Original Article

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Study of Injuries Due to Road Traffic Accidents Autopsies conducted at Kirodimal Govt. Hospital, Raigarh

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Abstract

Aims and Objectives: The present study was carried out as a pilot study to know the involvements of vehicle and epidemiological aspects of road traffic accidents in Raigarh district. *Material and Method:* All the cases of road traffic accident brought to the department of forensic medicine & toxicology, *Kirodimal Govt. Hospital, Raigarh* for medico legal post-mortem examination during the period from 18th March 2015 to 17th October 2015 were the subjects of the study. Information regarding place of incident, age, sex, mode of travel by victims, and types of injuries responsible to cause of death was gathered from detailed history taken from the relatives of deceased and from the Police inquest. *Results:* Total 273 post-mortem had been conducted, out of which 50 cases were road traffic accidents. The maximum victims were male (Male: female ratio 9:1) and were in age group of 21-50 years. Among the presence of injuries head injuries were present in maximum number of victims 27(54%) followed by the chest and abdominal injuries 06(12%) victims. The maximum number of victims those were travelling by two wheeler vehicle (44%) followed by the pedestrians (30%).

Keywords: Road Traffic Injuries; Two Wheeler Victims; Head Injury; Vehicular Accident and Pedestrians.

Introduction

American safety council defined accident in the following way-"Occurrence in a sequence of events which usually produces unintended injury, death or property damage"[1]. A study conducted in Nagpur under assistance of WHO, coined accident as "Unpremeditated event resulting in recognizable damage"[2]. Oxford dictionary defined "An unfortunate incident that happens unexpectedly and unintentionally, typically resulting in damage or injury"[3]. Therefore after considering the above mentioned definitions to prove accident necessary ingredients should be-

1. Happening of an incident.
2. Without any motive or intention.
3. Due to the incident unintended injury or death or damage occurs.

According to Panda etal [4] "Road traffic accident can be defined as accident involving any type of road user may it be a person walking, standing, running, riding, driving, travelling or walking on the road where either of any motorized or non-motorized vehicle is involved"

Ohan D etal (2002) [5] defined R.T.A. (Road Traffic Accident) in the following manner- "Any person killed immediately or dying within 30 days as a result of an injury or accident".

As per WHO report [6] that the Road Traffic Accident are 6th leading cause of death in our country with a greater share in hospitalization, death, disabilities along with socio economic losses in young and middle age populations. According to Madan (2006) [7] Each year road traffic injuries take the lives of 1.2 million men, women and children around the world and seriously injure millions more.

With the advent of economic and industrial revolution life has become very fast and accidents are one of the tragic events causing enormous loss of human lives and disabilities. According to WHO,

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Road Traffic Accident is one of the leading causes of morbidity and mortality which surpasses the other causes of deaths like cardiovascular and cancers. In India, for individuals for more than 4 years of age more life- years are lost due to road traffic accidents than due to cardio vascular diseases or cancers [1]. It causes not only deaths and disabilities but also affects economic status of the family and also loss of GDP.

In India road traffic accidents is one of the five leading cause of death [2]. In every six minutes one succumbed and ten are injured on Indian roads [3]. It is estimated by the year 2015 , number of deaths would be 1,54,600, and number of serious injuries would be 30,92,000 and number of minor injuries would be 1,08,22,000 [4]. Majority of accidents are preventable [5]. By 2020, deaths and disabilities resulting from road traffic accidents in comparison to other diseases will rise from current 9th position to 3rd position and the developing nations will account for 90% of world's traffic fatalities[6]. Overcrowding and lack of awareness, poor implementations of safety precautions and increase in the number of vehicles have resulted in an increasing number of accidents [7]. The people of the age of 3rd decade were most commonly involved in RTAs [8]. In developed countries, they are the most common cause of death below the age of 50 years, and in young people this trend is more marked [9]. In developed countries, the rate of injury and deaths amongst motorcyclists is far higher than among car drivers [10].

Materials & Method

This prospective study was conducted as a pilot study in the Dept. of Forensic Medicine & Toxicology of Late ShriLakhiramAgrawal Memorial Govt. Medical College, Raigarh, during the period from 18th March 2015 to 17th October 2015. The medico-legal autopsy work was entrusted to the Dept. of Forensic Medicine of this college w.e.f 18.03.2015. All the cases ofroad traffic accident (R.T.A) brought to the mortuary of this college for medico legal post-mortem examination were the subjects of the study.A proforma was designed to collect the detailed information regarding place of incident, age, sex, mode of travel by victims, and types of injuries responsible to cause of death. This informationwas gathered from documentavailable with Emergency department, Inquest report, postmortem findings and relatives deceased and the Police.

Result

Basic Information about Raigarh District

Raigarh is a district of Chhattisgarh state well known for coal reserve, power generation, Iron ore and Steel productions. Whose area is 6528 KM [2] (aprox.) and population is 14, 93,984 according to 2011 census with population growth rate 18.05% with average literacy rate 72.3%.

