



PROFILE OF ROADSIDE ACCIDENT CASES IN ACCIDENT AND EMERGENCY DEPARTMENT OF TERTIARY CARE INSTITUTION

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ABSTRACT **Introduction:** In recent years the incidence of Road Traffic Accidents is increasing at an alarming rate throughout the world posing itself as a major epidemiological as well as medico-legal problem This study was aimed to evaluate profile of roadside accident cases attending accident and emergency department. The cross sectional study was conducted in department of orthopedics, Maharaja Agrasen Medical College, Agroha, Hisar.

Methods: Road traffic accident cases admitted to a tertiary care hospital from April 2017 to December 2017 were included in the study. A total of 688 patients were studied. Information was collected through pre-tested questionnaire performa and collected data was entered into an electronic database and was analyzed statistically in SPSS version 20.0 software. injuries > 12 hours and brought dead were excluded.

Results: During the 9 months period 688 injured patients were seen in emergency department. Maximum (n=429, 63.36 percent) were in age group of 18-45 years & there were 561 males (81.54 percent) and 127 (18.46 percent) female patients. Maximum (n=215, 31.25 percent) were injured in time period 4:00 pm-8:00 pm. Maximum (n=497, 72.24 percent) accident causing vehicle were two wheeler and 114 (16.57 percent) accidents causing vehicle were four wheeler. Out of these most of patients (n=219, 20.02 percent) were not wearing helmet on 2 wheeler motorized vehicle.

Conclusion: There are multiple factors associated with road traffic accidents which due to the lack of road safety measures in the country are playing their role. It is the need of the hour to address this issue and formulate comprehensive, scientific and practical rules and regulations as well as evaluate its enforcement.

KEYWORDS : Road side accident, Risk factor, Distribution of significant Injury

1. Introduction

Road traffic accidents are one of the leading causes of morbidity and mortality worldwide, accounting for over one million deaths per year. Road traffic accidents are defined as a collision involving at least one vehicle in motion on a public or private road that results in at least one person being injured or killed¹. They also have a huge impact on disability-adjusted life years (DALYs). The World Health Organization predicts that road traffic injuries would become the sixth commonest cause of death by the year 2020 and the fifth by 2030². Accidents, tragically are not often due to ignorance, but are due to carelessness, thoughtlessness and over confidence. They are also part of the price we pay for our technological progress. Due to industrialization, urbanization and technological development, accidents are currently a major public health threat contributing to a large burden of mortality and morbidity but a majority of accidents are preventable.³ Accidents represent a major epidemic of non communicable disease in the present century. It has its own natural history and follow the same epidemiological pattern as any other disease. Accidents, therefore, can be studied in terms of agent, host and environmental factors and epidemiologically classified into time, place and person distribution. They occur more frequently in certain age-groups, at certain times of day and week and at certain localities. Some people are more prone to accidents than others and susceptibility is increased by the effect of alcohol and other drugs as well as physiological state such as fatigue.⁵ The role of alcohol in impairing driving ability is well documented. Also the impairment increases as the blood alcohol level rises.⁶

Most people think that injuries are mainly a problem of rich countries, this is not so. Data available from developing countries suggest that in every sphere of activity the proportion of persons, who are injured or killed, is similar or higher than that of industrialized or urbanized countries. Urbanization is compelling to increase in number of vehicles and hence, accidents even in the rural part of the India as

industrialization is spreading not only in outskirts of major cities but also is penetrating in various rural areas.⁷

Pre-hospital care is unsatisfactory in many countries, especially in low and middle countries, where the majority of trauma deaths occur in the pre-hospital phase. In most low and middle countries, transport of road traffic victims, is usually provided by relatives, taxi drivers, truck drivers, police officers and other motorists; who are usually untrained. The lack of advanced pre-hospital care and ineffective ambulance system for transportation of patients to hospitals are major challenges in providing care of trauma patients.⁸

Although, it is true that injuries occur and are treated one at a time, it is only by studying patterns of occurrence across populations of individuals that we learn how to best prevent them.

