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Pattern of Injuries in Two Wheeler Accidental Deaths in our Experience

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Abstract

Background: Deaths from injuries from motorcycle accidents have over the years remained a significant public health concern in India. *Aims*: Our aim is to determine the distribution of the victims' age and gender and to classify the cause of death and the anatomical pattern of injuries observed. *Materials and methods*: It is a 2-year autopsy based analysis of all fatalities from motorcycle accidents seen from our Teaching Hospital experience. The data were extracted from autopsy records, from police journal excerpts from hospital case notes and analyzed using SPSS version 20. *Results*: For Male there were 30 (85.7 percent) males and 5 (14.3 percent) females: 6:1 female ratio. The highest age group was 31-40 years . Majority of the victims 18 (51%) were Motorcycle riders, followed by passengers on back seat who accounted for 10 (29%), while the remaining 7 (20%) of the victims were pedestrians. Commonest injury in the cases are head injuries constituting 77% followed by thorax 57% and abdominal injuries 42.8%.Causes of death in study are mostly due to crainiocerebralinjuires 51.4% followed by multiple injuires in 40% and sever hemmorage 5.7% and septicaemia 2.8%.*Conclusion*: This study found that males are the main victims of death from motorcycle accidents during the fourth decade of life. Most of the victims were a motorcycle driver. Many died from craniocerebral damage.

Keywords: Injuries; Two Wheeler; Accidental Deaths.

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Introduction

Globally, traffic deaths were the first cause of death for people 15-29 years of age For every person who died in a motorway At least 20 people suffered non-fatal injury in the accident. Such accidents could affect life considerably. Performance, yet also with substantial economic costs. Two- wheeled vehicles are rising in number around the world , especially in developed countries, as motorcycles are fairly cheap to own and run in comparison with other vehicles. The strength, pace and ease of circumventing road traffic holds ups, and its ability to navigate through challenging terrain has made the motorcycle a common means of transportation in major cities and remote areas of India.[1,2] The poor condition of The country's roads and the inefficiency of the public transport network, as well as the worsening of traffic congestion and increased unemployment are major reasons for the booming motorcycle industry.[3]

Head and neck accidents are the leading cause of death from motorcycle collisions, with many deaths taking place despite good use of the available and advanced rehabilitation interventions. Around the same time, there is ample evidence that motorcycle safety helmets are effective in minimizing head injury incidence and severity due to motorcycle accidents. According to the statistics, death is the result of just 1% of motorcyclists injured too seriously to seek medical attention while non-use of motorcycle helmets leads to a change in the continuum of accidents, not just to more deaths but also to more serious non-fatal accidents.

The aim of this paper is to examine the epidemiology of motorcycle accidents and the forensic examination of injury rates in fatal

motorcycle accidents.

Materials and Methods

This study is a 2-year longitudinal, systematic post-mortem analysis of casualties of all 35 fatal motorcycle incidents reported from December 2017 to November 2019 at the Teaching Hospital. Accident fatalities are reportable and victims' remains are stored in the morgue, the key center allocated.

Vehicles involved in the collision are carefully checked to collect evidence on deformation of the structure and protection devices as helmet . In fact, retrospective examination of the location of the accident is carried out on each event to classify . Related precrash activities such as manoeuvres, driving behavior and potential obstructions to the line of sight. A spot to stay. Accident illustration designed to proportion showing the actual location of the vehicle concerned, skid lines, Likewise debris, impact location, and trajectory are registered.

Crash speeds are computed from the vehicle Deformation, skid marks and witness accounts, and then validated using specific software (e.g. Virtual Crash). Crash site data are collected and matched with clinical injuries. All injuries are assessed release from the Emergency Department of a tertiary trauma center. The team shall provide information on injury typologies and severity coded with theAbbreviated Injury Scale (AIS)[4] by total body CT scans, Xray and MRI. A biomechanical correlation among injuries and causes is conducted for each case by a panel of physicians and engineers. The pattern of injuries was categorized according to the different anatomical regions, namely: head , thorax, abdomen, upper limbs, lower limbs, pelvic and spine.

The collected data was analyzed using version 20 of the Statistical Package for Social Sciences (SPSS), and the findings were presented in percentages, graphs , pie charts and bar chart.

Discussion

Nations like India that are experiencing quick financial and social change are encountering an epidemiological mosaic. In addition to the burden of communicable diseases such as malaria, tuberculosis, and HIV / AIDS, increasingly emerging countries have to deal with increasing rates of non-communicable diseases like road traffic accidents.