Data Analysis

A total 273 cases received for postmortem examination at our department during the period of study, and out of which 50 (18.32%) cases were due to road traffic accident.

Among the total no. of 50 (fifty) cases examined, the following aspects of information were analysed and presented in the result –

1. Police station wise distribution of case
2. Sex wise distribution
3. Age wise distribution
4. Mode of travel by victims
5. Injuries responsible for cause of death
6. Time gap between accident and death

Since Kirodimal Govt. Hospital is the main centre for treatment in Raigarh district and it was within the jurisdiction of City Kotwali P.S., therefore maximum cases of R.T.A. is admitted in this hospital, Kotra Road P.S. was situated within near vicinity of State High Way, more over Jute Mill, Chakradhar Nagar, BhupdeoPur, Lalunga and Pussor P.S. are under the jurisdiction of Late Shree LakhiramAgrawal Memorial Medical College and Kirodimal Govt. Hospital for medicolegal autopsy.

Table 1: Police station wise distribution

Name of P.S	No. of Victims	Percentage
City Kotwali	33	66%
Kotra Road	09	18%
Jute Mill	06	12%
Chakradhar Nagar	02	04%
BhupdeoPur	01	02%
Lalunga	01	02%
Pussor	01	02%

Table 2: Sex wise distribution

Sl. No	Sex	Number of deceased	Percentage
1	Male	44	88%
2	Female	06	12%

Table 3: Age wise distribution

Age group	No. of deceased	Percentage
0-10	01	2%
11-20	05	10%
21-30	13	26%
31-40	12	24%
41-50	10	20%
51-60	08	16%
61- Above	01	02%

Table 4: Mode of travel by the victims

Mode of Travelling	Number	Percentage
Two wheeler driver	22	44%
Pedestrian	15	30%
Identity unknown	06	12%
Cyclists	02	04%
Pillion rider of two wheelers	02	04%
Four wheelers driver	02	04%
Trailer drivers	01	02%

Table 5: Time gap between accident and death

Time gap between accident and death	Number of death	%
Brought dead	2	04%
0-6 hrs	26	52%
6-12 hrs	7	14%
12-24 hrs	7	14%
More than 24 hrs	8	16%

Table 6: Injury responsible for cause of death

Injury Responsible for Cause of Death	Number	Percentage
Head injury	27	54%
Multiple injury (Head + Chest+ Abdomen + Limbs etc)	05	10%
Chest and Abdominal injury	06	12%
Thorax or Chest	05	10%
Lower limb injury	04	08%
Head and Chest injury	02	04%
Abdominal Injury	01	02%

Age Wise Distribution of the Cases

It wasfound that maximum number of victims were between 21-50 years of age (70%)and minimum number of cases were from the age group of 0-10 years (2%) and above 60 years (2%) (Table-2).

About 70% of victims of RTA were drivers and only 30 % were pedestrians. Among the drivers of different types of vehicles, there were majority of two wheeler drivers (44%) (Table-4).

From above table we tried to conclude the critical period after the RTA so that medical facilities can be provide to the injured person as early as possible and lives can be saved. The maximum number of deaths were within 6 hours so if the medical facilities areprovide within 6 hours the life of majority victims can be saved.

Discussion

The present study was taken as a pilot study to know the pattern of injuries in cases of road traffic accidents in this area. On the basis of findings of this study a detailed study will be planned and carried in future. The findings of this present study showed that most of the cases were referred from City Kotwali police station because tertiary level health facilities are available at Kirodimal Government Hospital which is situated within its jurisdiction and most of the serious cases from Raigarh district referred to this Hospital for treatment.

Most of the victims were male (44 males out of 50 victims) as we found in our study and the same thing was also found in the study of Raoetal (2010) [15]. Because in Indian context malepeople are earning person of the family and they are more movable than female hence they are more prone to accidents.

Considering of the age factor of the deceased maximum number was belongs to (21-30) age group (13 out of 50) followed by the age group of (31-40)and less vulnerable deceased belongs to (61-Above) age group. The same trend was also observed in the study of Raoetal (2010) [15], Gunjan et al (2005) [16], Wong T W et al (1989) [17] and Sathiyasekaran (1991) [18]. As a result there is a barrier for family growth, Regional growth and decreased in G.D.P as because such group is the potential earning group.

Motor cyclists or two wheeler drivers are prone to death as maximum numbers (44%) of deceased were two wheeler drivers. Similar information was also exampled in the study of Raoetal (2010) [15], Wang T.W etal (1989) [17], Sathiyasekaran (1991) [18], Dhingraetal (1991) [19], Ghosh P.K. (1992)[8], Frank T.M. (1993) [20]. Second most common among the people of pedestrian constituting 30% of the deceased.

