ORIGINAL ARTICLE

Autopsy Based Study of Road Traffic Accidents Deaths Brought to Civil Hospital Karachi during 2016

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ABSTRACT

Back ground: Road Traffic accidents (RTAs) are important cause of injuries and death due to rapid increase in number of vehicles, life style changes and risk behaviors among large segment of population, driving style, reckless driving, negligence and careless driving

Aim: To know epidemiological characteristics of RTAs leading to fatality. This retrospective analysis of medicolegal autopsies was conducted at mortuary of Civil Hospital Karachi during the year 2016 (01-January 2016 to 31-December 2016)

Methods: This study included 138 cases of victims of road traffic accidents out of 432 medico-legal autopsies conducted at mortuary of Civil Hospital Karachi. The information was collected from post mortem registers and police inquest.

Results: Out of 432 medico-legal autopsies performed for medico-legal purpose; 138 (31.94%) deaths were due to RTA. Among 138 study subjects, 127 (92%) were males and 11 (8%) were female with an overall male and female ratio 9:1.

The age group between 21-30 years showed highest number of victims 42 (30.43%). Most of the deaths were due to brain injuries 61 (42.20%) followed by hemorrhagic shock 45 (32.60%).

Head injuries were most common site of injury for RTA 93(67.39%) followed by chest injuries 74(54%) and abdominal injuries of 42 (30%). Both upper and lower limbs injuries were 44(32%) and pelvic injuries 28 (20%),

Conclusion: Head injuries and hemorrhagic shock are leading causes of death from RTAs; rapid response emergency health care by mobile units is required to control high morbidity and mortality from RTAs.

Key words: Epidemiological characteristics, Road traffic accidents, Autopsy, Cause of death

INTRODUCTION

The geographic mobility enabled by the automobile vehicles from the local to the regional & international scales has great impact on daily travel and movement of goods worldwide. Among all forms of the transportation accidents, road traffic accidents are emerged as an important counter product of increasing motorization and hasty life, and RTAs are considered as modern day epidemic. Across the globe, industrialization and urbanization, business activities and lifestyle coupled with growth of motor vehicles in use has led to rise in accident related injuries and deaths[1,2].

According to World health organization (WHO) 2018 fact sheet, 1.35 million people die every year as result of road traffic crashes across the world, and another 20 to 50 million sustain non-fatal injuries from such accidents. Mortality from road accidents is very high in low and middle income countries (LMICS) which is 90% of road traffic accident fatalities[3].

In developed countries, road traffic death trends have shown significant reduction as result of taking appropriate road safety and injury prevention interventions which consist of the creating traffic awareness, strict implementation of traffic rules, improvements in medical facilities, and vehicle design developments. Road fatalities are predicted to rise in the next two decades in most developing countries if appropriate strategies and planning are not taken[4]. The high burden of road traffic injuries in most of the under-developing countries (LMICS) are due to growing number of motor vehicles, ignoring of traffic regulations, defective roads, poor health infrastructure, and meager ambulance service.

Data elements from the medicolegal autopsies of RTAs victim include cause and manner of death, use of drugs and alcohol, type of wounds, and under what circumstances death occurred provide assistance in resolving a legal case. In addition to ascertain the facts, the benefit associated with performing an autopsy is it may help the policy makers to determine the need of trauma centers, ambulances and emergency medical services. Many researches have been conducted to analyze road traffic accidents in other countries while studies on road accidents in our country are still scarce.

The objective of the study was to determine the epidemiologic characteristics related to road traffic accidents victims brought to mortuary for medico-legal autopsy in Civil Hospital Karachi.

Received on 15-04-2019
Accepted on 14-08-2019

MATERIAL AND METHODS

This study was a retrospective descriptive study comprising the profile of all medicolegal cases (n=138) of road traffic accident deaths who were brought to the mortuary at Civil Hospital Karachi during the study period of one year from January1, 2016 to December 31, 2016 after getting clearance from Police surgeon.

All autopsy cases included in this study in which death occurred due to RTA. All cases of partial/external postmortem examination were excluded in this study. During this period a total of 432 medicolegal autopsies were done, out of which 138 cases were died in alleged road traffic accidents (31.94%). In all these cases information was gathered from police investigation reports, statement of the relatives and friends of the victims, and autopsy findings. All important information including personal identification, age, sex, date and day, time, details of injuries, autopsy findings were collected. The information thus collected, presented in tabular form, and was statistically analysed.

