ISSN: 0976-3031

Available Online at http://www.recentscientific.com

International Journal of Recent Scientific Research
Vol. 7, Issue, 11, pp. 14045-14048, November, 2016

International Journal of Recent Scientific Research

Research Article

EPIDEMIOLOGY OF TRAUMA PATIENTS ADMITTED TO KING GEORGE'S MEDICAL UNIVERSITY, INDIA

ShobhNathSonkar*[1]., Agarwal S.K[2]., Suresh Kumar[3]., Manoj Kumar[4] and Sanjeev Kumar[5]

[1,2]T.S. Mishra Medical College and Hospital, Lucknow-226008
[3,4,5]Department of General Surgery, King George Medical University,Lucknow-226003

ARTICLE INFO

Article History:

Received 10th August, 2016
Received in revised form 14th September, 2016
Accepted 08th October, 2016
Published online 28th November, 2016

Key Words:

Trauma; Public Health; Epidemiology; Prevention; Traffic; India

ABSTRACT

Objective: The purpose of the observational study was to assess the various epidemiological parameters that can influence the cause of injury in the patients admitted to a major trauma center in northern India.

Methods: This was an observational study conducted on the patients admitted to trauma in emergency ward, Department of General Surgery, King George's Medical University, Lucknow.
A total of 604 patients were chosen by random assortment during this period. A detailed history and examination of all patients was done with regards to age, sex, injury type (blunt/ penetrating) and mode.

Results: The majority of victims were males (510, 84.44%). Young adults aged 21-30 years (25.83%) constituted the most unintentional accidental injuries followed by the age group of 31-40 years (20.20%). Most of the cases belongs from rural area (64.24%). Most of the cases are of road traffic accident. Regarding the intention, most of the cases are accidental. Only, 6.29% patients get immediate treatment. Ambulance is used in 30.46% patients, private vehicle is used in 61.26% patients, public vehicle is used in 1.99% patients and other means used in 6.29% patients. Most of the vehicle drivers and riders did not follow safety measures. Only 5.96% patients use safety measures at the time of trauma

Conclusion: Traffic rules strict enforcement, combined with improved infrastructure and behavior change can lessen the burden of road traffic accidents (RTA) in India and other developing nations. This study could help in raising the profile of traumatic injuries as a public health problem which needs to be addressed as a preventable cause of mortality and morbidity, and planning appropriate interventions for this major challenge. Preventive policies should be made on the basis of these epidemiological trends.

INTRODUCTION

Countries are passing through notableurbanization, motorization, industrialization and a change in the socioeconomic values. India is no dissimilar to these changes. Due to these, road traffic accidents (RTAs) have become the first public threat in the world, which results in one of the largestdanger against human lives and safety (1). Injury is now a leading cause of mortality and morbidity worldwide. Injuries on roads, at home and in work place have increased due to lack of safety-related policies and programs. Each year 300000 people die of RTA and more than 8 million people suffer injuries. India is the prime country in the number of deaths due to RTA (2). In 2007, 114590 people died of RTA in India alone. "Trauma - The Neglected disease of Modern Developing Nations. A trauma-related death occurs every 1.9 minutes in India.

Despite trauma being a major public-health problem with high morbidity and mortality, the Ministry of Health does not have a designated unit to deal with issues related to trauma. There is no central government agency to integrate policy-making, planning, financing, drafting legislation or establishment of minimum standards for the performance of a trauma-care system. The Centralized Ambulance Transport Service of the Government of the State of New Delhi is the only notable state initiative in this direction. The lives systems for trauma care are elementary in nature, mostly restricted to urban and semi-urban areas, without integration of region or statewide systems. No such systems exist in rural and remote areas to offer prompt life-saving treatment and safe transfer to an appropriate facility.

*Corresponding author: **ShobhNathSonkar***
T.S. Mishra Medical College and Hospital, Lucknow-226008

Consequently, fatal accident rate in India is estimated to be sevenfold worse compared to most advanced states (16). The epidemiology of injuries sustained due to trauma is poorly understood. There are a very less number of studies from developing countrieshighlighting the epidemiology of trauma (3-6). The purpose of this study is to estimate the epidemiology of injury in patients admitted to a major trauma center emergency ward in northern India so that the sound preventive measures could be suggested.

MATERIAL AND METHODS

This was an observational study conducted on the patients admitted to trauma in emergency ward, Department of General Surgery, King George Medical University, Lucknow, India. A total of 604 patients were chosen by random assortment during this period. A detailed history and examination of all patients was done with regards to age, sex, injury type (blunt/ penetrating) and mode. The data collected were entered into MS-Excel spread sheets and analysis was carried out. The procedures involved were transcription, preliminary data inspection, content analysis, and interpretation. Percentages were used in this study to analyze variables.

As reported in the Census of India 2011, the population of Lucknow was 4,588,455 which is roughly equal to the nation of Georgia, of which male and female were 2,407,897 and 2,180,558 respectively. The total area of the Lucknow district is about 2,528 km^2. A high percentage of the total population (36.37%) resides in rural areas which mean that around 63.3 percent are urban in nature (17-19).

