

Original Article

MEDICOLEGAL ASPECTS OF ROAD TRAFFIC ACCIDENTS

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Objective: To educate public about traffic rules regarding safety and civic responsibility. Inculcate awareness of social as well as legal consequences of violation.

Methods: A prospective descriptive study for the year 2016 was conducted. Inclusion criteria was all the volunteer available ethic individuals of any gender and age involved in road accidents whether as pedestrian, vehicle driver or occupants, brought in Services Hospital, Lahore. Exclusionary candidates were who refused consent for medicolegal examination. A structured, meticulously designed questionnaire was used to collect information; demographic profile, age, sex, types of injuries, mode of injury, time of occurrence, status of victim were included.

Results: Of the 529 RTI cases visiting, Services hospital casualty Lahore for treatment purpose, 131 volunteer patients were reported to medicolegal department in year 2016. The sex distribution depicted male predominance; 102 (78%) males victims as compared to only 29 (22%) females with ratio of 5:1. Highest incidence of victims was seen in those belong to age group (21-30 years) comprising of 46 (35%). Highest incidence of victims were young students (18%) followed by laborers (16%). It was observed that highest percentage of RTAs happened during (08.00 to 11.59) (29%) and the least percentage (8%) occurred after mid night during (00.01 to 03.59).

Conclusions: Civic irresponsibility and ignorance of traffic rules is the main root cause of most road traffic accidents. A public awareness campaign regarding safety in abiding the law should be enforced on regular basis at academic level educating public at every level inclusive of print and electronic media promotion strategies.

Keywords: Road traffic accident, morbidity, mortality, injuries, fatal outcome.

Introduction

Trauma diversity is a universal issue triggering around 5 million mortality annually.^{1,2} However these traffic casualties have been recognized as a public health menace being account for around 25% of all fatalities from injury³ with estimated 1.26 million road accident crashes associated deaths and 50 million injuries annually.⁴ An algorithmic projection estimates 23 million casualties by year 2020, only to be ranked 3rd leading mortality, morbidity reason which is presently ranked 9th worldwide.⁵ Death is a minor prognostication of injuries outcome. Resultant disabilities are integral part of injury burden. Almost 50% of young children with injuries recover with affliction.⁶

Developing countries have an estimated 48% of automobiles, 91% of which meet fatal outcome.⁷ Out of total deaths in RTCs in the world, South East Asia has a 35% prevalence.⁸ The direct economic costs of global RTCs is approximated to US\$ 518 billion.⁵ Moreover, RTIs exert a considerable economic burden on the developing

countries costing 1-4% of a country's annual GNP.⁹ Pakistan, an economically poor, developing country, is situated in South East Asia. Here situation of RTIs is too worst. The overall annual incidence of RTIs is about 15 per 1000 for Pakistan according to national injury survey.¹⁰ A fortuitous load of accident affliction is 2.7 million annually in Pakistan for any age according to current population.^{11,12}

Low national education level, poor compliance of traffic laws and non-maintenance of roads, enhance the incidences of RTIs.¹³ Motorcycle is an economical vehicle for people, accounts for 45% of RTIs.¹⁵ RTIs may involve head, neck, chest, abdomen, and extremities resulting death and deformity. The nature and severity of injuries depends upon whether the victim is a vehicle occupant, a motorcyclist, a bicyclist or a pedestrian.¹⁶ However the incidence of death is significantly higher among pedestrians, bicyclists and motorcyclists than in vehicle occupants.¹⁷ Mechanical, environmental and human factors all are a participants in accident occurrence. However community perception is variable. Of all victims reported to hospital for management only a few

follow up as medicolegal case as people are reluctant due to police and courts involvement. People are not aware of significance of medicolegal examination due lack of awareness in this regard. This factor also leads to under reporting of RTIs. Despite the high frequency of RTAs cause's unnatural deaths and disability, there is scarce published information regarding Lahore. Medico-legal examination of road traffic accident victim's is mandatory; to claim compensation for life loss or disability, to award punishment for defaulters by court, to claim monitory/property loss and for insurance claims. Forensic medicine experts also determine the extent of disability caused by a road traffic accident. A demographic pattern analysis of vehicular accident cases included study of causative factor, time of incidence, pattern of injuries and how the injured was brought to emergency. Findings of the study will be evidence based data for law enforcing agencies and health care providers to devise strategies for reduction in RTAs incidences and making prophylactic programs for prevention of traffic accident related morbidity and mortality.

