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Original Research Article

A Prospective Study on Road Traffic Accidents and Their Pattern of Injury Admitted to Indira Gandhi institute of Medical Sciences Patna

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Abstract

Background: Road traffic accidents (RTA) have become a major public health issue of the world particularly in the developing nations. It is the price we pay for the rapid urbanization, modernization and economic development. Objectives: To study the demographic profile of Road traffic accidents victims. To study pattern of injury in victims of road traffic accidents.
Material and Methods: This study conducted at Indira Gandhi Institute of Medical Sciences Patna Study duration of Two years. The study group comprised of all the road traffic accident cases reporting to IGIMS causality in the above period. All patients were screened for the inclusion criteria and all those who met these inclusion criteria, were enrolled in the study after obtaining their due informed consent to take part in the study.
Conclusion: Most of the victims are due to rural trauma with marked male preponderance, 75% are of age20–49 years most productive for their family and the country. High risk driving, not following speed limits common factors responsible for these RTAs.Stricter traffic law enforcement is a need in rural areas. If RTAs are considered an Epidemic of modern times, then prevention is its vaccine.
Keywords: Epidemiological factors, Demographic profile, Road Traffic accident, Road Traffic injuries.

Introduction

Road traffic accidents (RTA) have become a major public health issue of the world particularly in the developing nations. It is the price we pay for the rapid urbanization, modernization and economic development. RTA has become a leading cause of deaths, disabilities and hospitalizations which causes major socio-economic burden to the society across the world. As per WHO data, –deaths from road traffic accidents accounts for 25% of all casualties due to injury [1]. Globally, in one year there are around 1.2 million people had been killed in vehicular accidents. 80% of these deaths happened in developed and underdeveloped countries. Road Traffic Accidents accounts for 2.1% of total mortality and 21% of the total injury [2]. India with the burden of both communicable and non-communicable diseases, and RTA a form of

non- communicable disease has all set to take the third place in terms of death by the year 2020 as per WHO. [3] All these years since our independence India have invested and succeededa lot in controlling and even eradicating many communicable diseases such as smallpox recently polio and saved the lives of millions of children. Children who were saved earlier from these dreadful communicable and infectious diseases are now becoming prey to this man-made epidemic called RTAs and many lives saved then are being lost on the roads now. India lives in villages and the rapid increase in two wheelers were mainly due to the affordability rendered by the hire purchase schemes and second-handvehicle market, at the disposal of village youth. With regard to age structure of the Indian population which has a larger younger population in par with investing in education, child health, India also needs to invest in mechanism to prevent the road traffic accidents. This is because India's younger generation between age 20 – 29 years are taking the brunt of the attackparticularly those belonging to the middle and low socioeconomic strata of the society. According to the World Health Organization (2004), Around 16,000 people die from various injuries every day worldwide, accounting for 12% of the global burden of disease, thereby making injuries the third most important cause of deaths overall. [4]

Objectives:

- To study the demographic profile of Road traffic accidents victims.
- To study pattern of injury in victims of road traffic accidents.
- To suggest the possible measures for prevention and control of road traffic accidents.

Material and Methods

This is Prospective study conducted at Indira Gandhi Institute of Medical Sciences Patna . Study duration of two Years. The study group comprised of all road traffic accident cases reporting to IGIMS causality in the above period. All patients were screened for the inclusion criteria and all those who met these inclusion criteria, were enrolled in the study after obtaining their due informed consent to take part in the study. All these patient had AR/FIR entry entered. The researcher interviewed all the consented victims and relevant information pertaining to the accident were recorded. When the condition of the patient not fit for an interview, the relatives or patients attenders/friends were interviewed by the researcher. The injuries of all the patients are categorized and entered by the researcher. The type of treatment given, surgical procedure performed and their outcomes were also recorded for all the cases.

