

Prevalence of Head Injury of Patients Arriving in a Tertiary Care Center.

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Background and purpose: The prevalence of head injury is increasing with increasing number of automobiles, especially motorbike. With the objective to evaluate the prevalence of head injury and factors that could affect the severity of head injury, this study was performed in a tertiary hospital at far- eastern Nepal. **Methodology:** This is a cross-sectional study over the duration of one year. Association of age, gender, and mode of injury was checked with severity of injury using Chi-square test where P-value was kept significant at <0.01. **Result:** Total numbers of patient admitted through the emergency department, during the study period, were 832. Mean age of patient in the study group was 34.59 (SD 18.92) years. Majority of them falls in the category of 20-29 years. Among the different categories of head injuries, mild head injury (76%) was the most common presentation followed by moderate head injury and severe head injury, which were 14% and 10% respectively. **Conclusion:** Head injury seems to be the major cause of emergency admission in for eastern part of Nepal. Among them road traffic accidents seems to be the major burden which is more common in young gentlemen with significant number of severe head injury.

Key words: head injury, traumatic brain injury, road traffic accidents.

Head injury is a worst problem in this globe since last few decades.¹⁻⁴ The prevalence of head injury is increasing with increasing number of automobiles, especially motorbikes.^{2,3} It seems to be more in developing and developed country.^{1,4} The outcome following head injury is directly associated with severity, mode, and age at the time of injury.⁵⁻⁷ With the objective to evaluate the prevalence of head injury and factors that could affect the severity of head injury, this study was performed in a tertiary hospital at far- eastern Nepal.

Material and Methods

Type of study: Cross-sectional study

Sample technique: Non-probability consecutive sampling.

Duration of study: 1 year (September, 2018 to October).

Sample size: 832

Site of study: B and C Medical College Teaching Hospital and Research Center, Birtamode, Jhapa, Nepal.

Data collection and analysis: All the consecutive trauma patients that landed in emergency department during the study period were collected. The data including age, gender, mode of injury and severity of injury were collected in a preformed proforma.

Age was presented as mean and standard deviation (SD), along with stratification in different decades, and mode of injury. Gender, mode of injury, and severity of injury were presented in percentage.

Association of age, gender, and mode of injury was checked with severity of injury using Chi-square test where P-value was kept significant at <0.01.

Results

Total numbers of patient admitted through the emergency department, during the study period, were 832. Mean age of patient in the study group was 34.59 (SD 18.92) years. Majority of them falls in the category of 20-29 years (Figure-1). There were 74 % male patients followed by 26 % female (Figure-2). Among the head injured patients, Road

Traffic Accidents (RTA) accounted for 62%, which is highest in its category. Mean age of patients with RTA was 35.98 (SD 18.92) years (Table -1).

Among the different categories of head injuries, mild head injury (76%) was the most common presentation followed by moderate head injury and severe head injury, which were 14% and 10% respectively (Figure-4).

Although, male patients seems to be the common population of head injury, it was not significantly association with the severity of head injury. However mode of injury and age were strongly associated with severity of head injury with P-value <0.01. In this study, RTA and physical assault seems to posses more percentage of severe head injury than due to fall (Table -2). Similarly, increasing age seems to be associated with more percentage of moderate and severe head injury with significant P value (Table-2).