Table 1: Distribution of cases according to age and gender.

Parameter	Number of cases	
Gender		
Males	30	85.7
Females	5	14.3
Age in years		
1-10	1	2.8
11-20	2	5.7
21-30	11	31.4
31-40	12	34.3
41-50	6	17.1
Above 51	3	8.6
Total	35	100

For Male there were 30 (85.7 percent) males and 5 (14.3 percent) females: 6:1 female ratio.
The highest age group was 31-40 years with 12 cases (34.3 per cent) followed by 21-30 years with 11 cases (31.4 per cent) followed. Among the extremes of life only 3 cases and 3 cases have been seen.

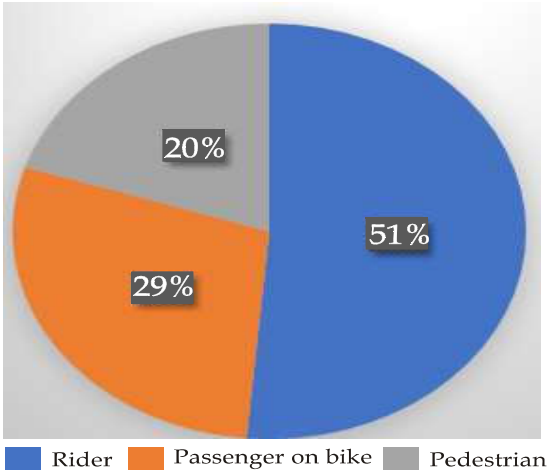

Fig. 1: Pie chart showing status of motorcycle accidents in victims.
Majority of the victims 18 (51%) were Motorcycle riders, followed by passengers on back seat who accounted for 10 (29%), while the remaining 7 (20%) of the victims were pedestrians.

Table 2: Crash configuration of two wheeler in accident.

Crash configuration	Number of cases	Percentage
Head on side	16	45.7
Head on	7	20
Sideswipe collision	5	14.3
Head on rear	4	11.4
Side on head	2	5.7
Rear end	1	2.8
Visibility condition		
Daylight	20	57.2
Night light	15	42.8
Road ways		0
Side Road intersection	16	45.7
Crossroad (four way)	19	54.3

Out of 35 cases more frequently observed crash configurations were: head-on-side (45.7%), headon (20.0%) and sideswipe collisions (14.3%). The majority of crashes occurred in daylight (57.2%) and night light (42,8%), The most frequent road intersection (19/35) was the crossroad (four-way) (54.3%).

Table 3: Region of injuries in the cases.

Injury region	Number of cases	Percentages
Head	27	77
Thorax	20	57
Abdomen	15	42.8
Upper limb	3	8.6
Lower limb	13	37
Pelvis	6	17
spine	1	2.8

Commonest injury in the cases are head injuries constituting 77% followed by thorax 57% and abdominal injuries 42.8%.

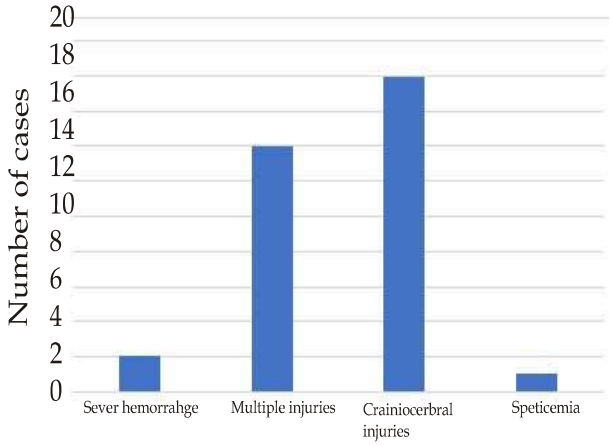

Fig. 2: Bar diagram showing cause of death.
Causes of death in study are mostly due to craniocerebralinjuries 51.4% followed by multiple injuries in 40% and sever haemorrhage 5.7% and septicaemia 2.8%.