RESULTS

Table 1 shows the various injury patterns sustained by the population under study. The majority of victims were males (510, 84.44%).

Table 1 Demographic and injury variables

Variables	N (%)
Age	
0-10	74 (12.25)
11-20	78 (12.91)
21-30	156 (25.83)
31-40	122 (20.20)
41-50	90 (14.90)
51-60	46 (7.62)
>60	38 (6.29)
Sex	
Male	510 (84.44)
Female	94 (15.56)
Habitat	
Rural	388 (64.24)
Urban	216 (35.76)
Location of injury	
Center of City	162 (26.82)
Highway	64 (10.60)
Peripheri	358 (59.27)
Home	20 (3.31)
Mode of injury	
Road traffic accident	314 (51.99)
Fall from height	116 (19.21)
Burn	46 (7.62)
Assault	46 (7.62)
Firearm	32 (5.29)
Other Injuries	50 (8.28)

Young adults aged 21-30 years (25.83%) constituted the most unintentional accidental injuries followed by the age group of 31-40 years (20.20%). Most of the cases belongs from rural area (64.24%). Most of the cases are of road traffic accidents (51.99%) followed by fall from heights, burn, assault and firearm respectively.Regarding the intention, most of the cases are accidental (88.76%) followed by homicide (Table 2).

Table 2 Intention of Injury

Intention of Injury	N (%)
Homicide	86 (14.24)
Accident	518 (88.76)

Z=24.86, p<0.001

Table 3 Time of injury

Time of injury	N (%)
00.00a.m.-5.00 a.m.	14 (2.32)
5.00 a.m.-10.00 a.m.	56 (9.27)
10.00 a.m.-12.00 noon	98 (16.23)
12.00 noon-17.00 p.m.	222 (36.75)
17.00 p.m.-22.00 p.m.	186 (30.79)
22.00 p.m.-00.00 a.m.	28 (4.64)

Table 4 Time gap between trauma and first rescue

Time gap	N (%)
Immediate	38 (6.29)
<30 min.	146 (24.17)
30 min-60 min	328 (54.30)
Ihr-6hrs	52 (8.61)
>6hrs	40 (6.62)

6.29% patients get immediate treatment, 24.17% gets treatment <30 minutes and 54.30%get treatment with in 1 hrs. (Table 3 &4).

Table5 Mode of transport to trauma emergency ward

Mode of transport	N (%)
Ambulance	184 (30.46)
Private vehicle	370 (61.26)
Public vehicle	12 (1.99)
Other	38 (6.29)

Ambulance is used in 30.46% patients, private vehicle is used in 61.26% patients, public vehicle is used in 1.99% patients and other means used in 6.29% patients (Table 5).

Table 6 use of safety measures

Safety measures	N (%)
Helmet	32 (5.30)
Seat belt	4 (0.66)
No safety measure	278 (46.03)
Not applicable	290 (48.01)

Most of the vehicle drivers and riders did not follow safety measures such as use of helmet, seat belt etc. only 5.96% patients use safety measures at the time of trauma (Table 6).

DISCUSSION

Injury or trauma represent a major health problem worldwide. Everyday about 16000 people around the world almost die from various injuries. Injuries represent 12% of the global burden of disease (7). Due to the rapid economic transition in India, there is an increase in number of automobiles in the road and rapid increase in RTA.

Road traffic injury (RTI) in developing country frequently affects the productive age group. In this study the maximum

number of patients admitted were the age group of 21-30 years with a mean age of (25.43±16.87) years. This is similar with other findings which also show that injuries occur in more productive age group and they are more vulnerable to injury (8-9). Similar to the previous studies, sex distribution was heavily skewed towards males. Since males are the earning hand of house and often work outside, they are more prone to injury (20).

In our study RTA were found to be the most vulnerable group involved. These road users form one of the major bulk on Indian roads (2,11).They are directly exposed to the trauma and consequently have more serious injuries as compared to others such as car and heavy motor vehicle drivers. Government should put more emphasis on these unsafe road users and formulate policies regarding road safety. Although helmets have been made compulsory during motorcycle riding in majority of countries, they are not enforced strictly by the law enforcement agencies leading to their disregard by the public.

The practice of helmet wearing should be voluntarily encouraged both in motorcycle and bicycle riders. There are other studies which have established the protective role of helmets in motorcycle and bicycle riders (12,13).

More traumatic injuries occur during night and early morning due to poor visibility of vehicle and roads. Poor and inappropriate design of roads is significant factor with deteriorating traffic law enforcement because of poor enforcing skills and resources.