The data collected included name , age ,sex, in patient number, date and time of admission and injury details, education, income, mode, cause and place of injury, mode of transport, safety gadgets usage like helmet and seat belt, driving license, whether obtained first aid or other treatment before admission/ referral to our hospital, history of alcohol intake, time and amount, comorbidity, vitals like pulse, blood pressure, nature of injury sustained, typeof treatment obtained including surgical intervention and their injury severity score were all recorded for each and every case and compiled using an excel spread sheet. The categorical variables were presented in the form of frequencies and percentages.

Inclusion Criteria

All Patients presenting to IGIMS as a case of Road traffic accident.

Exclusion Criteria

Patients admitted in Indira Gandhi Institute of medical sciences other than Road traffic accident like assault, accidental fall .

Not given consent for the study.

Brought dead.

Unknown patients i.e. no relative or a friend by the side.

Victims who were immediately referred to higher centre

Results

Road traffic injury is an important public health problem. They result not only in death but disability among the survivors which can be a burden to the society.Since vehicular accidents is on the rise, the country faces this problem of non-communicable disease, the road accidents. Since the road traffic accident is an important cause for morbidity and mortality, this study was taken up to analyze various epidemiological factors determining the accidents, and their common pattern of injury and outcome. Out of total 425 accidents 1000 Road traffic accident cases were interviewed in the emergency departments of our college by the investigator and during the study period. In this prospective study conducted at our college out of total 1000 Road traffic accident cases 822 (82%) met the inclusion criteria and were included in the study. Of the total 178 cases excluded there were 132 absconders (13%) and 48 deaths (4.8%). Most of the death were due to fatal head injury.

Majority of the instances, in 430 cases the friends and relatives gave the required information about Road traffic accident i.e., 52 %, followed by 316 victims themselves (38.5%). In very less instances others were the informants (10%). Most of the instances in our study relatives were accompanying the road traffic accident victims and gave information about accident to the researcher.

Table 1: Distribution of informants of RTA

Informant	Frequency	Percentage
Self	316	38.5
Relatives and Friends	430	52
Passer by	56	7
108	20	2.5
Total	822	100

By directly enquiring about the place of occurrence of the Road traffic accident, 78% of victims (n=640) were of trauma in the rural region and 22% were of trauma in region urban (n=180)

The intake of alcohol is noted by direct questioning of the patient after the admission and only in conscious patients. We have no idea of those patients who were excluded from the study. Highest amount of admission was noted on the day of Friday accounting to one fifth of cases (n=158). Highest number of victims admitted with history of alcohol intake was noted on the weekend Sunday 20% followed by Monday 19% and Saturday 16.5%. Lowest number of admission 9% as well as lowest intake of alcohol was noted on the day of Wednesday 6.3 %.

In present study about 33.5% RTA‘s had self-fall followed by sideways collision 31%, collisions from behind in 17.2%, head on collisions were 15%, and the type of collision was unknown in 3.2% of the cases. Unknown type of collision includes those who do not know the mechanism of RTA.

Table 2: Distribution of RTA based on type of collision

Type of collision	Frequency	%
Self-fall	276	33.5
Sideways	255	31
From behind	142	17.2
Head on	122	15
Unknown	26	3.2
Total	822	100

In our study, commonest mode of injury 60.8% were noted in the two wheelers followed by four wheelers 29%, pedestrians 13.4%, three wheelers 5.2%, bicycles, 4.7% and bullock carts 0.8%. Majority of the road traffic accidents have happened in the commuters of two wheeler, four wheeler and pedestrians. About 365 (44.5%) of the cases were brought through EMRI 108 ambulance to our hospital and by other vehicles in 55.5% of the cases. Of the 192 referred cases most of them around 118 victims were transported by EMRI 108. In this study it was observed that out of eligible 452 drivers only 22% n=99 had a Valid license. Majority of drivers who could be interviewed n=353 had no valid driving license. A good number of those who had no valid license were driving two wheelers.

