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Epidemiological study of blunt abdominal trauma in road traffic accident in Varanasi region

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Abstract

Road traffic injuries are one of the major causes of morbidity and mortality in developing countries including India and are a major health and social problem causing largest number of injuries and fatalities worldwide. The present study was conducted on the cases selected from the dead bodies brought into the mortuary of the Department of Forensic Medicine, for medico-legal post-mortem examination from the various police station of Varanasi region. The epidemiological aspect of the study included victim's age, gender and educational, residential, occupational, socio-economic status etc. The highest number of deaths was noted in 21-30 years age group males, indicating their more vulnerability than females. The drivers should be properly trained by authorized centers, medically fit and mentally alert, issuing licenses after strict testing of driving skills, medical fitness and periodic review of driving skills should be done to minimize the road traffic accidents and hence mortality.

Keywords: road traffic accidents, post-mortem, mortality, epidemiology

Introduction

Since prehistoric times thoraco-abdominal cavity has been looked upon as one of the most vulnerable region of the body and injuries involving it have always been considered very serious. Due to its anatomical position and dimension the thoraco-abdominal region, it is a major site of impact in any form of blunt trauma. Road traffic injuries are one of the major causes of morbidity and mortality in developing countries including India and are a major health and social problem. Trauma affects generally the young people, and accounts for loss of more years of life. Thoraco-abdominal injuries provide a major contribution to death due to anatomical position and dimension. About 1.2 million people are killed and 50 million injured due to road traffic accidents per year according to WHO. In Varanasi region an average of one death reported every day. The roads of this region continue to witness regular fatal accidents. According to records of the Varanasi range police, 363 lives were lost in 340 roads accidents in 2012.

This study deals with the socio-demographic profiling of road traffic accident victim age, gender, marital status, educational status. Medico-legal as part of these cases are mode of death and type of road used.

Material and Methods

The present study was conducted on the cases selected from the dead bodies brought into the mortuary of the Department of Forensic Medicine, Institute of Medical Sciences, Banaras Hindu University, Varanasi, for medico-legal post-mortem examination from the various police station of Varanasi region. All autopsies representing the evidence of internal or external abdominal injuries caused by blunt trauma were included and the decomposed bodies and cases with pathological disorders were excluded from the study. The data of the materials were sourced from 150 road traffic accident cases. The victims information and history of circumstances of road Traffic injury sustained were gathered from the interviews of relatives and of persons accompanying them if they had the first hand information of the sequence of events leading to such fatalities. Information that was aided from papers accompanying the medico-legal Autopsy.

- Inquest report
- Copy of the first information report.
- Victim's treatment profile, hospital record, if available.
- Death certificate etc.

These served the bases for the epidemiological aspect of the study such as victim's age, gender and educational, residential, occupational, socio-economic status.

Date, time, place of incidence, type of road, weather victim was pedestrian or any vehicle rider, type of offending vehicle, etc. were recorded. Before carrying out the dissection of the body, external examination of the whole body was carried out with great care, the different regions of the body were inspected one by one and the details of injuries present, if any were recorded. The site, nature and size of the injuries on the abdomen were noted; surgical interventions if any were noted, the exact measurements of the wounds were noted by using a measuring tape. Then further detailed internal examination of abdominal regions, thoracic, head, neck and extremities was done.

Observation and results: During the period of study (1 January 2016 to 30 June 2017) a total of 150 cases of Blunt Abdominal Trauma in road traffic Accidents in Varanasi region have been included in this study. It includes socio-demographic profile of the victim's age, gender, residential status, and occupation. Medico-legal Aspects of these cases (e.g. mode, nature of death, type of road used, type of vehicle used, type of the offending vehicle etc.) have been looked into. In addition, the details of injuries to different body regions like head, and Neck, Chest, Extremities have been incorporated and analyzed with respect to nature of injury sustained and fatalities that ensued. Data thus compiled were studied and analyzed statistically using statistical package for social sciences.

Table 1: Age wise distribution of victims

Age	Frequency	Percent
0-10	1	0.7
11-20	21	14.0
21-30	37	24.7
31-40	35	23.3
41-50	29	19.3
51-60	21	14.0
61-70	6	4.0
Total	150	100.0

Table No. 1 shows age wise distribution of victims of blunt abdominal trauma cases in road traffic accidents. The highest number of deaths were in the 21-30 years age group 37 (24.7%) out of 150 cases; Followed by 31-40 years age groups 35 (23.3%) and in 11-20 years age group 21 (14%). The incidence of blunt abdominal trauma in the victims below 10 years of age group was 1 (0.7%) and in older people above 60 years was 6 (4%).

