury. Bayan P et al (2013)(11)found that fracture of the bones (71.69%) was the most common of injury among road traffic accident victims. Thomas V (2013)(6) found that the most common injury sustained by the victims was fractures which were seen in 49.33% of the cases. Chauhan A (2014)(7)found that fracture (81.3%) was the most common type of injury in the patients of road traffic injury, followed by cut wound/laceration (45.7%) and internal hemorrhage (34.1%). Crush injury was seen in 5.6 percent of the patients of road traffic injury. Burns ST (2015)(12) found that the most common orthopedic injuries in accident cases were to tibia/fibula (19.01%), the spine (16.21%), and forearm (10.14%) fractures.

There was significant association between type of injury and category of study subjects (X^2=12.92, DF=6, p<0.05). Contusions were more common among drivers 33(25.98%) as compared to rest of study

subjects 25(14.45%) and this difference was statistically significant (X^2=6.24, DF=1, p<0.05, OR=2.07, CI=1.16-3.71).

Fractures were more common among pedestrians 62(74.69%) as compared to rest of study subjects 124(51.14%) and this difference was also statistically significant (X^2=7.85, DF=1, p<0.01, OR=2.21, CI=1.26-3.8). This may be attributed to the involvement of lower extremity in pedestrians and fracture was more common in lower extremity in present study.

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