Case Refferal IGIMS being a tertiary care centre cases from primary and secondary level care hospital from Patna and its neibouring district are being referred here for further management. One of the common reasons for referral is for Neurosurgical management. It was the reason for higher number of grievous nature of injury and mortality. In our present study majority of the victims had suffered grievous injury 51.5% (n=424) and 48.5% (n=398) of them had simple injuries. Grievous injuryranged from fracture tooth to fatal head injury.

Discussion

In our study friends and relatives accounts 52 % of the informant who gave all the required information to the researcher. A study from Bangalore [5] found that majority of the times the relatives (59.1%) of the patient gave the information about Road traffic accident, followed by the victims themselves and the friends. The study conducted at NIMHANS [6] found that in majority of cases, afamily member or a friend accompanying the Road traffic accident victims gave all the required information about Road traffic accident to the investigators. The information given by persons other than the victims may not be as accurate as given by the RTA victims themselves. As Road traffic accident victims suffer from physical and mental trauma, they were not in a positionto give the information. A hierarchy of consent exists on the basis that the people most probably to understand a patient‘s desires are those who know the patient well. Thus the hierarchy is the patient themselves, a relative or a friend, an independent clinician, a clinician caring for the patient and, finally, a research ethical committee (waiver of consent). Similarly type of observations were made in studies conducted byJha N et al [7], Mehtha et al, Stallones et al, [8] and Our study had reported highest number of accidents on weekends and Friday. In contrast to our study, the study conducted by Ghosh PK, [9] Bharadwaj et al, and Jolly MF observed highest number of Road traffic accidents on Wednesdays. However, no significant difference was found in the incidence of road traffic accident on weekdays and weekends in the studyconducted by Kumar et al. [10] More amount of alcohol consumption was noted on the weekends. similar observations were also made in these above studies. In our study about 33.5% Road traffic accident‘s had self fall followed by 31% sideways collision, collisions from behind in 17.2%, head on collisions were 15%, and the type of collision was unknown in 3.2% of the cases. Unknown type of collision includes those who do not know the mechanism of Road traffic accident. The study by Suhas babu found that majority of the times it was a sideways collision 46.7% followed by head on collision 27.5%. Victims werehit from behind 16.9 % of the times and 8.9% of them gave history of self fall. However, in contrast to present study, the study conducted at NIMHANS showed that 41.9% Road traffic accidents were due to skid & fall followed by 15.2% head on collisions and 6% sideway collisions. Injuries to the face and lower extremities

were significantly greater in frontal collisions; thorax, abdominal, and pelvic injuries were significantly greater inlateral collisions. In addition, drivers in lateral collisions were found to have significantly more multiple injuries to the abdomen and thorax. [11] The study conducted by Jha [10] et al found that 15.2% drivers had no valid license. Supriya Satish Patil et.al found that 29.4% of the drivers involved in the RTA had no valid driving license may be due to lack of awareness, inadequate law enforcement particularly in rural areas and very casual the study conducted by Gudadinni MR showed that out of 540 accident victims, 67% victims had simple injuries and 33% had grievous injury [12]. A study conducted by Sathyasekaran had revealed that among the RTA victims, 11.5% had very serious injuries, and 11.4% with serious disabling injuries, 38.4% with mild disabling injuries. 38% of injured victims had serious injury to head and facial region [13]. The study conducted by Varghese showed that 87% victims had suffered simple injury [14]. After injury they received first aid in a nearby medical centre and were referred to our hospital if they were grievously injured particularly for CT investigation and neurosurgical intervention. Almost all of them knew about free 108 ambulance service and used them for transport.

Conclusion

Road traffic accident is a complex phenomenon of multiple causation, and there is no single remedy that will avoid it, what is needed is an organized teamwork by experts in various branches such as education, medical, engineering and law enforcement for much effective prevention of Road traffic accidents and their fatalities and disabilities. Road traffic accidents are on the rise, globally. This study was conducted to document the epidemiology and the injury pattern of road traffic accidents. Road traffic accident victims predominantly belonged to the age group of 21 to 30 years and had of low educational status.

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