To this point, most of the work done on this subject reflects narrow vision of trauma held by most of the physicians and have concentrated almost exclusively on the technical aspect of therapy. There is need to encompass modern approach to trauma as an integrated, orderly, broad and thoughtful enterprise rather than a relatively crude prosaic venture. Trauma should be looked from the point of surgeon's inescapable responsibility for promoting the avoidance of trauma to the long neglected social, economic, and rehabilitative facets that we have found so difficult to engage.

2. Methods:

This cross sectional study was conducted on patients with acute trauma (less than 12 hours) on arrival at the department of accident and emergency, Maharaja Agrasen Medical College, Agroha, Hisar between April 2017 and December 2017. Patient were excluded whose injury time was more than 12 hours. In this study, the information was collected by using pre-tested questionnaire performa and collected data was entered into an electronic database and was analyzed

statistically in SPSS version 20.0 software.

3.Results:

During the 9 months period 688 injured patients were seen in emergency department. Out of these the maximum (n=429, 63.36 percent) were in age group of 18-45 years. There were 561 males (81.54 percent) and 127 (18.46 percent) female patients. Most of the patients were educated till Primary and Middle stage (n=266, 38.66 percent) whereas graduate & post graduate patients were least common (n=49, 7.12 percent). Most of patients were laborer (n=252, 36.63 percent), followed by agriculturalist (n=128, 18.60 percent), student (n=121, 17.59 percent), housewives (n=86, 12.50 percent), and employee (n=64, 9.30 percent). Maximum patients came to hospital in the month of April (n=97, 14.10 percent). Least patient came in month of June (n=43, 6.25 percent). Maximum patients came between 4:00 pm – 8:00 pm (n=215, 31.25 percent) and minimum patients between 4:00 am – 8:00 am (n=63, 9.16 percent). Most of patients came to hospital (n=363, 52.76 percent) by personal vehicle (n=325, 47.24 percent) followed by ambulance. Most of the patients (n=592, 86.05 percent) were not given any splintage. Wound of only few patients (n=162, 23.55 percent) were managed, rests (n=526, 76.45 percent) patient's wound not managed before hospitalization. Two wheelers were most commonly involved in injury (n=497, 72.24 percent), followed by four wheelers (n=114, 16.57 percent) and (n=77, 11.19 percent) others vehicle (Auto rickshaw, Train, bull cart etc.). some patient (n=204, 41.50 percent) were using helmet. Out of 114 patients, only few patient (n=25, 21.93 percent) were using seat belts. Out of total sample size of 688 patients of road side accident, most patients (n=502, 72.97 percent) were having valid driving license and rests (27.03 percent) were without driving license. Out of total sample size of 688 patients of roadside accident, (n=93, 13.52 percent) patients were having first aid kit. Out of total sample size most common injury was of lower limb (n=361, 42.42 percent), followed by upper limb injury (n=198, 23.27 percent), soft tissue injury (n=113, 13.28 percent), head injury (n=107, 12.57 percent), pelvic injury (n=31, 3.64 percent), thoracic injury (n=27, 3.17 percent), spinal injury (n=12, 1.41 percent), and least common was abdominal injury (n=2, 0.24 percent). Most common risk factor among the total sample size was patient without helmet (27.88 percent), followed by over speed of vehicles (20.02 percent), driver without license (10.60 percent), accidents caused due to the crossing of road by animals (9.87 percent), accidents due to uneven roads (8.50 percent), not wearing the seatbelts in four wheelers (8.23 percent), accidents due to drunk and drive (4.11 percent), breaking of traffic rules (4.02 percent), using mobile phones (2.19 percent) and due to fog (2.19 percent) and least due to slippery nature of road due to rain (1.83 percent).

Age Group (in years)	Percentage(%)
Less than 18	9.74%
18-30	34.16%
30-45	28.20%
45-60	19.04%
>60	8.87%
Distribution of significant Injury	
	%age
Soft tissue injuries	13.28%
Head injury	12.57%
Thoracic injury	3.17%
Abdominal injury	0.24%
Spinal injury	1.41%
Pelvic injury	3.64%
Upper limb injury	23.27%
Lower limb injury	42.42%
Risk Factor	
	Percentage
Drunk and drive	4.11%
No License	10.60%
Without helmet motorized 2 wheeler	27.88%
without seatbelt 4 wheeler	8.23%
Mobile phone use during drive	2.19%
Over speed	20.02%
Against traffic rules	4.02%
Uneven roads	8.50%
Fog	2.19%
Rain and/or slippery roads/surface	1.83%
Animals crossing the road	9.87%

