Original Research Article

Study of fatal head injuries due to road traffic accidents in Kadapa

G Mahender[*], L Ananda Kumar[**], Brethis[***], M Balaji Singh[****], Thamizharasan[*****]

{[*]Assistant Professor, [****]Professor and HOD, Department of Forensic Medicine and Toxicology}, {[***]Assistant Professor, [*****]Associate Professor, Department of Pharmacology}, A.C.S Medical College and Hospital, Velappanchavdi, Chennai, 600077, Tamil Nadu, INDIA.
[**]Assistant Professor, Department of Forensic Medicine and Toxicology, Rajiv Gandhi Institute of Medical Sciences, Kadapa, Andhra Pradesh,516001, INDIA.
Email: mhgaddam008@gmail.com

Abstract

The mortality and morbidity associated with road traffic accidents are increasing at an alarming rate throughout the world as a direct result of rapid industrialization and increase of fast moving vehicles combined with lack of traffic sense of road users of this country. The present study includes 100 victims of Road Traffic Accidents who died due to fatal head injuries, which were autopsied at Rajiv Gandhi Institute of Medical Sciences, Kadapa, AP, over a period of 2years. Most of the accidents had taken place in the afternoon hours (12.01 - 18.00 hrs). There was a marked male preponderance (88%), and most vulnerable age group was 21- 30 years (34%). Two-wheeler occupants (57%) were most commonly involved. Head injury was present in 69 % of cases with skull fracture in 74 %. Fracture of the temporal bone was found in majority of cases (45 %), and base of the skull in 36% of cases. In brain injuries subdural haemorrhage was found in 77 % cases. We aimed to study, pattern of injuries especially fatal traumatic brain injuries occurring in vehicular accidents, which provide valuable data for implementing effective emergency services so that we can reduce trauma related mortality and strengthening legal measures in peak hours of fatal accidents.

Key Words: Road traffic accident, Accidents, Fatal, Trauma, Injuries, Mortality, Morbidity

[*]**Address for Correspondence:**
Dr. G. Mahender, Assistant Professor, Department of Forensic Medicine and Toxicology, A.C.S Medical College and Hospital, Velappanchavdi, Chennai, 600077, Tamil Nadu, INDIA.
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INTRODUCTION

Accidents nowadays are among the leading cause of death. Especially in many parts of the world particularly in more highly industrialized nations. Alarming increase in morbidity and mortality owing to road traffic accidents in the past few decades is a matter of great concern globally. Fatal road accidents has become a serious health hazard throughout the world by killing and crippling thousands of persons each year. Outcome of traffic accident becoming as an endemic disease which affects mainly active age group. A middle aged male is more likely to die from injuries received in traffic accident than from any other cause and motor vehicle accidents are the single leading cause of death. Currently motor vehicle accidents rank ninth in order of disease burden and projected to be ranked third in year 2020.Worldwide the number of people killed in road traffic accidents each year is estimated to be almost 1.2 million, while number of injured could be as high as 50 million[1]. Road traffic injuries account for 2.1% of global mortality. The developing countries bear large share of burden and account for about 85% of the deaths as a result of road traffic accidents[2]. India accounts for 10% of road accident fatalities worldwide[3]. Road accident contributed 30.2% to all kind of natural and unnatural accidental deaths during 2005[4]. 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 occurring annually in India, only 0.4 million are recorded[5]. This indicates the surveillance system to

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control vehicular accidents is not well established in India. Gradual increse in number of motor vehicles, growth of population and poor access to health care are some of the important factors in the fatalities due to vehicular accidents.

MATERIAL AND METHODS

The present study includes 100 victims of Road Traffic Accidents who died due to fatal head injuries, which were autopsied at Rajiv Gandhi Institute of Medical Sciences, Kadapa, AP, over a period of 2years which includes from 1st January 2012 to 31st December 2013. Data collected regarding the age, sex, religion, marital status, educational status, region, from panchanama, hospital records and police documents.

RESULTS

Males are most commonly involved (88%) than females (12%) with male to female ratio of 7.33 :1 (TABLE : 1). Incidence of RTA was more in the age group of 21 – 30yrs (34%) followed by 31 – 40yrs (21%) when compared to both extremes of life (TABLE : 2).