Out among all non-communicable diseases, road travel accidents receive the least attention from health officials and clinical experts, as demonstrated by the paucity among accident registries and hospital-based studies on incidents, which are necessary to set up an injury monitoring system. This may be attributed to the assumption that determinants of road traffic collisions are non-medical, alongside the idea that collisions are, 'accidental' and not 'preventable'. The most famous analogy to injurious incidents, 'accidents,' evokes a sense of luck, tragedy, and helplessness. Hence, the term 'accident' should be omitted when addressing injury prevention, and rather, the emphasis should be on exposures

The results in the present research about the age and sex distribution of RTI cases as male there were 30 (85.7 percent) males and 5 (14.3 percent)females: 6:1 female ratio. The highest age group was 3140 years with 12 cases (34.3 per cent) are close to those of other researchers. Results on road traffic accidents in India has brought out that a majority of the casualties are young adults, with a maleto female ratio of 4: 1 to 5: 1.[4] Similarly, the same study has brought out that pedestrians and two wheeler / pillion riders are the most prone category in road traffic accidents.Jirojwang et al.[5] and Singh et al.[6] both stated that the major victim categories in nonfatal road traffic accidents were young adult males, and twowheeler riders and pedestrians were more at risk. An record 82,700 people died and 4,04,800 were injured in road traffic accidents in India in the year 2002, of which, 60 percent were pedestrians and motorized two-wheeler riders (Government of India, 2002). It has been recorded that one person dies in less than every five minutes in India, due to vehicular accidents and the accident rate i.e., number of accidental deaths per 100,000 population is 24.3 .[7,8]

In present study more frequently observed crash configurations were: head-on-side (45.7%) and majority of crashes occurred in daylight (57.2%) at crossroad (four-way) (54.3%).

Commonest injury in the cases are head injuries constituting 77% followed by thorax 57% and abdominal injuries 42.8%.This finding is like that of Heydari et al.[9] in an investigation in the Fars region in Iran saw that the head was the most every now and again harmed site (87.8%). Nwadiaro et al.[2] who detailed that head injury established 40.1% of the wounds in a clinical-based investigation . Studies in Ghana by Kudebong et al. in Uganda by Kigera and Naddumba likewise demonstrated that head injury was the commonest kind of injury, representing 32.2% and 20.0% individually.[10] The littler figure announced in Ghana and Uganda when contrasted with this investigation might be because of a more elevated level of head protector use in those nations.They opined that protective cap use among bike tenants was low here and that may promptly clarify this elevated level of head injury found in that review.

While there have been recent improvements in access to advanced emergency treatment services and in the rehabilitation of head injuries, much of the morbidity and mortality of head injuries continues through effective use of these medical advancements.[11] Injury prevention efforts are, thus, vital to decrease the impact of head injuries. Helmets have been found to minimize the risk of the likelihood of head injury, the seriousness of head injuries when they occur, and the risk of death in both bicycle and motorcycle accidents .In out of 35 cases Causes of death in study are mostly due to craniocerebralinjuries 51.4%. This is consistent with

the results of some research from within Nigeria and from other areas of the world with frequency varying from 33.3 percent to 87.8 percent [21-23]. While head injuries were seen in the majority of the cases, making it the most prevalent trend reported, it only accounted for death in around half of the subjects. The head is probably the most susceptible location of fatal injury in the event of a motorcycle crash, particularly in the environment of poor compliance with helmet use. Nzegwu et al. in Benin City found that none of the deceased victims in their analysis wore a crash helmet at the time of the incident .[12]

The discoveries in this examination bring to the front, the way that cruiser mishap injury passing's are a genuine general medical problem, and the socioeconomics of the casualties additionally calls for worry as these are for the most part people that make up most of the country's workforce. The way that dominant part of casualties bite the dust of head wounds additionally flags the requirement for more exploration endeavours designed towards head insurance for bike riders and travellers. We likewise suggest that the administration ought to make walkways to lessen the demise by people on foot.

Conclusion

New regulations and strategies aim to reduce the occurrence and severity of motorcycle brain injuries. Notwithstanding improved use of the helmet, however, many too many motorized Two-wheeler riders are now suffering extreme and serious head injuries due to the considerable danger of head hitting. Furthermore, twowheeler motorized riders continue to die of damage to critical thoracic and intestinal organs. More efficient helmets and equipment to avoid fatal chest injury and abdominal injury, on the one hand, and strict enforcement of protective gear regulation, on the other, are required to reduce deaths from motorized two-wheelers incidents, In the developed world in particular, where motorized two-wheelers are one of the most important forms of travel and not recreation. High speed motorized two-wheelers can be restricted to athletic activities and not to may road conditions. Technological advances, such as speed tolerance technologies, safe brake systems and well-maintained roads etc. will go a long way towards avoiding motorized two-wheeler accidents.

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