Method

A prospective descriptive study for the year 2016 was conducted. All RTI cases those attended Services Hospital Lahore and their medico-legal examination was conducted were included in study. Exclusion elements were those who did not consent for examination. RTIs victims of any age and gender were included. A structured, meticulously designed questionnaire was used for information collection; demographic profile, age, sex, types of injuries, mode of injury, time of occurrence, status of victim were included. Estimated sample size was 500.

Information was collected from victim (if in a status to be interviewed) or from victim's attendants and police. Information collected were personal identification data, first including the socio-demographic factors as (sex, age, education status, occupation, marital state, socioeconomic status), next; accident characteristics as (type of vehicles, type of accident, as to how accident occurred and at what time it happened, including pattern and distribution of the wounds. Details of accident were collected from hit individual or his accompanied personnel. All the ethical principals were abided regarding human subjects according to world medical association (WMA) made at Helsinki (2008).

SPSS 20 was used for analytical statistics.

Results

Of the 529 RTI cases visited Services hospital Lahore for treatment purpose, 112 (willing for MLC) RTIs patients were reported medicolegal cases in year 2016, out of which there was follow up by only 46%. Mean age of the examine was 36 years (range; 5-90 Years). The sex distribution depicted male predominance; 102 (78%) males victims as compared to only 29 (22%) females with male female ratio of 5:1 (**Fig.1**).

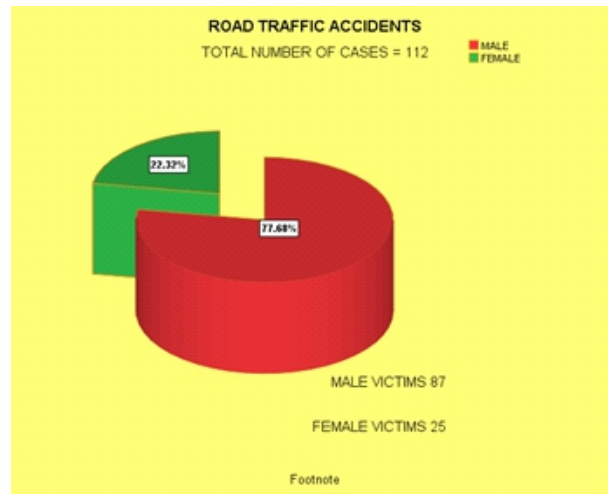


Fig-1: Road Traffic Accidents.

Highest incidence (25%) of victims was seen among job oriented public, followed by business and labor class 17% each. Highest incidence of victims were pedestrians hit by car (25), motorcycle (20), rickshaw (9), bus (6) and truck (2) making 62% bulk of entire medicolegal cases, followed by motor cyclist victims hit by car (18), other motor cyclists (11), bus (8), and rickshaw (6) amounting to 38% of 112 registered

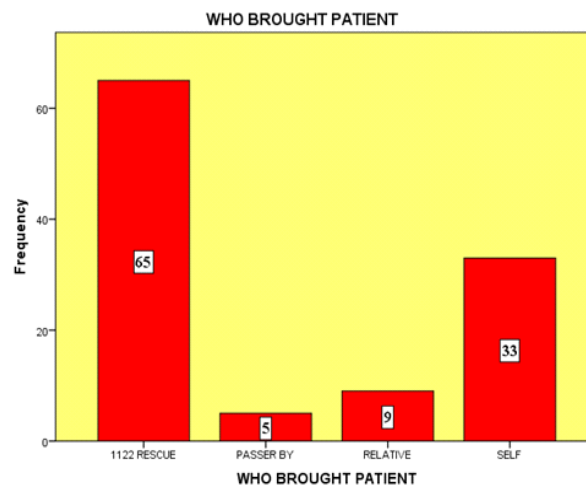


Fig-2: Who brought patient.

