

Original Research Paper

Pattern of Injuries in Road Traffic Accidents at Chitradurga Karnataka: An Autopsy Based Study

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Abstract

During twenty month study period a total of 161 cases of medico-legal autopsies were conducted out of which 52 cases were of fatal road traffic accident at the mortuary of Basaveshwara Medical College and Research centre, Chitradurga, Karnataka. Among the age group 31 – 40 years, highest number (25%) of road traffic fatalities occurred. Males predominated over the female by seven and half times. Most of the accidents (75%) occurred on highways. The NH-4, NH-13 alone claimed 75% of all the mishaps. Motor cyclist occupants formed the largest group (28.84%) followed by the pedestrians (25%). Majority of the road users (98%) sustained fracture followed by laceration (94.23%), abrasion (82.69%) contusion (76.92%) respectively. The heavy vehicles were found to be responsible for causing a majority of injuries, especially the skeletal injuries.

Key Words: Fatal RTA, Pattern of injuries, Diurnal variation, Highway, Heavy motor vehicle

Introduction:

First automobile accident was occurred in 1896, when a bicycle rider was hit by a car and first fatal accident occurred in London in the year 1899, in same year when a pedestrian was killed by a car in New York City. The important factors are human errors, driver fatigue, poor traffic sense, mechanical fault of vehicle, speeding and overtaking violation of traffic rules, poor road conditions, traffic congestion, road encroachment and drunken driving etc. [1]

Road traffic accidents are the only public health problem for which society and decision makers still accept death and disability among young people on a large scale. [2] The Global death rate from Road Traffic Accident was 19.0 per lakh population in the year 2002. It was more common in males those who were between 15-44 years age group and more than 1.8 lakh children under 15yrs of age die in Road Traffic Accidents. [3] The aim of present study was to assess distribution of road traffic accidents and pattern of road traffic injuries.

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Material and Methods:

Materials for the present study comprised of 52 fatal cases due to RTAs brought to the mortuary of the Department of Forensic Medicine and Toxicology, Basaveshwara Medical College and Hospital, Chitradurga, Karnataka for medico-legal post-mortem examination. These cases were from various police stations of Chitradurga districts. The duration of the study was from November 2012 to June 2014.

Results and Discussion:

Every day as many as 140,000 people are injured on the world's roads. More than 3,000 died and some 15,000 were disabled for life. Each of those people has a network of family, friends, neighbours, colleagues or classmates who were also affected, emotionally and otherwise.

Families struggle with poverty when they lost a bread winner or had the added expense of caring for disabled family members. [4] Out of 161 medico-legal autopsied conducted during November 2012- June 2014, 52 cases (32.29%) were of RTAs. This has reflected major public health problem.

The common age groups involved in this study were between 31-40 years (25%) followed by 41-50yrs (19.23%). The deceased aged more than 71years were the least (5.77%). (Table 1)

In a similar study conducted at Manipal, majority (57%) of victims were young adults (11-40 years), followed by ages of 41-60years (29%) same as result of this study. Only 10% were

aged above 60 years and 4% were aged below 10 years. [5, 6] In a study at Allahabad, the principal age group involved in fatal RTA was 25-44 years, with cases of 33.68%.

Most of the victims in the present study were males. (Table 2) Males predominated over the female by seven and half times. The male predominance (89%) was seen in study conducted at Manipal. [5] In present study majority 28.84% of the victims were motor-cyclist followed by Pedestrians 25% and drivers 21.15% respectively. (Table 3)

Frequency of motorcyclist were more because of recent increase in over designed motor vehicles, rash and negligent driving by younger population, not wearing helmet, poor construction of highways, absence of street light, urgency to reach to the work place. Results of this study were similar with Manish K et al and Khade A. [7, 8]

Maximum number of accidents occurred in the evening hours and minimum in morning hours. (Table 4) Our study is similar to the observation made in study conducted at GTB hospital, New Delhi. [9]

Maximum number of accident in evening may be due to high rush hour traffic (people return home from work), tiredness after a day work, urgency to reach home, poor visibility due to insufficient street lightning, evening is the time to go and come from entertainment etc.

Minimum number of accident in the night can be explained by the fact that it is the quietest period of the day and most of the people remain indoors or go to sleep. Our study was in contrast to the observation made in the study conducted by Manish K et al at Chigateri general hospital, Davangere, in which maximum number of accidents occurred in the morning between 6 am-12pm (38.4%). [7]

Most of the deceased (75%) in this study met with accident at highways followed by state road. (Table 5) Our study was similar to observation made by Mandal B K et al and Sharma B R. [10, 11] High number of road traffic accidents on highways in Chitradurga could be attributed to high speed, rash driving and more number of heavy vehicles like, trucks indulge in the iron ore mining in this part of the country.

