Original Research

Demographic Profile of Road Traffic Accidents among Autopsies Conducted At a Tertiary Care Hospital Mortuary RIMS, Raichur

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Abstract

The present study was a prospective study conducted in the mortuary of Raichur Institute of Medical Sciences (RIMS) Hospital, Raichur during one-year period from 01-12-2014 to 30-11-2015. During the study period a total of 125 victims of fatal Road Traffic Acc idents (RTA) with injury who died and subsequently autopsied were studied. The purpose of the study was to know the demographic profile of RTA like, age and sexwise distribution, diurnal and seasonal variation etc. The results of this study have been concluded thus that out of 125 victims of fatal RTA 104 (83.2%) were males and 21 (16.8%) were females. The largest numbers of victims were in the age group 20-29 years (24.8%). Most of the accidents occurred in the afternoon hours 12.00 hrs to 18.00 hrs (36.8%). Maximum

Introduction:

Unnatural deaths are the deaths which are caused by any means other than any disease. Due to poor socioeconomic condition, development of communication, transport and technology, the number of unnatural deaths also becoming higher for the last few years. Unnatural death is one of the indicators of the level of social and mental health. Accidents have their own natural history and follow the same epidemiological pattern as any other deaths from disease that is the agent, the host and the environment interacting together to produce injury or damage. They occur more frequently in certain age group, sex etc. causing more mortality, morbidity and disability rate.

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Received on 30.10.2017 | Accepted on 22.12.2017

Types of accidental deaths include road traffic accidents, domestic accidents, industrial accidents, railway accident, violence etc. RTA deaths are more common among all other categories of unnatural deaths.

Road traffic injuries claim more than 1.2 million lives each year and have a huge impact on health and development. They are the leading cause of death among young people aged between 15 and 29 years, and cost governments approximately 3% of GDP. One serious road accident in the country occurs every minute and 16 die on Indian roads every hour. 1214 road crashes occur every day in India. Two wheelers account for 25% of total road crash deaths. 20 children under the age of 14 die every day due to road crashes in the country. 377 people die every day, equivalent to a jumbo jet crashing every day. Two people die every hour in Uttar Pradesh – State with maximum number of road crash deaths.[1] Oxford dictionary defines accident as an unfortunate incident that

happens unexpectedly and unintentionally typically resulting in damage or injury.[2]
Road traffic accident is defined as accident which takes place on the road between two or more objects one of which must be any kind of moving vehicle[3] In other words RTA occurs when a vehicle collides with another vehicle, pedestrian, animal, road debris, or other stationary barrier such as tree or utility pole.[3]

Materials and Method:
The present study was a Prospective study. The study material comprised of victims of RTA who died in spot or died in RIMS Hospital & autopsied in the autopsy block (mortuary) of RIMS Hospital, Raichur during the 1-year period from 01 December 2014 to 30 November 2015.
Ethical clearance for the present study was obtained from the Institutional Ethical Committee RIMS, Raichur. In the present study information regarding the bio-data of the deceased and various characters regarding the circumstances of the accident like type of victim / road user, type of offending vehicle, time of accident were gathered from all possible sources like police records, hospital records and also by direct interrogation with investigating officer, eye witnesses (if available), relatives and friends of the deceased accompanying dead bodies. The data thus obtained was recorded in the predesigned and pretested Proforma.
Road Traffic Accident (RTA) is any vehicular accident occurring on the roadway (i.e. originating on, terminating on, or involving a vehicle partially on the roadway). This includes collision of an automobile with a pedestrian, another automobile or with a non-automobile on the roadway or fall from a moving vehicle causing injuries or death of involved individuals.