Data analysis: All the data was collected, compiled and presented in frequency and percentage through SPSS version 20.

Operational definition: We defined Road Traffic Accident as any accident taking place on the road between two or more objects, one of which must be any type of a moving vehicle. Any other injury on the road without involvement of a vehicle (e.g. injury due to falling on the road and sustaining injury) or injury due to a stationery vehicle (e.g. persons getting injured while washing or loading a vehicle) were not included in the study.

Permission: Informed written permission was obtained from the office of police surgeon Karachi for getting the required data.

RESULTS

Out of 432 medicolegal autopsies conducted during the study period, 138 cases were RTA. Most of the RTA victims were Males (92.02%) and the Male/Female ratio was 9:1. Highest number of fatalities was recorded in younger age group 21-30 years 42(30.43%), followed by age group in 31-40 years 29 (21.01%). More than half of all RTA victims were in economically productive Age group of 21-40 years 71(51.44%). The accidents occurred more frequently (32.60%) in the months March to May in this study. The maximum number of cases (68.84%) occurred from Monday to Thursday and less number of cases (68.84%) occurred on during Friday to Sunday. Maximum number of cases occurred during the month of April 19(13.76%), December 18(13.04%), May 15 (10.86%). The least number of cases seen in January 4 (2.89%). Head injuries were most common among accident victims (67.39%) followed by injuries to chest (53.62%). The commonest cause of death were head injury 138 cases (51.44%), followed by hemorrhage and shock in 27.53% of cases, and multiple injuries 19.56%.

Most of cases occurred during the month of April 19 (13.76%), December 18(13.04%), May 15 (10.86%). The least number of cases seen in January 4 (2.89%).

Table1: Sex wise distribution of RTA victims

Gender	n	%age
Male	127	92.02
Female	11	7.97

Table 2: Age and Sex wise distribution of RTA victims

Age Group (In Years)	Male	Female	Total (%)
0-10	5	3	8 (5.79%)
11-20	27	1	28 (20.28%)
21-30	38	4	42 (30.43%)
31-40	28	1	29 (21.01%)
41-50	7	1	8 (5.79%)
51-60	10	0	10 (7.24%)
More than 60	12	1	13 (9.41%)

Table 3: Distribution of cases according to Day-wise, Time- wise, Month-wise/ Season

Characteristics	n	%age
Time of Day		
Day time (06:00 AM- 6:00PM)	80	58%
Night time (06:00 PM -06:00 AM)	58	42%
Day of Week	25	18.11
Monday	22	15.94
Tuesday	28	20.28
Wednesday	20	14.49
Thursday	11	7.97
Friday	19	13.76
Saturday	13	9.42
Sunday		
Month/Season		
Spring (March-April-May)	45	32.60
Summer (June-July-August)	30	21.73
Autumn (Sep.-Oct-Nov)	30	21.73
Winter (Dec.-Jan-Feby)	33	23.91

Table 4: Distribution of sites of injuries among RTA victims

Site of injuries	n	%age
Head & Neck	93	67.39
Chest	74	53.62
Abdomen	42	30.43
Upper Limb	28	20.28
Lower Limb	44	31.88
Spine	3	2.17

Table 5: Distribution of cause of death among RTA victims

Cause of death	n	%age
Head injury	71	51.44
Hemorrhagic shock	38	27.53
Multiple injuries	27	19.56
Spinal injury	2	1.44

Table 6: Month wise distribution of RTA victims

Month	n	%age
January	04	2.89
February	11	7.97
March	11	7.97
April	19	13.76
May	15	10.86
June	11	7.97
July	08	5.79
August	11	7.97
September	10	7.24
October	12	8.69
November	8	5.79
December	18	13.04

DISCUSSION

This study has found that majority of road traffic accident (RTA) victims 127 (92%) were males and only 11(8%) were females. Male preponderance has also been reported in a previous study in Karachi (87.7%), Faisalabad (77.02%) and Multan (65.51%). India (87.36%), China (75.9%) and Iran (77.4%)[5-10]. This is quite obvious as male are more exposed and involved to outside work, jobs, travelling and driving.