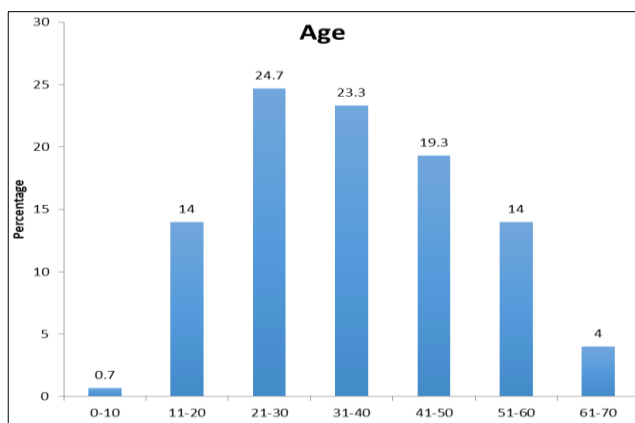


Table 2: Gender wise distribution of victims

Gender	Frequency	Percent
Male	129	86.0
Female	21	14.0
Trans Gender	0	0.0
Total	150	100.0

Table no. 2 show gender wise distribution of victims of blunt abdominal trauma in road traffic accidents in total 150 cases, 129 (86%) of victims were male and 21 (14%) were female and 0 (0%) were transgender.

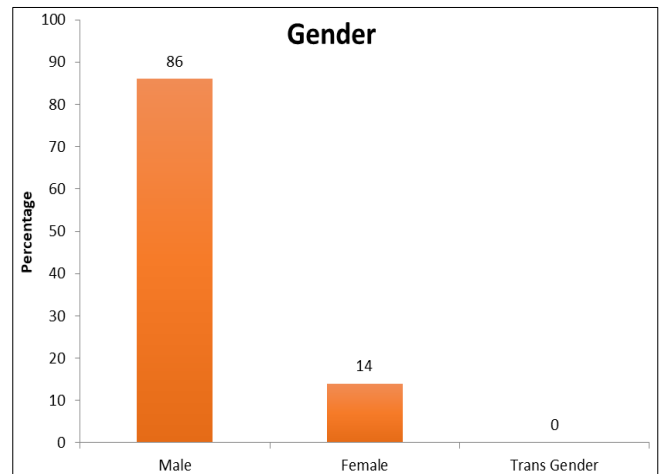


Table 3: Educational Status of victims

Education	Frequency	Percent
Illiterate	51	34.0
Primary	23	15.3
High School	33	22.0
Intermediate	23	15.3
Graduate	15	10.0
PG/Other	5	3.3
Total	150	100.0

Table 3 shows educational status wise occurrence of cases in blunt abdominal trauma in road traffic accidents. Maximum number of cases was found in illiterate 51 (34%) followed by High School 33 (22%) then in primary and intermediate 23 (15.3%) and in graduate 15 (10%) least cases were found in post graduate level and others 5 (3.3%)

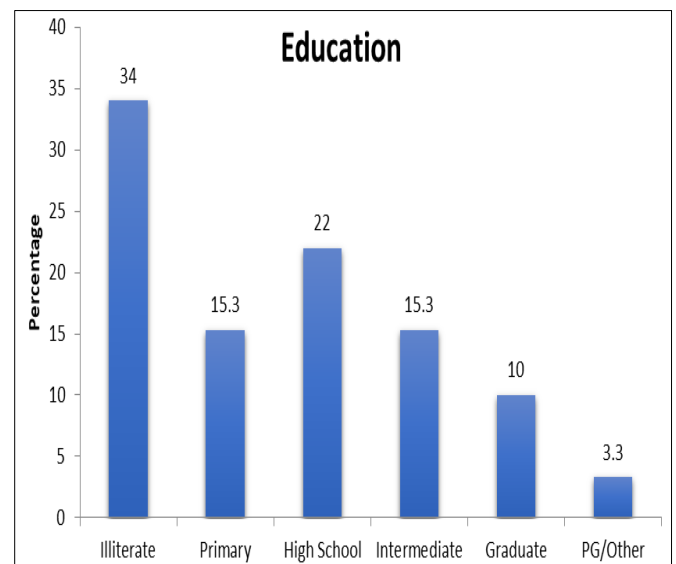


Table 4: Marital status of victim:

Marital status	Frequency	Percent
Unmarried	49	32.7
Married	101	67.3
Total	150	100.0

Table 4 shows that marital status of victims of blunt abdominal trauma in road traffic Accidents cases. Maximum number of victims were married 101 (67.3%) and unmarried were 49 (32.7%).