Results:
During the present study a total of 425 medico legal autopsies were conducted out of which 125 cases were of RTA with skeletal injury. Deaths due to RTAs accounted for (26.88 %) of the total medico legal autopsies conducted. (Table 1)

Table 1: Profile of Medico legal autopsies conducted during the study period

Type of Case	Number	Percentage
RTA with Skeletal injury	**125**	**26.88**
Poisoning	90	19.35
Burns	76	16.34
Drowning	17	3.7
Railways	47	10.1
Snake bite	11	2.3
Electrocution	10	2.1
Assault	8	1.7
Hanging	19	4.1
Natural Death	40	8.63
Others	22	4.8
	465	100

Out of 125 cases, 104 (83.2%) were males and 21 (16.8%) were females indicating that a large majority of victims were male. Male to Female ratio 5:1 maximum number of victim were found in the age group 21-29 years 31 cases (24.8%) than by age group 30-39 years 30 cases (24%) than by 40-49 years 22 cases (17.6%). Minimum numbers of victims were found in 71-80 years age group 2 cases (1.6%). 67.2% of victims were found between 21 to 50 years age group. (Table 2)

Table 2: Age and Gender wise distribution of cases of fatal RTA

Age Group (In Years)	Male	Female	Total	
			No	%
0-9	1	2	3	02.4
10-19	7	2	9	07.2
20-29	29	2	31	24.8
30-39	25	5	30	24.0
40-49	17	5	22	17.6
50-59	16	2	18	14.4
60-69	8	2	10	08.0
70 & Above	1	1	2	01.6
Total	104	21	125	100

Maximum number of accidents occurred in the afternoon hours i.e. 12.00 pm to 6.00 pm 46 cases (36.8%) and minimum 12 cases (9.6%) in the night. There was no much difference in the number of accident that happened during morning (25.6%) and evening (28%). (Table 3)

Table 3: Diurnal variation of cases of fatal RTA		
Time of Accident	No of Cases	%
6am to 12pm (Morning)	32	25.6
12pm to 6pm (Afternoon)	46	36.8
6pm to 12am (Evening)	35	28
12am to 6am (Night)	12	9.6
Total	125	100

For assessment of seasonal variation only those RTAs which occurred during the one-year period (December 2014 to November 2015) were considered. Out of total 125 cases, 45 cases (36%) happened during summer (Feb to May 2015), 36 cases (28.8%) happened during rainy season (Jun to Sep 2015) and 44 cases (35.2%) happened during winter (Dec 14, Jan 14, Oct 15, Nov 15). (Table 4)

Table 4: Seasonal variation of cases of fatal RTA		
Season	No of cases	%
Summer	45	36
Rainy	36	28.8
Winter	44	35.2
Total	125	100

Out of the 125 cases of fatal RTA, maximum number of accidents happened on Mondays 23 cases (18.4%), Tuesday, Thursday, Saturday are very similar with 21 cases (16.8%). Minimum number of fatal RTA happened on Sunday 12 cases (9.6%) and Friday 11 cases (8.8%). (Table 5)

Out of 125 cases of fatal RTA, maximum cases were rural 93 (74.4%) whereas urban were 32 cases (25.6%). It shows that frequency of RTA was more in rural areas than compared to urban areas. (Table 6)

Table 5: Day of Occurrence of fatal RTA		
Day	No of cases	%
Monday	23	18.4
Tuesday	21	16.8
Wednesday	16	12.8
Thursday	21	16.8
Friday	11	8.8
Saturday	21	16.8
Sunday	12	9.6
Total	125	100

Table 6: Place of Accident				
Age	Rural	%	Urban	%
0-9 years	2	2.15	1	3.12
10-19 years	8	8.6	1	3.12
20-29 years	24	25.8	7	21.87
30-39 years	22	23.63	8	25
40-49 years	13	13.97	9	28.14
50-59 years	14	15.05	4	12.5
60-69 years	8	8.6	2	6.25
70 & above	2	2.2	0	0
Total	93	100	32	100

Among the total 70 cases involving rider and pillion rider the helmets used was recorded in 6 cases (5 riders, 1 pillion rider) (8.5%) while 64 cases did not use helmet (55 riders, 9 pillion rider) (91.42%). (Table 7)