4.Discussion:

Road Side Accident (RTA) has become major health problems throughout the world and especially in low and middle income countries. This high rate of RTA is probably because of the location of the study center on National Highway 9. The increase of motorcycles use is probably due to the fact that motorcycles are affordable in terms of price than are motor vehicles on the other hand its popularity could be due to their ability to maneuver have a traffic jam and navigate on poor roads in the country side due to economic hardship the youth are probably buying motorcycles for public transport business in order to earn living. Motorcycle is a most dangerous mode of transportation than automobile because there is no structure to protect the rider during crash. In developed countries motorcycling is for fun, sports and outing. However in developing countries motorcycle is used as means of public transport and as a form of employment for youth. The youth are using their motorcycles as makeshift taxis, often without licenses or personal protection. This coupled with poor road conditions has created a perfect environment for motorcycle related trauma.

Majority of those injured in the present study were males (81.54 percent), followed by females (18.46 percent). Navali AM, Pouyandeh F⁹ conducted a study in 2009 and found that majority of injured were males (77 percent) and then females (23 percent). Soleymanha M, Mobayen M¹⁰ has also reported that majority of injured were males (75.13 percent) and then females (24.87 percent). Singh R, Singh HK¹¹ has also reported the same that majority of the injured were males (74.35 percent) followed by females (25.60 percent). In all above studies, there is preponderance of males as compared to the females. Number of cases of males are significantly more than females. And maximum cases of trauma are RTA. This shows that males are more prone to RTA as they mostly are work-bound outside the house for earning purposes. Also, in rural areas, females remain confined to their houses so the trauma cases are more in males compared to females.

In the present studies maximum patients were of age group 18-45. Shrestha R, Shrestha SK¹² has reported that maximum patients were of age group 15-45. Rastogi D, Meena S¹³ has also reported that maximum patient were of age group 18-45. This age group belongs to the young earning population. And in rural areas, due to peer pressure, land issues, job insecurities, lack of traffic rules knowledge, etc. there are more cases of trauma in this age group.

Two wheelers were the most common involved vehicle for injury. 497 (72.24%) patients out of total sample size (688) were got injured. Chalya L, Mabula JB, Dass RM⁴ reported that the most common cause of accident causing vehicle is two wheeler (58.5%). Two wheelers are being more affordable and reliable by the rural people and People driving two wheelers are also more prone to accidents as these vehicles are less safe.

Maximum patients were having associated Lower limb injury (37.83%), followed by Upper limb injury (27.20%), STI (18.13%). In Zargar M, Khaji A, Karbakhsh M¹⁴ study, patients having lower limb injury are 49.8% and Taylor A, Young A¹⁵ study, patients having lower limb injury are 53.63%. Most common distribution of significant injury is lower limb injury which correlates with our study.

Most common risk factor among the total sample size was patient without helmet (27.88 percent), followed by over speed of vehicles (20.02 percent), accidents caused due to the crossing of road by animals (9.87 percent), Wahid Al Kharusi & Joel Coutinho¹⁶ reported carelessness (42%) to be the most common risk factor, Celine TM, Antony¹⁷ reported over speed (35%) to be most common risk factor, Ruma Dutta¹⁸ reported Inadequate Lighting (35%) to be most common risk factor. In various studies risk factor wise distribution of the patients varies with areas. In our study, patients from rural areas (mostly laborers and farmers), they use two-wheelers as most common mode of transport and they are uneducated about the traffic safety rules and overspeeding of vehicle and not wearing of helmet lead to more number of accidents. In rural area animals crossing road are also leading risk factor for road side accidents in our tertiary care institute which is near National Highway and rural area. Hence, awareness about use of helmet, proper education on traffic safety rules will reduce the risk factors.