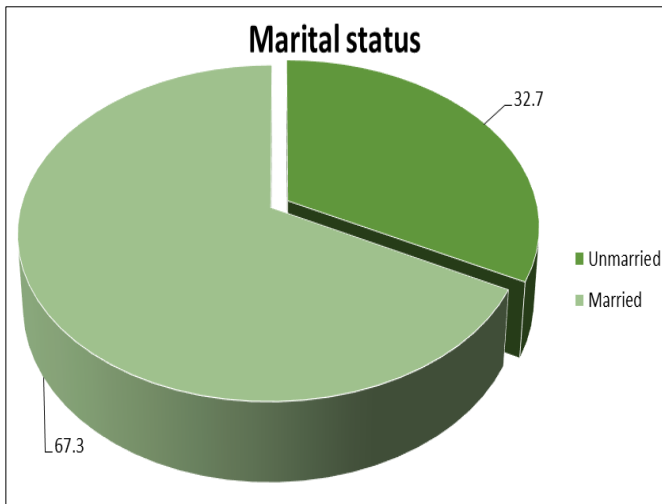


Table 5: Different types of road users:

Type of vehicle used	Frequency	Percent
Pedestrian	17	11.3
Two wheeler	105	70.0
Three wheeler	18	12.0
Four wheeler	10	6.7
Total	150	100.0

Table 5 shows different types of road users involved in abdominal trauma in Road traffic accidents. Maximum accidents were held by two wheelers 105 (70%) and followed next by three wheelers 18 (12%) and then pedestrian were 17 (11.3%), four wheelers were 10 (6.7%), cases.

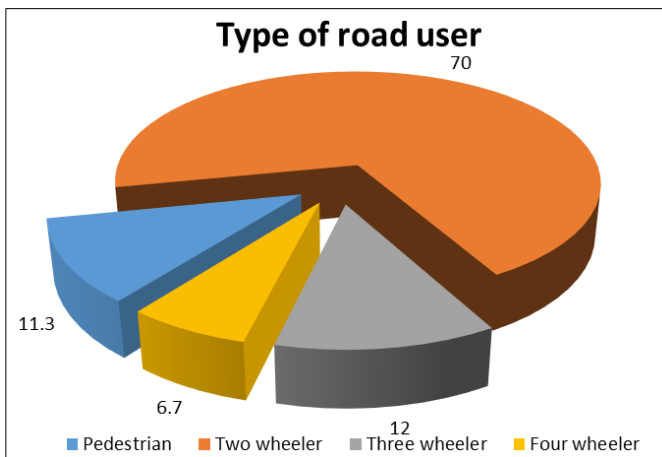
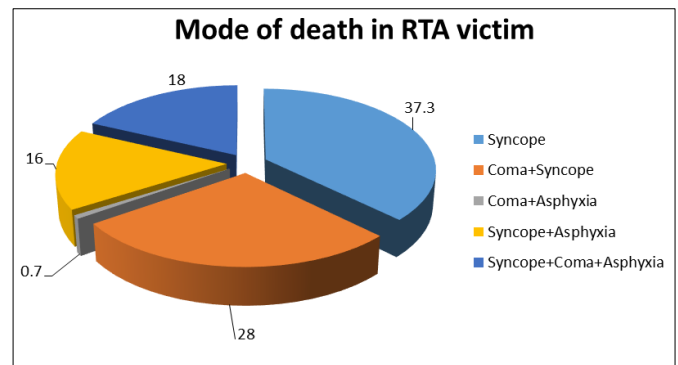


Table 6: Mode of death

Mode of death	Frequency	Percent
Syncope	56	37.3
Coma +Syncope	42	28.0
Coma +Asphyxia	1	.7
Syncope +Asphyxia	24	16.0
Syncope +Coma+ Asphyxia	27	18.0
Total	150	100.0

Table 6 shows that mode of death in blunt abdominal trauma victims in road traffic accident. In 150 blunt abdominal trauma cases, syncope emerged as most prominent mode of death found in 56(37.3%) cases, followed by coma + syncope 42 (28%), then syncope + coma + asphyxia 27 (18%) and syncope + Asphyxia 24 (16%), least number of cases mode of death was coma + Asphyxia 1 (0.7%)



Discussion

A study of pattern of Injuries in Death due to Blunt Abdominal Trauma has been under taken in this study. In detail analysis of 150 Blunt Abdominal Trauma in road traffic accidents in Varanasi district, multitude factors are associated with these Blunt Abdominal trauma road traffic catastrophes that culminated in tragic deaths of victims is discussed underneath.