Rural location was identified as a separate factor for increased risk of accident. The admissions due to accident in rural areas were almost twice as many as those in urban areas. Among the admitted injured patients, majority were from accidents in rural area because in urban area overcrowding on roads results in low-velocity injuries causing minimal damage to the patient for whom admission is not required (14). Another factor may be the poor conditions of road in rural areas which may lead to increased rate of accidents. Poor visibility of vehicle or road contributed to the injuries in 29.94% of our cases in which pedestrians were most commonly involved. This is similar to findings of National Institute of Mental Health and Neurosciences study (15). Private vehicle is used in majority of cases to take patients to the emergency ward which is similar to other study (10).

There is a need for cooperation between government, nongovernment organizations, public organizations and international organizations to find measures to prevent traumatic injuries. Although we have adequate laws for injury prevention, they have not been strictly enforced by the law enforcement agencies. Change in attitude of the people towards the traffic rules and road safety should be brought about. RTI engages the least attention from health administrators and subsequent allocation of funds. This study could help in raising the profile of trauma as a public health problem which required to be addressed as a preventable cause of mortality and morbidity, and planning appropriate measures for this major challenge. Further research should be done to better understand the dynamics of these traumatic injuries and prevention strategies.

References

1. Gopalakrishnan S. A public health perspective of road traffic accidents. *Journal of family medicine and primary care*. 2012 Jul 1; 1(2):144.
2. Annadurai K, Mani G, Danasekaran R. Recurring tragedy of road traffic accidents in India: Challenges and opportunities. *Indian journal of critical care medicine*: peer-reviewed, official publication of Indian Society of Critical Care Medicine. 2015 Jul; 19(7):434.
3. Uthkarsh PS, Suryanarayana SP, Gautham MS, *et al*. Profile of injury cases admitted to a tertiary level hospital in south India. Inj Contr Saf Promot 2012; 19(1):47-51.
4. Pruthi N, Ashok M, Kumar VS, *et al*. Magnitude of pedestrian head injuries & fatalities in Bangalore, south India: a retrospective study from an apex neurotrauma center [J]. *Indian J Med Res* 2012; 136(6):1039-43.
5. Jadaan KS. The epidemiology of road traffi c accidents in Jordan [J]. *J R Soc Health* 1989; 109(4):141-4.
6. Verma PK, Tewari KN. Epidemiology of road traffic injuries in Delhi: results of survey [J]. Reg Health Forum 2004;8(1):6-14.
7. Gupta A, Gupta E. Challenges in organizing trauma care systems in India. *Indian Journal of Community Medicine*. 2009 Jan 1;34(1):75.
8. Ilie G, Adlaf EM, Mann RE, Ialomiteanu A, Hamilton H, Rehm J, Asbridge M, Cusimano MD. Associations between a History of Traumatic Brain Injuries and Current Cigarette Smoking, Substance Use, and Elevated Psychological Distress in a Population Sample of Canadian Adults. *Journal of neurotrauma*. 2015 Jul 15; 32(14):1130-4.
9. Jagnoor. Road traffi c injury prevention: a public health *Chinese Journal of Traumatology* 2014; 17(2):103-107.
10. Wilson M. Patient confidentiality in the emergency department. *Australian Emergency Nursing Journal*. 1997 Apr 30; 1(2):59-61.
11. Gururaj G. Road traffic injury prevention in India [M]. Bangalore: National Institute of Mental Health and Neuro Sciences, 2006:1-137.
12. Siviroj P, Peltzer K, Pengpid S, *et al*. Helmet use and associated factors among Thai motorcyclists during Songkran festival. *Int J Environ Res Public Health* 2012;9(9):3286-97.
13. Kudebong M, Wurapa F, Nonvignon J, *et al*. Economic burden of motorcycle accidents in Northern Ghana. *Ghana Med J* 2011; 45(4):135-42.
14. Bakke HK, Hansen IS, Bendixen AB, *et al*. Fatal injury as a function of rurality-a tale of two Norwegian counties. *Scand J Trauma Resusc Emerg Med* 2013; 21:14.
15. Bengaluru Injury Road Traffi c Surveillance Programme: a feasibility study [R]. Bangalore: National Institute of Mental Health and Neurosciences, 2008:7.
16. Wegman Fred, Road Accidents: Worldwide a problem that can be tackled successfully! AIPCR Publication No. 13.01.B, 1996.
17. Kumar S, Verma AK, Ali W, Singh US., Homeless and unclaimed person's deaths in north India (Jan 2008- Nov 2012): A retrospective study. Medicine, Science and the Law 2015 55: 11-15.

18. Kumar S, Verma AK, Ali W, Singh US, Krishna A., Intentional and Non-Intentional Burns Related Deaths: A Comparative Study of Socio-Demographic Profile. Burns 41 (2015); 265-270.
19. Kumar S, Verma AK, Singh US., Electrocution-Related Mortality in northern India-A 5-year retrospective study. *Egyptian Journal of Forensic Sciences.* 4 (2014);1-6.
20. WHO 2016.*www.who.int/mediacentre/factsheets/fs344/en/*

****

How to cite this article:

ShobhNathSonkar *et al*.2016, Epidemiology of Trauma Patients Admitted To King George's Medical University, India. *Int J Recent Sci Res.* 7(11), pp. 14045-14048.