Motor cyclist mostly sustained fractures 36.53% followed by the abrasions and equal number of contusion and laceration. Among vehicle occupant equal number of fracture and laceration followed by abrasion 30.76% and contusion 23.07% respectively. (Table 6)

In pedestrian 23.07% fractures and laceration in equal frequency followed by

contusion 21.15% and abrasion 15.38%, fracture dislocation 11.46% respectively.

Fracture dislocation more frequent in motor vehicle occupants 17.53%, followed by pedestrian 13.46%, 11.53% in motor cyclist. It therefore, appears that motor vehicle occupant and motor cyclist were more vulnerable to the different type of injuries than other categories of the victims possibly due to a greater force of impact in the former and a longer distance of the fall in the latter. Our study was in contrast to Kumar S et al. [12]

In our study pedestrian got 84.61% head injuries, followed by vehicle occupant 82.35% and motor cyclist 73.68%. (Table 7)

But unknown occupant either fall from running vehicles got 100% head injuries. In the cases of other traumatic lesions of the brain, intra-cerebral haemorrhages may be primary (direct result of application of force) or secondary Camps. [13] Our study was in contrast to the study done by Inamdar P.I. [14]

Conclusion:

The present study highlighted the demography and pattern of injuries in RTA. More people have been killed in RTAs than the world wars. The all India road data showed that 83.5% of the accidents were due to the drivers fault. Other contributory factors were mechanical defects in vehicles, pedestrian fault, fault of the passenger, bad roads, and bad weather etc. [15]

Since the patterns of injury from man's interaction with the motor vehicles may be modified by protection devices, such as helmets, seat belts and air bags, but injuries due to road traffic related trauma were worsening each year because of scanty regard to all these.

The usage of motorized vehicles is growing day by day throughout the world. It is a particular concern in developing nations like India where increasing urbanization, overcrowding and scant regard for the rules of the road are seen. It is high time that the policy makers should take a look at these types of studies and do concerned modifications in the years to come.

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Table 1: Distribution of Age of Road Users' Victims involved in RTAs

Age (yrs)	Cases	(%)
< 10	04	7.69
11 – 20	06	11.54
20 – 30	11	21.15
31 – 40	13	25.00
41 – 50	10	19.23
51 – 60	01	1.92
61 – 70	04	7.69
71 – 80	01	1.92
81 – 90	01	1.92
>90	01	1.92
Total	52	100

Table 2: Distribution of Sex of Road Users Victims in RTAs

Sex	Cases	(%)
Male	46	88.5
Female	6	11.5
Total	52	100

Table 3: Types of Road Users involved in Accidents

Type of victim	Cases	Percentage
Pedestrian	13	25.00
Pedal-cyclist	1	1.92
Rider/Motor cyclist	15	28.84
Pillion rider	4	7.69
Driver	11	21.15
Front –Seater	3	5.76
Back -Seater	3	5.76
Not known	2	3.84
TOTAL	52	100.00

Table 4: Accidents In Relation To the Time

Time of RTA	Cases	Percentage
00:00 to 06:00(Night)	10	19.2
06:01 to 12:00(Morning)	9	17.3
12:01 to 18:00(Afternoon)	15	28.8
18:01 to 23:59(Evening)	17	32.7
Not known	1	1.9
Total	52	100

Table 5: Place of Road Traffic Accident

Place of accident	Cases	Percentage
National Highways (NH-4,NH-13)	39	75.00
State road	11	21.15
Others	2	3.84
Total	52	100

Table 7: Head Injuries amongst Different Types of Road Users

Type of Road Users	Cases studied	Cases injured (%)
Pedestrian	13	11(84.61)
Pedal-cyclist	1	-
Motor cyclist	19	14(73.68)
Vehicle occupants	17	14(82.35)
Others	-	-
Unknown	2	2(100)
Total	52	41(78.84)

**Table 6
Soft Tissue and Bony Injuries amongst Different Types of Road Users**

Nature of injury	Pedestrian (%)	Cyclist (%)	Motor-cyclist (%)	Vehicle occupants (%)	Unknown (%)	Total (%)
Abrasion	8(15.38)	-	18(34.61)	16(30.76)	1(1.92)	43(82.69)
Contusion	11(21.15)	-	16(30.76)	12(23.07)	1(1.92)	40(76.92)
Laceration	12(23.07)	1(1.92)	16(30.76)	18(34.61)	2(3.84)	48(94.23)
Fracture	12(23.07)	-	19(36.53)	18(34.61)	2(3.84)	51(98)
Fracture-dislocation	7(13.46)	-	6(11.53)	9(17.3)	1(1.92)	23(44.23)