Table 1: Sex wise distribution of cases

Sex	Percentage of cases
Male	88%
Female	12%
Total	**100%**

Table 2: Age wise distribution of cases

Age	Percentage of cases
1-10	04%
11-20	14%
21-30	34%
31-40	21%
41-50	18%
51-60	07%
61-70	01%
>70	01%
Total	**100**

Table 3: Time of occurrence

Time	Percentage of Cases
0 Hrs – 6 Hrs	31%
6 Hr - 12 Hrs	16%
12 Hrs - 18 Hrs	41%
18 Hrs -24 Hrs	12%

Table 4: Type of vehicular occupants

	Percentage of cases
Pedestrians	24%
Bicycle riders	02%
Two wheelers	57%
Four wheelers	17%
Total	**100%**

Table 5: Pattern of head injury

	Percentage of cases
Head injury	69%
Skull fracture	74%
Extradural haemorrhage	11%
Subdural haemorrhage	89%
Subarachnoid haemorrhage	72%
Brain laceration	18%
Intra cerebral haemorrhage	21%

Table 6: Associated bone injuries of the skull

	Percentage of cases
Base of the skull	36 (%)
Occipital	33(%)
Parietal	29(%)
frontal	22(%)
Temporal	45 (%)

Table 7: Associated body fractures

Time	Percentage of cases
Long bones of lower limbs	21%
Long bones of upper limbs	13%
Pelvis	16%
Ribs	35%
spine	06%

Table 8: Survival time

Time	Percentage of cases
Spot dead	11%
Brought dead	32%
Upto 24 hours	28%
Upto 48 hours	15%
4 – 7 days	08%
7 – 12 days	06%
Total	**100**

Time of occurrence was more between 12-18Hrs(41%) followed by midnight (00Hrs) to 6Hrs(31%) (TABLE:3). Incidence was more in two wheeler occupants (57%) followed by pedestrians(24%) and four wheelers(17%) (TABLE: 4). We observed all cases of EDH were found in association with SDH while 64% cases of SAH were found in association with SDH. In fracture of the skull temporal bone involved more (45%) followed by fracture base of the skull (36%), occipital 33%, parietal (29%) and frontal bone (22%) (TABLE: 6). Rib fractures (35%) are commonly associated with head injuries followed by fracture of lower limbs (21%), pelvis fracture (16%), spine fracture (6%) (TABLE: 7). Majority of the cases (71%) died within 24 hours. Only 15% could survive up to 48 hours, 8% up to 3- 7 days and 6% could survive more than 7 days (TABLE : 8).

DISCUSSION

"Accident" means an event, independent of human will, caused by an outside force acting rapidly which results in bodily or mental injury. Man invented wheels

accidentally and ever since then he has been doing accidents. This man made hazard is becoming a pandemic in spite of improvement in the safety rules, quality of the vehicles, conditions of the road etc. The catastrophic outcome of this hazard has not spared people of any age group or any geographical region whether rural or urban. In our study more victims of RTA were two wheelers and pedestrian in comparison to four wheelers and bicycles accidents, which shows that the four wheelers are comparatively in safer zone than two wheelers. most of the victims who died because of fatal head injury were not user of helmets, The incidence of RTAs was higher in males and in 3rd to 4th decade of life, which is similar to most of the studies by various authors Goyal M *et al*[6], Gosh PK *et al*[7,] Singh H *et al*[11] Singh YN *et al*[12]. Males are the only bread winner of the family, so males are more mobile, go out for work and take risks, while children, females and elderly people usually stay at home. We found that 63% of the victims of RTAs died either on the spot or within 24 hours of the incidence, and the rest could survive for a couple of days to a maximum of two weeks after getting some medical or surgical interventions, similar to other studies Singh H *et al*[8] Biswas G *et al*[9] Kiran E *et al*[10]. Most commonly found intracranial haemorrhage was subdural haemorrhage (89.11 %) which is consistent with the findings by other researchers Menon A *et al*[13]. Majority of the cases died within 24 hours. This is in concurrence with finding by Akang EE *et al*[14] Freytag E *et al*[15]. Time of occurrence was more between 12- 18Hrs (41%) followed by midnight (00Hrs) to 6 Hrs, this finding is consistant with study by Nilambar Jha *et al*[16]. In the present study, head injury was present in 69% cases. This is compatable to studies done by Dr. Anand Menon *et al*[17] Chandra *et al*[18] (72 %), Akang *et al* (83.8 %)[19].

CONCLUSION

Definitely there is an urgent need for road safety education and it should be directed towards road users, who are frequently injured in RTA. An integrated programme of road safety education is needed. Elementary concepts of road safety through stories involving the animal world introduced to Pre-school children. Practice guidance on the use of side walks and road crossing techniques to Primary school children. For middle school students - road signs and bicycle riding, for High school students about reaction time, defensive driving and hazards of alcohol. Breath testing for alcohol done by using breath analyzers. Licensing authorities should adopt strict rules, regulations and traffic control devices. At the time of giving license training should be given in first-aid skills. Separate lanes for heavy and light motor vehicles, Pedsestrian friendly paths, and strict implementation of traffic rules and regulations will definitely decrease the incidence of road traffic accidents and its fatalities.

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