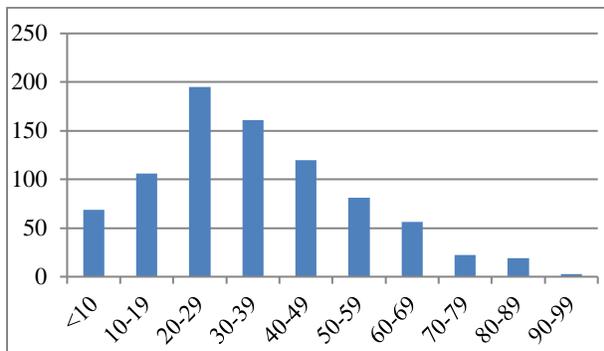


Figure 1: Distribution of different age category

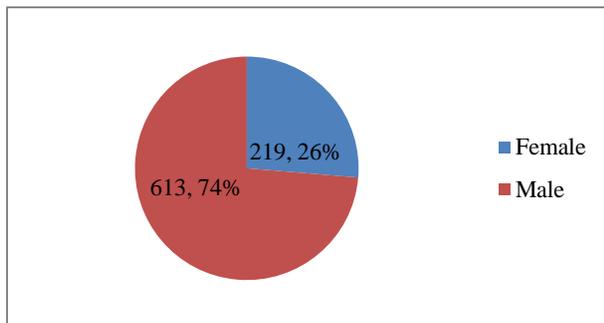


Figure 2: Distribution of gender

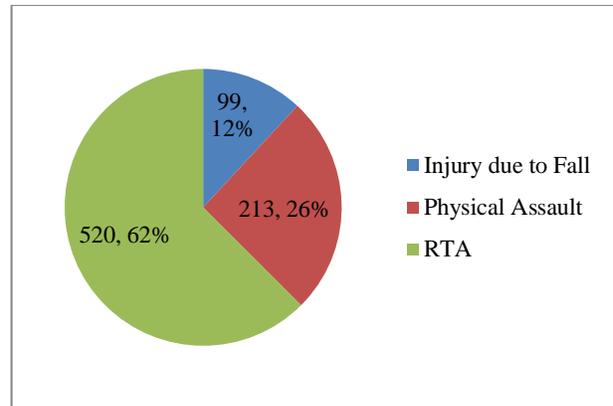


Figure 3: Demography of mode of injury

Table 1: Mean age of patients of different modes of accidents

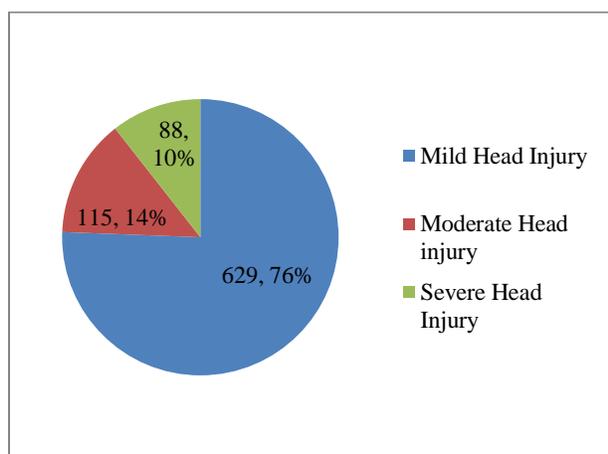
Mode_of_injury	Mean	N	Std. Deviation
Injury due to Fall	34.22	99	27.466
Physical Assault	31.38	213	12.759
RTA	35.98	520	18.924
Total	34.59	832	18.921

Discussion

A huge number of patients (832) admitted through emergency department with diagnosis of some form of head injury in this part of Nepal clearly shows the amount of burden in the society. This is not just a problem of this part of the world; rather, a global epidemic especially where development is rapid.^{1,2,3,8,9,10} The youngsters between 20-29 years, who are supposed to be the foundation of developing countries are victimized more with this type of injuries. It is not only this study which shows majority of the youngsters being affected by head injury but also many literatures being published throughout the world shows similar finding.^{9,10} This study also shows gentlemen being more in number than the counter part, this might be due to them being more involved in outdoor activities in countries like Nepal.

Table 2: Association of different variables with severity of head injury

Category	Sub- category	Mild Head Injury	Moderate Head injury	Severe Head Injury	P value
Gender	Female	176	25	18	0.157
	Male	453	90	70	
Mode of Injury	Injury due to Fall	81	10	8	0.000
	Physical Assault	196	6	11	
	RTA	352	99	69	
Age category	<10	62	5	2	0.004
	10-19	76	12	18	
	20-29	158	20	17	
	30-39	123	22	16	
	40-49	90	16	14	
	50-59	59	15	7	
	60-69	37	11	8	
	70-79	13	5	4	
	80-89	9	8	2	
90-99	2	1	0		

**Figure 4:** Distribution of severity of head injury

Majority of the head injury are due to RTA and this prevalence holds similar in most of the developing and developed countries.^{2,3,9,10} In this part of Nepal big highway running east to west of Nepal and northern part of Nepal with no walking lane might be the structural cause of majority of road traffic accidents.¹¹ Also the vehicles in these highways travels in high speed; hence, increases the severity of head injury, which seems significant with P-value <0.01 in this study. The severity of head injury being more in automobile accidents than other mode of injury seems to be present globally and so is the high morbidity and mortality.^{12,13}

Although age between 20-29 years seems to be affected more with head injury, the increasing age has increased percentage of moderate and severe

head injury in this study. This also seems to be a common finding among different populations of previous literatures.^{14,15}

Conclusion

Head injury seems to be the major cause of emergency admission in for eastern part of Nepal. Among them road traffic accidents seems to be the major burden which is more common in young gentlemen with significant number of severe head injury.

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