As far as mode of transportation of victims to hospital is concerned, 65 cases were brought by Rescue 1122, 9 by relatives and 5 by passerby people. Police brought only 2% victims for emergency treatment. Majority of the people (33) reported to emergency by themselves. It was observed that car drivers (34%) and motorcyclist (30%) were at fault for Road Traffic accidents most commonly. Rickshaw drivers contributed for 13% RTAs. However large vehicle drivers (Truck, Tractor and vans) caused 11% RTAs. (Fig.2). Time of occurrence of the road traffic accidents was divided in to four time zones, forenoon, afternoon, evening and night. It was observed that highest percentage (34%) of RTAs happened during rush hours of forenoon with people either going to study institutions, work place or for business and labor duty.(08.00 to 11.59), followed by night time accidents (29%) followed by afternoon cases (25%) and the least percentage (12%) occurred in evening timings. (Fig.3)

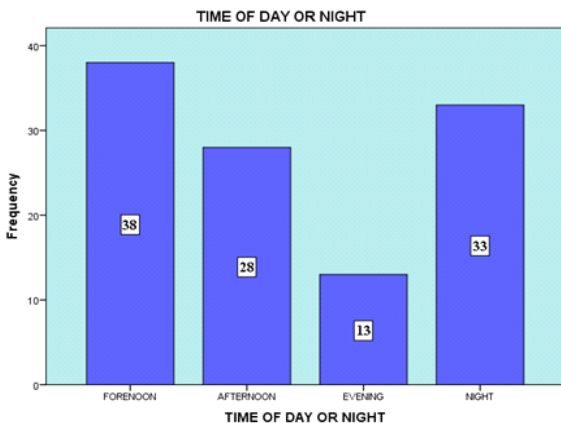


Fig-3: Time of day or night.

Mostly RTA victims sustained multiple injuries like abrasions, bruises and lacerations (34%), others had only trivial pattern of either abrasions and bruises (22%) or abrasion along with lacerated wounds (17%), followed by combination of bruises and lacerations (11%). Incised wound was not identified on any victim. Most effected regional body sites by the road traffic injuries were; head and face 31 (28%), Head face and other body parts 35 (32%) and lower limbs 20 (18%). 32 victims (29%) got fractures of bones of either upper or lower limb. Skull fracture was seen in 16 (14%) cases, with sporadic cases of mandible (1), clavicle (1), and nasal bone fractures (2). Regarding medical treatment of all RTA victims those were medico-legally examined, 17 (15%) died on same day to fatal injuries, 56 (50%) were treated as out-patients

either conservative (no treatment) or by First Aid and discharged for home on same day or within a couple of days, while 39 (35%) road traffic victims were admitted in hospital for different durations; 14 (13%) for less than a week, 13 (12%) for two weeks, 12 (11%) for three weeks (Fig.4)

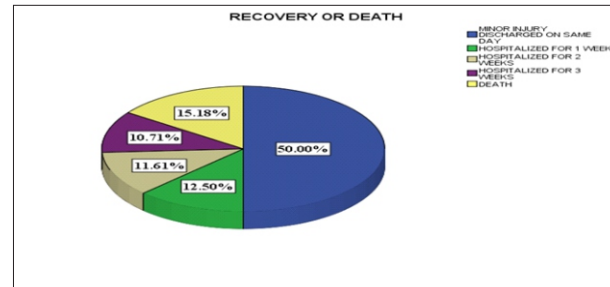


Fig-4: Recovery or death.

Discussion

Roads are a best mode of ground transportation. Faster and efficient transportation of people and goods is crucial for socioeconomic progress of country. Fast growing population and need base high growth of automobile sector has made roads bustling with motorcycles, cars, buses, trucks, and too heavy vehicles. Amongst all road vehicles motorcyclists are most prone to injuries from RTAs. Resultantly RTAs have been acknowledged global problem, which is affecting all road users; frequent users more affected and vice versa.¹⁸ RTA suffers may be serious injured those may die or develop disabilities even specialized treatment or non-seriously injured those need first aid or even no treatment. To improve the situation defaulters should be punished, life loss or disability and monetary/property loss may be compensated. All these events necessitate medico-legal examination of the RTI victims. Present study analyzed medico-legal examination reports of RTI victims for better understanding of morbidity of injuries, diversity among victims, treatment needs and role of vehicles & time in RTAs. A disproportionate algorithmic correlation has been observed among accidents reporting for treatment and medicolegal registration. Only 21% victims got the cases registered as medicolegal. Indicating mostly victims settle their issue out of court due to community pressure as mostly people avoid interaction with police and courts. Forensic medicine and law communication is pivotal to make the community aware about the need and benefits of this examination.¹⁹ Medicolegal reports are mandatory prerequisite for Insurance claims as per Motor Vehicle Ordinance.^{19,20} Medicolegal examination is essential to ascertain facts.

