



ISSN: 0975-833X

RESEARCH ARTICLE

FATAL ROAD TRAFFIC ACCIDENTS: AN EPIDEMIOLOGICAL SURVEY ON MEDICO-LEGAL AUTOPSY CASES A RETROSPECTIVE STUDY

*Surendra Kumar Pandey

Department of Forensic Medicine, Institute of Medical Sciences, Banaras Hindu University, Varanasi, India

ARTICLE INFO

Article History:

Received 14th July, 2013
Received in revised form
03rd August, 2013
Accepted 11th September 2013
Published online 10th October 2013

Key words:

Retrospective mortuary,
Epidemiological data,
Hindus outnumbered Muslims,
Post mortem examination.

ABSTRACT

A retrospective mortuary based study was conducted on deceased of fatal road traffic accidents to analyze different epidemiological data. In the present mechanical era road traffic accidents are increasing day by day at an alarming rate and accounts for majority of deaths in young age group as they are in the most active phase of life. A post mortem examination study of road traffic accidents was carried out over one year retrospectively in the Department of Forensic Medicine, Institute of Medical Sciences, Banaras Hindu University, Varanasi for the year 2008. Out of total 1798 medico-legal autopsy conducted during the study period, 554 cases (30.81%) were of road traffic accidents. In the present study it showed male preponderance (87.55%), commonest age group affected was between 21-40 years which involved 267(53.25%) cases. Maximum mortality was either at the spot or on the way to the hospital was in 255(46.03%) cases. Head injuries were outnumbered with 344 (62.10%) cases than involvement of other vital organs. Hindus outnumbered Muslims. We found maximum deaths recorded in the month of April and lowest in the month of September i.e. 10.11% & 5.96% respectively and if we took it as season wise it is reported max in winter (35.20%) followed by summer (33.21%).

Copyright © 2013 Surendra Kumar Pandey. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

Road traffic accidents are one of the major causes of disability and death all over the world (WHO, 1980). They rank third in order among the leading causes of death and are responsible for 10% of all deaths in developed countries. Road traffic injuries accounts for 2.1% of global mortality. The developing countries bear a large share of burden and accounts for about 85% of deaths as a result of road traffic crashes¹. India accounts for about 10% of road accident fatalities worldwide². Road accident contributed 30.2% to all kind of natural and unnatural accidental deaths during 2005³. According to study conducted by National Transportation Planning and Research centre, every 4 minutes a person is killed or injured in India. The road traffic accidents as old as roads. They must have started taking place since the vehicle started playing on roads. Transport system is key point of development. Increased urbanization and industrialization has led to tremendous growth in road transport sector without adequate traffic planning⁴. The first recorded vehicular accident in U.S. occurred in New York city in 1899 (Balwin) and 52 years later in Dec. 1951, the millionth traffic victim died as result of road traffic accidents⁵. In India, the incidence of road traffic accidents (RTAs) is 20 times than that in developed countries, one of the highest accident rates in the world (WHO, 1996)⁶. According to the institute of Road Traffic Education (2006), Institute of road education, New Delhi, out of the estimated 1.4 million serious road accidents /collision occurring annually in India, hardly 0.4 million are recorded⁷. The present study was conducted to ascertain the incidence of fatal vehicular accidents, pattern of injuries and type of medical facilities provided to the victims and month and season wise incidence of vehicular accidents.

MATERIAL AND METHODS

All the deaths due to road traffic accidents occurred in Varanasi area in different hospital and brought to the Department of Forensic Medicine, Institute of Medical sciences, Banaras Hindu University, Varanasi for the year 2008 (January to December) for medico-legal autopsy examination were retrospectively analyzed in respect of age, sex, religion and other epidemiological data. Detailed analysis of these cases was based on the autopsy record register.

Observations

Out of 1798 medico-legal autopsy conducted during the study period from January to December (2008), 554 cases (30.81%) were of road traffic accidents (Table 1). Males comprised of 87.55% of total road accidents victims and female accounted for 12.45% (Table 2). Unclaimed or unidentified cases comprised 25 cases (4.51%) (Table 4). The age group between 21-30 years was the most vulnerable group i.e. 145 cases (27.98%) of the total cases followed by the age group 31-40 years 122 cases (25.27%) and 41-50 years 99 cases (17.87%). Lowest no. of cases were recorded in age group 71 and above i.e. 5 cases (0.9%) followed by age group 60-70 age group i.e. 7 cases (1.81%). Children below 10 years comprised 3.42% of total fatal cases. Accordingly highest no. of fatal cases (53.25%) was recorded in the age group 21-40 years (Table 2). A large proportion of victims i.e. 255 victims (46.03%) died on the spot or the way to hospital followed by 170 deaths (30.69%) in tertiary care hospital. If we take season wise incidence of victims involved in road traffic accidents maximum deaths have occurred during winter season (35.20%) followed by summer with 33.21% and lowest rate is observed in rainy season i.e. 31.58% (Table 3), we have observed highest death incidence due to fatal road traffic accidents in the month of April and January i.e. 56 cases (10.11%) and 55 cases (9.92%) followed by September and December i.e. 33 cases (5.96%), 36 cases (6.50%) respectively. Among the road traffic accident victims religion wise Hindus

*Corresponding author: Surendra Kumar Pandey
Department of Forensic Medicine, Institute of Medical Sciences, Banaras Hindu University, Varanasi, India

predominated over Muslims in ratio of 13.67:1(overall), during study period not a single Muslim female and female from other religion was encountered in comparison to Hindu females which was 67 in number and two other females whose religion could not be ascertained (Table 4). Out of total 554 cases of road traffic accidents head alone was involved in 272 cases (49.10%), whole body were crushed in 72 cases (13%) including head also.

