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Fatality By Thoraco-Abdominal Injuries In Cases Of Accidental Deaths In Two-Wheeler Riders: A 200 Cases Study

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Abstract

Background: To assess the fatality by thoraco-abdominal injuries in cases of accidental deaths in two-wheeler riders.
Materials & methods: A total of 200 post-mortems autopsies of road traffic accident subjected to medico-legal autopsy were analysed. Road traffic accident was defined as an accident, which took place on the road between two or more objects, one of which must be any kind of a moving vehicle. The data were compiled with a focus on the analysis of injuries in the thoraco-abdominal region with special reference to the nature of the wound and organs most commonly affected in road traffic accidents and epidemiological factors in relation to victims, vehicles, and sites of impacts, etc.
Results: Out of 200 subjects, 179 subjects were males while the remaining were females. Mean age of the subjects was 31.5 years. Liver was lacerated in 41 percent of the patients while spleen laceration occurred in 16 percent of the patients. Kidney laceration was seen in 12 percent of the patients while stomach puncture was seen in 18 percent of the patients. Vertebra injury was seen in 9 percent of the patients.
Conclusion: Major proportion of road traffic accidents affect young and productive males. Since road users are not uniform population, these are exposed to different kinds of hazards depending upon conditions prevailing in that region.

Key words: Abdominal, Injuries, Accidental deaths

INTRODUCTION

Two-wheeled vehicles are increasing in number across the world especially in developing countries because compared to other vehicles, motorcycles are relatively cheap to own and operate. The mobility, speed and ease of circumventing road traffic hold ups and its ability to navigate through difficult terrains have made the motorcycle a popular means of transportation in major cities and remote areas.[1, 2]

India accounts for about 10% of road accident fatalities worldwide. In 2017, deaths due to road traffic collision in India were 147,913, that is, 405 deaths each day. India has one of the poorest and worst records of road safety in the world. Trauma victims, who deserve immediate attention, do not get the priority because of a lack of funds, lack of administrative focus on

the problem, lack of infrastructure, initiative, and vision. Information on the injury pattern, nature, and outcome are extremely limited in India, as trauma registries and hospital-based research have not developed systematically.[3-5] In general, road accident injuries are a public health issue with increasing risks. The use of two-wheeled vehicles, especially motorcycles, is highly welcomed due to its availability, cheapness, and ease of transportation, and accounts for a large part of the needs of the community in the field of transportation. Also, different age groups tend to use this device, which can create different forms of driving styles, and thus, diversify the patterns of injury.[6-8] Hence; the present study was conducted for evaluating the fatality by thoraco-abdominal injuries in cases of accidental deaths in two-wheeler riders.

MATERIALS & METHODS

The present study was conducted for evaluating the fatality by thoraco-abdominal injuries in cases of accidental deaths in two-wheeler riders. A total of 200 post-mortems autopsies of road traffic accident subjected to medico-legal autopsy were analysed. Road traffic accident was defined as an accident, which took place on the road between two or more objects, one of which must be any kind of a moving vehicle. The data were compiled with a focus on the analysis of injuries in the thoraco-abdominal region with special reference to the nature of the wound and organs most commonly affected in road traffic accidents and epidemiological factors in relation to victims, vehicles, and sites of impacts, etc. All the results were recorded in Microsoft excel sheet and were subjected to statistical analysis.

RESULTS

Out of 200 subjects, 179 subjects were males while the remaining were females. Mean age of the subjects was 31.5 years. Majority proportion of the accidents toot=k place during morning 6 am to 12 pm and in between 6 pm to 12 am. 57.5 percent of the patients suffered accidents in the city roads. Liver was lacerated in 41 percent of the patients while spleen laceration occurred in 16 percent of the patients. Kidney laceration was seen in 12 percent of the patients while stomach puncture was seen in 18 percent of the patients. Vertebra injury was seen in 9 percent of the patients.