Population consensus of Pakistan reveals an equal percentage of male to female, yet in RTAs there is male prevalence as drivers are predominantly male and motorcycle is the vehicle of choice by males due to traffic over load, enhancing the vulnerability to accidents.

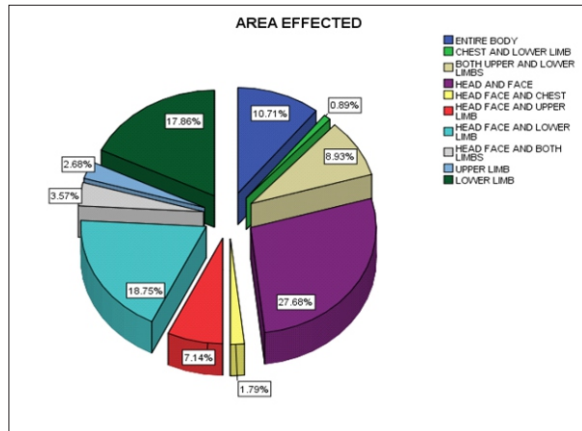


Fig-5: Area effected.

Age group analysis revealed majority of victims (35%) fall under age group 21-30 years followed by, 31-40 years (18%) and 11-20 years (15%). Overall 2/3 (67%) of victims belong to most active and productive age group, those indulge in outdoor activities and make them more prone to accidents. Life losses or disabilities caused by RTAs among active social business and student class causes huge economic loss to the country.¹⁸ Public educational awareness campaigns vide mass media in area specific languages and training programs at school, college and university level may contribute to improve the situation. Regarding the road user status of victims, pedestrians were highest in number (47%) followed by motorcyclists (32%). Same findings are reported by researchers.^{15,17,23} However few studies have reported that drivers were more sufferers.¹⁸ Sayings of Mr. Nagi about his country “the pedestrian are the frequent road users and footpaths meant for their use are occupied by hawkers to such an extent that pedestrian are forced to walk onto the roads and ignoring traffic rules such as zebra crossing and waiting for green lights” also explains this finding in our country.¹⁸ Around 58% RTA cases were shifted by 1122 Rescue ambulances to hospital emergency. 1122 Rescue is a vibrant program and a successful initiative of Punjab Government. However its an alarming situation to observe that only 5% of the passer by helped in taking any injured to hospital, as efficient 1122 may be it is documented fact, they takes a

minimum of 7 minutes to reach distress call destination which may be the precious life saving time if a passer by would shift the injured. Public is afraid of harassment by police as they not only detain the accompanying person but also treat him as a suspect which is contrary to 'INJURED PERSON ACT' which duly states that the helper individual is not to be harassed in any sense.²³ This study revealed that Cars and motorcycles were more commonly involved vehicles with a slightly higher incidence of cars (34%) over bikes (31%) involved in RTAs. Vans, buses and Trucks collectively contributed in 18% road traffic accidents. The study hospital is situated in center of Lahore city. Prevalence of RTAs is higher in urban areas due to cosmopolitan traffic, fact consistent with data findings. In cities high traffic burden observed during rush hours of morning school, office and business timings and returning hours from these places. RTAs incidence is proportional to traffic burden hours. Similar observations have been reported.²² Combination of injuries like bruises, abrasions and lacerations are sustained during accident, **Fig.5.**

Conclusion

Misconception of public regarding medicolegal reporting has led to non-registration of police cases. People like to avoid police harassment and nuisance of delayed justice. It is need of the time to bridge this gap of misunderstanding. Public should be made aware of their legal rights of compensatory measures relating Qisas and Diyat Actm,²⁴ which narrates expenses compensation and penalty for the culprit in case of negligent driving resulting in damages to pedestrians and other licensee, responsible rule abiding citizens.

All deaths are due to head injuries and skull fractures, indicating the need that all such victims should be brought to such tertiary care facilities where neurosurgery departments exists. Study findings are evidence based valuable documents for government agencies to introduce reformed strategies for prevention & control of RTAs and proper management of victims to minimize death and disabilities. Awareness and training programs for young generation as per observing the safety standards could be a good initiative for reduction in injury burden. Law abidance in relation with driving license issuance after a proper driving test should be strictly abided by the authorities.

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