Table: 7 Helmets Use -Riders And Pillion Rider	
Helmet Used	Helmet Not Used
06	66

Discussion:

According to the National Crimes Record Bureau 4,50,898 road accidents caused 1,41,526 deaths including deaths of 34,252 offending drivers/pedestrians during 2014. The month-wise distribution of 'Road

Accidents' shows that most of road accidents were reported in the month of May (41,404 cases), contributing 9.2% of total road accidents. Majority of accidents in this month (May) have been reported in Tamil Nadu, accounting for 13.8% of total accidents reported in the month of May. Most of road accidents (77,830 out of 4,50,898 cases) were reported during 15:00 hrs to 18:00 hrs (Day) accounting for 17.3% of total road accidents, time period '18:00 hrs to 21:00 hours (Night)' accounted for 16.9%. During 15:00 hrs to 18:00 hrs (Day) and 18:00 hrs to 21:00 hrs (Night), majority of road accidents were reported in Tamil Nadu accounting for 11,902 cases and 13,927 cases respectively[1].

Profile of medico legal autopsies of fatal RTA (Table 1)

During the period of present study, it was observed that deaths due to RTA accounted for 26.88 % of total medico legal autopsies conducted i.e. more than 25% of unnatural deaths were due to RTAs. This result is less when compared with results of studies conducted at, Government Medical College, Jammu (48.92%)[4]; Government Medical College, Chandigarh (42.18%)[5]; AIIMS, New Delhi (35.5%)[6]; PGIMS, Rohtak (29.8%)[7]; MLN Medical College, Allahabad (42.29%)[8] ; KMC, Manipal (36.50%)[9]; The results are more when compared with the results of studies conducted at RM College, Loni (24.1%)[10] and Office of Judicial Medical Officer, Colombo (22.6%). [11]

The difference in the number of RTA related deaths observed in different studies can be explained by the fact that RTA depends upon various epidemiological factors like geographical area, conditions prevailing in that region, category of road users, condition of road etc. Since Raichur is a very backward area High speed of driving by victims, bad road conditions with too many speed breakers with no proper signs, Improper enforcement by the traffic police might have contributed to this percentage of death.

Age & Gender wise distribution (Table 2)

In the present study, majority of the victims were males (83.2%) while females were involved in only 16.8% of the cases. Most commonly involved age group was 20-29 years (24.8%), followed by 30-39 years age group (24%). People in extremes of age comprised the minimum number of fatalities. Our findings are similar to the results of following studies: In the study conducted at PGIMS, Rohtak [7], males were involved in 89.3% of cases and females in 11.7%. Commonest age group involved was 21-30 years (27.3%) followed by 31-40 years (20.6%). In other study done at Government Medical College, Jammu[4], majority of the victims were males (88.13%) while females were involved in 11.87% of cases. Most commonly involved age group was 21-30 years (30%) followed by 31-40 years (19.2%). In a study carried out at Office of Judicial Medical Officer Colombo[11] 84.54% of victims were males and 15.44% were females. Maximum number of victims was in the age group 20-29% (20.12%), followed by 30-39 years (16.10%). In all the above studies minimum number of victims were in the extremes of age.

The male preponderance may be due to the paternalistic nature of our society where males keep themselves most of the time outdoors to earn bread and butter for families besides male lead a more active life and most of the time are involved in activities such as driving and travelling. On the contrary, females mostly keep themselves indoor mostly due to cultural background, lack of industries and low potential for employment owing to poor literacy, along with the tendency that some male members mostly accompany females and extra precautions are taken on roads. In total more than half (67.2%) of victims were in the age group 21-50 years. This may be due to the fact that persons of this age group lead a more active life, more mobile and go out for work and keep themselves outdoors most of the time. Besides, they have a universal habit of taking risks like boarding a moving vehicle, travelling on footboard of vehicle, crossing the roads carelessly, risky speed driving etc. In our study, people in the extremes of age

comprised the minimum number of fatalities. Least fatalities in older persons may be due to more experience, more traffic sense, less tendency to take undue risks and they remain mostly indoors and lead less active life. Lesser involvement of children below 10 years may be because some senior member of the family accompanies them on road.