In the present study, out of 138 study subjects, majority of the RTA victims 42 (30.43%) belonged to younger age group of 21-30 years, followed by 29 (21.01%) in 31-40 years. More than half of total cases (51.44%) victims were in 21- 40 years age group, the most active and economically productive age group.

Our findings were consistent with other studies from national and neighbor countries. Mirza FH [5] revealed that most vulnerable age group for road accident between 19 and 40 years. Mariam Arif et al[7] revealed higher number of road accidents between 21 to 40 years age group. In contrast with our study, Ali MA[6] observed most common group of RTA victims between 15-30 years. In similar study, Kumar NB[11] in India, showed majority of the victims between 21-30 years of age. Alma Aubakirova et al[12] in Kazakhstan, observed highest number of victims among 30 to 40 years. These findings also confirm that most accident victims are in younger age group.

Majority of accidents (58%) happened during the day time while a significant (42%) occurred at night. The reason is people went out for offices, schools and other activities during the day time. This pattern is similar to other studies from Multan and neighbor countries China [9] and Iran [10] shown similar trend of accidents during the day time. In contrast, study from Kazakhstan[12] and India[13] reported 6pm to 12pm as most common time of RTA occurrence. Most of the road traffic accidents occurred on Wednesdays 28(20.28%) followed by Mondays 37(18.11 %). The occurrence of road traffic accidents during the working days (Mondays to Thursdays) ranged from (68.84%) and Fridays to Sundays were (31.15%).

Monday to Thursday are foremost productive working days in local business practices after shorter working hours on Friday (prayer day), Saturday (most of both public and private offices are closed) and Sunday as holiday. Uzma Masud et al [6] reported high incidence of accidents on Thursday 20 (23.3%). A similar study conducted in Delhi [19] reported high incidence accidents on Saturdays (weekend). Study conducted in Nepal [20] reported most occurrence of RTA on Sundays.

Most of the accidents (32.60%) occurred between March and May. Karachi is Pakistan's premier industrial and financial centre and serves as a transport and trade hub. This may be due to increase in traffic after winter months.

A Study in Nigeria [14] on Road Traffic Accident deaths reported that accident cases occur mostly during the monsoon rainy season. Similar study from Iran[15], reported more accident related deaths during spring season months. Binod Kumar et al, [16] observed maximum cases during rainy season (July to October), and Dhillon Sangeet et al[17] noted maximum cases in Shimla during winter due to slipping on the road. Verster, T. & Fourie, E. [18] observed with highest RTAs fatalities in the month of December the busiest season due to holiday period for South Africans.

In our study head injuries were most common (67.39%), followed by chest (53.62%) and lower limbs (31.88%). Studies by other authors (Mirza FH et al[5], Jooma R et al[21] and Mariam Arif[6] reported head injuries as the most common site of injury. In a contrast, study by Abhishek Singh et al[22] reported maximum number of RTA injuries at the abdomen. Shokouhi M. and Rezapur-Shahkolai F[23] indicated that more than half of cases suffered multiple injuries.

In the present study, head injury was reported most common cause of death 71(51.44%), second common cause was Hemorrhagic shock in 38 (27.53%). Other workers Mirza FH et al [5], Mariam Arif et al[6] and Shokouhi M. and Rezapur-Shahkolai F[23] have also observed Head Injuries as main cause of death in most of RTA victims. In a contrast to our study, Dhillon sangeet et al[15] revealed haemorrhagic shock responsible for most of RTA deaths.

CONCLUSION

The findings of this study showed that most of the victims of accident related deaths are young adults in Pakistan. The characteristics of road traffic accidents fatalities which were determined in this study, can help to develop more appropriate interventional program. We need to develop comprehensive strategies to reduce burden of road traffic injuries, especially during high season, the relevant authorities should take necessary actions like Awareness creation, strict implementation of traffic rules, provision of “service roads” and establishing more trauma care centers.

Financial support and sponsorship: None
Conflict of interest: There is no conflict of interest
Acknowledgement: We thank the Police Surgeon, Karachi office for his willingness and co-operation in this study.

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