Most of the motorcyclist had received country coup injury as the surface is fixed and head is moving. As a result maximum death was occurred due to head

injury (27 out of 50 cases)as found in our study same information was found in the study of Rao et al (2010) [15]. Second most common cause of death was Chest and abdominal injury (12%) however it is very far less than head injury. After motor cyclists pedestrian constitutes second highest number of victims (30%) which is contrast to study of Jha et al (2003) [21]. This can be explained by that middle class earning people commonly use of motorcycles as their way of transportation.

No information relating to use of helmet in case of two wheeler drivers mentioned in inquest report so the helmet factor was not possible to analyze regarding head injury in our study.

Conclusion

In our study head injury was found as common cause of death among two wheeler rider and pillion rider, therefore it is advisable that the two wheeler driver and pillion rider should use properly designed helmets the same should be made compulsory among two wheeler riders.

rompt services relating to sending the victim is necessary along with establishment of trauma centre. Public awareness relating to causative factors for Road Traffic Accidents should be developed with involvement of different N.G.O's. Different safety parameters should be checked regularly by competent authority.

Reference

1. Gunjan GB, Tiwari RR. Injury pattern among nonfatal road traffic accident cases. Indian Journal of Medical Sciences. 2005; 59(1): 9-12.
2. Mani,C. The Growing Menace of Accidents. J. Indian Med. Assoc. 1961; 36: 423.
3. Harsh Kabra, Trauma care comes to Mumbai, BBC,Updated: Wednesday, 7 September 2005; 11:1 3 GMT 12:13 UK, internet source- http://news.bbc. co.uk/2/hi/south_asia/4222076.stm accessed on 27-03-2016.
4. Report of the Committee on Road Safety and Traffic Management (2007), The Secretariat for the Committee on Infrastructure, Planning Commission, Government of India, YojanaBhawan, Parliament Street, New Delhi - 110 001, pg- 9, internet source: http://planningcommission.gov.in/sectors/ppp_report/3.Reports%20of%20Committiees%20&%20Task%20force/Power/14.Road_Safety.pdf accessed on 31-03-2016.
5. Sunder S etal(2007)- Committee on Road Safety and Traffic Management, Ministry of Shipping, Road Transport & Highways Department of Road Transport & Highways, formed by Order No.25011/1/2005-RS - 4 - dated 23 November 2005, internet source-http://morth.nic.in/writereaddata /linkimages/SL_Road_Safety_sundar_report 4006852610.pdf accessed on 26-03-2016.
6. Peden M. et al., eds (2004). The World Report on Road Traffic Injury Prevention., World Health Organization, Geneva, .ISBN 92 4 159131 5, internet source-http://www.who.int/violence_injury_prevention/publications/road_traffic/world_report/summary_en_rev.pdf accessed on 27-03-2016
7. Celine TM, Antony J., A Study on Injuries Sustained in R.T.A at a Tertiary Care Level, Int. J. Env.Health Eng. 2014; 3: 23.
8. Ghosh PK. Epidemiological study of the victims of vehicular accidents in Delhi. J of Indian Medical Association. 1992; 40(12): 309-12.
9. Saukko P, Knight B. Knights Forensic Pathology, 3rdEdn., Arnold, London. 2004; Pg-281.
10. Saukko P, Knight B. Knights Forensic Pathology, 3rdEdn., Arnold, London. 2004; Pg-290.
11. http://www.oxforddictionaries.com/definition/english/accident accessed on 26-03-2016.
12. Panda et al,, A study on pattern of fatal injuries in road traffic accidents in costal belts of Orissa. J Indian Acad Forensic Med. 31(4).
13. Mohan D, Ford H. Social cost of road traffic crashes in India. In: Proceedings First Safe Community Conference on Cost of Injury. Viborg, Denmark. 2002; p. 338.
14. Ministry of Health and Family Welfare. Integrated disease surveillance project: Project implementation plan 2004-09. New Delhi: Government of India. 2004; p. 118.
15. Raoetal, A Study of Pattern of Injuries In Road Traffic Collisions, Jr. Of Punjab Academy of Forensic Medicine and Toxicology. 2010; 10: 14-16.
16. Gunjan GB, Tiwari RR. Injury pattern among nonfatal road traffic accident cases. Indian Journal of Medical Sciences. 2005; 59(1): 9-12.
17. Wong TW et al. Non-fatal injuries among motorcyclists treated as in-patients in a general hospital. Ann Acad Med Singapore. 1989; 18(6): 672-4.
18. Sathiyasekaran BWC. Study of the injured and the pattern in road traffic accidents. Indian J Forensic Sci. 1991; 5: 63-8.
19. Dhingra N, Khan MY, Zaheer M, Sinha SNS, Khan A, Dhingra M. Road traffic management- A national strategy 1991. Proceedings of the International Conference on Traffic Safety, 27-30 January 1991, New Delhi, India.
20. Frank TM. The effectiveness of bicyclists helmet: A study of 1710 casualties. J Trauma. 1993; 34: 834-45 & 9-76.
21. Jhaetal, Injury Pattern Among Road traffic Accident Cases: A Study From South India, Indian Journal of Community Medicine. 2003, Apr-June; 28(2): 85-90.