Table 1: Demographic data

Variable	Number
Age-group (years)	31.5
Males (n)	179
Females (n)	21

Table 2: Distribution of patients according to time of day

Time of day	Number	Percentage
12 am to 6 am	25	12.5
6 am to 12 pm	86	43
12 pm to 6 pm	21	10.5
6 pm to 12 am	68	34
Total	200	100

Table 3: Distribution of patients according to place of accident

Place of accident	Number	Percentage
National highway	23	11.5
State highway	62	31
City roads	115	57.5

Total	200	100

Table 4: Distribution of patients according to injuries

Injured organ	Number	Percentage
Liver laceration	82	41
Spleen laceration	32	16
Kidney laceration	24	12
Stomach puncture	36	18
Vertebra injury	18	9
Spinal cord injury	8	4

DISCUSSION

Road traffic accident ranks among the leading causes of death in the world; it is projected to become the second leading cause in 2020 after Ischaemic Heart disease. The World Health Organisation (WHO) in its Global status report on road safety 2013, states that 1.24 million people die annually on the world's roads.[7- 9] Deaths and injuries due to road traffic accidents (RTAs) are preventable. A wide range of effective road safety interventions exist and a scientific systematic approach to road safety is essential to tackle the problem. Despite the burden of injury associated with motorcycle crashes, few comprehensive studies have been conducted to examine the types of injuries sustained by hospitalized motorcyclists; instead, the majority of studies have focused primarily on fatalities, comparing riders with and without helmets, and trends in head injury following repeal or passage of motorcycle helmet laws. Various factors are suggested for the occurrence of RTAs that includes human errors in the form of traffic rule violations such as over-speeding, driving under the influence of alcohol and drugs, distracted driving, and other factors such as unsafe road infrastructure, the menace of stray animals, old vehicles without safety features, and deficient implementation of regulations. Nonuse of safety features such as motorcycle helmets, seatbelts, and child restraints adds to the morbidity and mortality from many RTAs.[10- 12] Hence; the present study was conducted for evaluating the fatality by thoraco-abdominal injuries in cases of accidental deaths in two-wheeler riders.

Out of 200 subjects, 179 subjects were males while the remaining were females. Mean age of the subjects was 31.5 years. Majority proportion of the accidents toot=k place during morning 6 am to 12 pm and in between 6 pm to 12 am. 57.5 percent of the patients suffered accidents in the city roads. Liver was lacerated in 41 percent of the patients while spleen laceration occurred in 16 percent of the patients. In a study conducted by Reddy NB et al, authors analyzed the epidemiology and pattern of fatal thoraco-abdominal injuries in road traffic accidents. Commonest offending agents in heavy motor vehicles were 54 (54.0%). In road traffic accidents, the most commonly injured abdominal organs were solid organs such as liver 16 (32.6%) followed by spleen 9 (18.3%). Majority of the times in road traffic accidents, young and productive males were injured or lost their life.[11]Similar findings were observed in the study conducted by Singh R et al. In their study, authors did a retrospective audit of the circumstances, severity, and pattern of injury sustained by vehicle occupants. The bones on right side 55 (55.55%) were more commonly fractured which is statistically significant. Skull injuries were mostly found on frontal 77 (47.53%), followed by parietal bone 33 (20.37%), mostly on right side.[12]

Kidney laceration was seen in 12 percent of the patients while stomach puncture was seen in 18 percent of the patients. Vertebra injury was seen in 9 percent of the patients. In another study conducted by Wang T et al, authors retrospectively reviewed death in road traffic injury deaths. They analysed population

characteristics, time distribution, distribution of transportation modes, intervals to death, locations and injured body parts. There were 3327 deaths from RTI recorded. The most commonly injured body parts were the head, followed by the chest, abdomen, lower extremities, pelvis, spinal cord, and upper extremities. Burns accounted for 0.96%, and unknown body parts were affected in 11.28%. The average time interval from injury to death was 36.90±89.57h; 46.7% died within 10minutes after injury; 9.02% died between 10min and 1 hour; 30.33% died between 1 hour and 3 days; 13.95% died between 3 and 30 days.[13] Tan Chor Lip H et al reported the clinical characteristics and identify predictors of death in motorcycle traumatic injuries. They included 1653 patients that were treated for traumatic injuries due to motorcycle accidents. The mortality rate was 8.6% (142) with equal amount of motorcycle riders (788) and pillion riders (865) that were injured. They concluded that age, lower Glasgow coma scale, presence of head, chest, liver, small bowel injuries and higher severity on New Injury Severity Score and Revised Trauma Score scores are predictive of death in patients involved with motorcycle accidents.[14]

CONCLUSION

Major proportion of road traffic accidents affect young and productive males. Since road users are not uniform population, these are exposed to different kinds of hazards depending upon conditions prevailing in that region.

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