Diurnal variation (**Table 3**)

In the present study maximum number of RTAs (36.8%) occurred in the afternoon 12.00 pm to 6.00 pm and between 6.00 pm to 12.00 am it accounted for 28%. Least number of accidents (9.6%) occurred during night between 12.00 am to 6.00 am. Our result is similar to the observations made in the study conducted at, KMC Manipal, Karnataka[9], most of the accidents occurred in the afternoon (35.2 %) followed by evening hours (30.9%). Maximum number of accidents in the afternoon and evening hours may be due to high rush hour traffic (people return home from work), Tiredness after a day at work, urgency to reach home, poor visibility due to insufficient road lighting, evening is the time to go to and return from entertainment etc. Minimum number of accidents in the night can be explained by the fact that it is the quietest period of the day and most of the people remain indoor.

However, in the study conducted at GTB Hospital, Shahadra, New Delhi[12] in which maximum number of accidents (39.4%) occurred during evening hours and minimum (11.89%) in the night; At greater Lusaka Zambia[13], the highest number of accidents (32%) were reported during evening hours and lowest (8.4%) in the night.

Seasonal variation (Table 4)

In our study, it was observed that highest number of accidents (36%) occurred during summer season. This may be due to the scanty rainfall in the district of Raichur. Dusty roads lead to poor visibility and worsening road conditions tend to cause more accidents during summer months. During winter it accounted 35.2% followed by 28.8% in rainy season. No significant seasonal variation in the occurrence of RTAs was observed in the present study. This may be due to the different environmental conditions in different seasons, which act as one of the important contributors to the occurrence of accidents. During rainy season the factors like worsening of the road and poor visibility to drivers due to rain; during winter longer hours of darkness, poor visibility to drivers at night and early hours of the day due to foggy conditions and during summer dusty environment and the hot irritating conditions may lead to increase in the occurrence of accidents.

In the study conducted at RM College, Loni (Maharashtra),[11] maximum number of accidents happened during rainy season (46.97%) followed by summer (32.79%) and winter (20.23%). Number of accidents which happened in rainy season is significantly higher and those in the winter are significantly lower than our result. But there is no significant difference in the occurrence of accidents during summer. In another study conducted at MLN Medical college, Allahabad[8], maximum number of accidents occurred during winter (42.64%) followed by summer (32.73%) and rainy (24.63%). When compared with our result there is no significant difference in the occurrence of accidents during summer, however significantly more number of accidents happened during winter and less in the rainy season.

Place of occurrence (Table 6)

Out of 125 cases of fatal RTA, maximum cases were rural 93 (74.4%) whereas urban were 32 cases (25.6%). It shows that frequency of RTA was more in rural areas than compared to urban areas. (Table 6)

On analysing road accidents by place of occurrence, it was found that 54.7% and 45.3% of road accidents were reported in rural areas (2,46,768 cases) and urban areas (2,04,130 cases) respectively during 2014.

Both in rural as well as urban area most of the accidents were reported at places near to residential area, 16.5% and 16.4% of road accidents in rural area and in urban area were reported at places near to residential area.

7.5% of road accidents in urban area took place at pedestrian crossing during 2014. Besides, 5.3% of road accidents in the country were reported at places near to schools, college or educational institutions (23,723 out of 4,50,898 cases) during 2014[1].

Conclusion:

Road traffic accidents are a leading cause of death globally; more than 1.2 million people die each year on the world's roads. Most of these deaths are in low and middle income families, the injuries, disability, fatality, hospitalization costs resulting from RTA puts a lot of financial burden not only on the families but also on the economy of the nation. Since RTA are preventable causes of death, awareness and safety measure among the population will definitely decreases the incidents of RTA.

Conflict of Interest: None to declare
Ethical Permission: Obtained
Funding source: None

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