5. Conclusion:

Road traffic crashes constitute a major problem in our setting and the

young adult male in their economically productive age groups are mostly involved. Laborers and farmers are the largest group of road traffic crash victims. Since, majority of road traffic accidents are preventable, thus there is a need to improve the enforcement of traffic rule and regulations. Awareness regarding availability of first aid kit at the site of accident and in vehicles. Awareness campaigns concerning safety rules targeted at the high risk groups (young adult male) will also be of help in reducing road traffic accidents as well as improvement of roads. More specifically drink and driving, helmet and rash driving has to be contained. National highway traffic management also needs to be improved because highway is connected with many small roads of village where the chances of RTAs are high and prevention of accidents by proper fencing & proper hoardings for speed limits and caution.

6. REFERENCES:

1. Neurotraumad Perspectives and Future Strategies. Geneva: World Health Organization; 1995.
2. WHO. World Report on Road Traffic Injury Prevention: Summary. Geneva: World Health Organization; 2004:1e52.
3. Hemmati H, Kazemzhad-Leili E, Mohtasham-Amiri Z, Darzi AA, Davoudi-Kiakalayeh A, Dehnadi-Moghaddam A, et al. Evaluation of chest and abdominal injuries in trauma patients hospitalized in the surgery ward of porsina teaching hospital, Guilan, Iran. *Arch Trauma Res* 2013;1:161-5.
4. Jha N, Srinivasa DK, Roy G, Jagdish S. Epidemiological study of road traffic accident cases: a study from South India. *Indian J Community Med* 2004;29:20-4.
5. Khare N, Gupta SK, Varshney A, Athavale AV. Epidemiological Study of Road Traffic Accident Cases Attending Tertiary Care Hospital, in Bhopal Madhya Pradesh. *Natl J Community Med* 2012;3:395-9
6. WHO. Road traffic accidents in developing countries . Technical report series No. 73. World Health Organization, Geneva 1984.
7. Goyal S, Sancheti KH, Shete KM Poly Trauma in Rural India- Changing Trends. *Ind J Orthop* 2006;40:259-61.
8. Chalya L, Mabula JB, Dass RM, Mbelenge N, Ngayomela IH, Chandika AB, Gilyoma JM. Injury characteristics and outcome of road traffic crash victims at Bugando Medical Centre in Northwestern Tanzania. *Journal of Trauma Management & Outcomes* 2012; 6:1-8
9. Navali AM, Pouyandeh F. Traffic accident injuries in a referral Orthopedic Hospital in North West of Iran. *J anal res clini med* 2015;3(1):62-7.
10. Soleymanha M, Mobayen M, Asadi K, Adeli A, Haghparast-Ghadim-Limudahi Z. Survey of 2582 cases of acute orthopedic trauma. *Trauma mon* 2014; 19(4):162-5.
11. Singh R, Singh HK. Pattern, severity and circumstances of injuries sustained in road traffic accidents: a tertiary care hospital-based study. *Indian J Community Med* 2014 ;39(1):30-4
12. Shrestha R, Shrestha SK, Kayastha SR, Parajuli N, Dhoju D, Shrestha D. A comparative study on epidemiology, spectrum and outcome analysis of physical trauma cases presenting to emergency department of Dhulikhel Hospital, Kathmandu University Hospital and its outreach centers in rural area. *Kathmandu Uni med j* 2015 ; 11(3):241-6
13. Rastogi D, Meena S, Sharma V, Singh GK. Epidemiology of patients admitted to a major trauma centre in northern India. *Chin J Traumatol* 2014;17:103-7.
14. Zargar M, Khaji A, Karbakhsh M. Pattern of motorcycle-related injuries in Tehran, 1999 to 2000: a study in 6 hospitals. *Eas med J* 2006; 12:81-7.
15. Taylor A, Young A. Epidemiology of orthopaedic trauma admissions over one year in a district general hospital in England. *The open orthop j* 2015;9:191-3.
16. Wahid Al Kharusi & Joel Coutinho- Road traffic Accident Survey Report 1993; Ministry of Health, Sultanate of Oman; National program for prevention and control of RTAs.
17. Celine TM, Antony J. A study of injuries sustained in road traffic accidents at a tertiary care level. *Int J Env Health Emg* 2014; 23:38-44.
18. Ruma Dutta. Profile of RTA cases attending a tertiary health care centre in Kanchipuram district of Tamil Nadu. *International J Rec Tren Sci Techn* 2015;1(14):1-3