Table 1: Incidence of Road Traffic Accidents in Medico-legal Autopsy Cases

Year	Total Cases	RTA Death Cases	Percentage
2008	1798	554	30.81

Table 2: Distribution of Cases by age and sex

Age in Years	Male	Female	Total	%
0-10	13	06	19	3.42
11-20	53	10	63	11.37
21-30	145	10	155	27.98
31-40	122	18	140	25.27
41-50	86	13	99	17.87
51-60	54	09	63	11.37
61-70	07	03	10	1.81
70 & above	05	Nil	05	0.9
Total	485	69	554	100
%	87.55	12.45	100	

Table 3: Season wise distribution of cases of road traffic accidents

Season	Male	Female	Total	%
Winter	167	28	195	35.20
Summer	162	22	184	33.21
Rainy	156	19	175	31.59
Total	485	69	554	100

Table 4: Religion of road traffic accident victims

Religion	Male	Female	Total	%
Hindu	425	67	492	88.81
Muslim	36	Nil	36	6.5
Others	01	Nil	01	0.18
Not Known	23	2	25	4.51
Total	485	69	554	100
%	87.55	12.45	100	

DISCUSSION

It was observed that there was a preponderance of males over female victims in the ratio of 7.03:1 and maximum number of victims was young adults between 21-40 years age group, as they are active in day to day outdoor life and exposed to greater risk as compared to persons belonging to other age groups. This finding also correlates with the studies carried out by other workers⁸⁻¹¹ and contradicts with the study

conducted by Amit Kochar et al 2002¹² where 31-40 years age group involved most commonly. The present study indicates that head injury was commonest (62.10%) next comes involvement of chest (44%) similar observations were reported in studies from USA and Iran^{8, 9, 10, 13, 14}. April month took maximum no. of deaths (n=56, 10.11%) of total road traffic accidents which contradictory to one study⁹. In the present study Hindu/Muslim ratio was 13.67:1 reason behind this is Varanasi is Hindu populated city. Maximum deaths have occurred on spot or on the way to the hospital 255 (46.03%) cases findings also correlate with the studies carried out by other worker⁹.

REFERENCES

1. M.Peden, L.Sminkey. World Health Organization dedicates World Health Day to road safety. *InjnPrev*2004; 10:67.
2. Institute of Road Traffic education, a nongovernmental organization based in New Delhi. <http://www.newsindia-times.com/2002/09/13/med30.poor.html> as accessed on 21st May 2008.
3. NCRB (2005) National Crime Record Bureau, Ministry of Home affairs, Govt. of India.
4. R.V. Kachre, V.H. Kachre, S.S. Asawa. Pattern of Vehicular accidents in Pravara Regeion: A Rural Regeion of Ahmednagar District of Maharashtra. *Jounal of Forensic Medicine & Toxicology* Vol.20, No.2 July-December 2003 pp.29-32.
5. Fimate L, Pattern of Vehicular accidents in south Delhi, *J.I.A.F.M*, Feb.1980.
6. Bawa P.S. Delhi Traffic Police. A study of fatal road traffic accidents in Delhi in 1979. *Road Safety club of India* (Publication 4476).
7. <http://www.irtc.com/crashlabs.htm> as accessed on 21st May 2008.
8. B.S.Tirpude, R.S.Naik, A.J.Anjankar, B.K.Khajuria. A study of the pattern of cranio-cerebral injuries in road traffic accidents. *JIAFM*, 1998, vol.20. No.1.pp.9-12.
9. Arvind Kumar, Sanjeev Lalwani, Deepak Agrawal, Ravi Rautji, T.D. Dogra. Fatal road traffic accidents and their relationship with head injuries: An epidemiological survey of five years. *Indian journal of Neurotrauma (IJNT)* 2008, Vol.5, No.2. pp.63-67.
10. P.K.Ghosh. Post-mortem study of pattern of injury involving pedestrian victims. *JIAFM*, 1991, 8(3); pp.19-20.
11. R.V. Kachre, V. H. Kachre, S.S. Asawa. Pattern of Vehicular accidents in pravara region: A rural region of Ahmednagar district of Maharashtra. *JFMT*, Vol.20, No.2. July-December 2003.
12. Amit Kochar, G.K. Sharma, Atul Murari, Harmeet S. Rehan. Road traffic accidents and alcohol: A prospective study. *IJMTLM*. Vol.5. No.1. July-December 2002. pp. 22-24.
13. Friedman R, Harris JP, Sitzer M, Schaff HB, Marshall L, Shackford S. Injuries related to all terrain vehicular accidents: a closer look at head trauma. *Laryngoscope* 1988; 98:1251-4.
14. Montajeri A. Road traffic related mortality in Iran: A descriptive study. *Public Health* 2004; 118:110-3.