Age of victims

In my study, the highest number of deaths were in the 21-30 years age group 37 (24.7%) followed by 31-40 years age group 35 (23.3%) and in 11-20 year age group 21 (14%). The incidence were lowest in the victims of below 10 years of age group 1(0.7%) and older people above 60 years 6 (4%)

A Higher incidence of fatalities in adult age group (21-40 years) may be explained by the fact that People from these age groups are more often required to move out doors in pursuit of their work and studies. This age group is the most active phase of life, crazy for speed, during which there is tendency to take a risk. The lower proportion of victims above 60 years and in children could be due to general less mobility of this group.

Similar observations were made by Ramakant V. *et al.*, (2014), Ravi Kiran E *et al.*, (2002), Aggarwal K.K *et al.*, (2009), Dr. Harnam Singh *et al.*, (2004), Numan. H *et al.*, (2009), Ananda. R. *et al.*, (2016), Zadeh H.S. *et al.*, (2002) ^{4, 5, 6, 11} and other reported the most vulnerable age group to be between 21-30 years.

Gender wise Distribution

In present study 129 (86%) of the victims were male and 21 (14%) were female and 0 (0%) were transgender. The male to female ratio in this study is 4.09:1.

The preponderance of male over female in road traffic accident death may be explained by the fact that male leads a more active life and keep themselves out doors most of the time to earn bread and butter for their families.

The findings of our study are in consistent with Ananda *et al.*, (2016) were road traffic fatalities were significantly higher in male (81%) than females (19%) with a gender ratio of 4.3:1, Ganveer GB *et al.*, (2005) out of total 423 subjects, 363 (85.8%) were male while only 60 (14.2%) were female subjects. Ravi Kiran E *et al.*, (2002) ^[5] there were 138 (85.7%) male and 23 (14.3%) female victims.

Educational Status

The present study shows the educational status wise occurrence of cases. In our study, Maximum number of cases was found illiterate 51 (34%) followed by High School 33 (22%) then in primary and Intermediate 23 (15.3%) and in graduate 15 (10%), post graduate were involved in only 5 (3.3%) cases.

It gives the indication that lack of road traffic senses and road traffic rules resulting either from illiteracy or poor- literacy may have been a significant contributory factor to the Causation of fatal road traffic accidents among these groups.

Ananda R. *et al.*, (2016), in their Study the majority of victims belongs to illiterates and low education (70%) Kuchevar s v *et al.*, (2012), almost half (51.39%) of victims were other illiterates or had just primary level of education.

Tripathi SK, Kumar M (2003) ^[2] most of the victims were illiterate (31.37%)

Marital Status

Our study shows that marital status of victims. Maximum number of victims were married 101 (67.3%) and unmarried were 49 (32.7%).

Tripathi SK, Ahamad MZ (2001) shows the married victims were 50.84% and unmarried deceased were 31.70%

Tripathi S.K, Kumar M (2003) ^[2] victims were mostly married and had average nourishment.

Types of Road used by victims

In present study shows Maximum number of cases were occurred on Highway 65 (43.3%) followed on lane road 47 (31.4%). Lesser number of cases occurred on city road 38 (25.3%)

This can be explained on the basis that highways are most busy roads with heavy traffic loads especially by heavy vehicles, whereas in city road volume of traffic is fairly high and very few heavy vehicles can pass through due to high traffic load the speed of vehicles were restricted.

Our study consistent with study done by Tripathi S.K, Kumar M (2003), Suresh *et al.*, (2015) and Kaul A *et al.*, (2005) and Harnam Singh *et al.* (2004) ^[2].

Mode of death

In present study Syncope was prominent mode of death found in 56 (37.3%) cases followed by coma along with syncope 42 (28%), least number of mode of death was coma along with Asphyxia.

Tripathi S. K., Kumar M. (2003) ^[2] show that the syncopal death (Shock and Hemorrhage) alone emerged as commonest

mode of death (31.37%) and then come (24.5%)

Conclusion

The Highest number of deaths was noted in 21-30 years age group males are more vulnerable than females. Maximum victims were married 67.3%. Syncope emerged as prominent mode of death found in 37.3% cases followed by coma along with syncope in 28% cases. Most of the accidents occurred on the highway 43.3%, least number of cases occurred on city road 25.3% Maximum number of Agriculture class 26% affected followed in student 18% labour class 13.3%. The majority of victims belongs to illiterate. The 21-30 years segment of population should be properly trained by authorised centres, medically fit and mentally alert, issuing licenses after strict testing of driving skills, medical fitness and periodic review of driving skills.

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