

Patterns and Severity of Injuries in Patients Following Road Traffic Accidents – A Medicolegal Aspects.

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Background and purpose: Road traffic accident (RTA) is the major cause of the morbidity and mortality throughout the world and the incidence is still very high in developed and developing countries. With the objective to see the pattern and severity of the injury following RTA from the medico legal point of view, this study was design in a tertiary care centre at far eastern part of Nepal. **Material and method:** This is a prospective analytical study with non- probability consecutive sampling of road traffic accidents cases presented in the emergency department during period of 6 months. Type of study: Prospective Analytical study. **Result:** There were total 210 cases of road traffic accidents with mean age of 31.8 (SD 15.7) years where majority were at 20-29 years of age group and males were the majority. Majority of the cases had injuries to the extremities followed by head. Grievous injury and life threatening injuries were also a common finding in this study. **Conclusion:** Road traffic accidents are more common among male, bike/scooter rider and 22-29 years of age group. Majority of the injury were fracture/dislocation of extremities and intracranial injuries. As per the medicolegal aspect, grievous and life threatening injuries were common findings among patients with road traffic accidents.

Key words: medicolegal, grievous, road traffic accident, automobile accidents, head injury.

Road traffic accident (RTA) is the major cause of the morbidity and mortality throughout the world and the incidence is still very high in developed and developing countries.¹⁻⁴ Among different type of the RTA, motorcycle accidents holds the number one cause of accident in most of the country.⁵⁻⁷ Majority of morbidity/mortality are due to injuries to the limbs, head, abdomen, chest and spine as mention in different literature.¹⁻⁷ With the objective to see the pattern and severity of the injury following RTA from the medico legal point of view, this study was design in a tertiary care centre at far eastern part of Nepal.

Material and Methods

Type of study: Prospective Analytical study

Sampling technique: Non- probability consecutive sampling

Sample size: 210 patients

Duration of study: 6 month

Site of study: B&C Medical College Teaching Hospital and Research Centre

Inclusion criteria:

All the trauma patients presented to the emergency department (ER) at the site of study.

Exclusion criteria

Trauma not related to Road Traffic Accident like physical assault, accidental fall, and accidental injury by falling objects.

All the patients who were brought dead or died before detail evaluations were completed.

Data collection and analysis:

All the patients who meet the inclusion criteria were collected in performed proforma. Age, gender, different categories of RTA, site of external injury, types of internal injury severity of injury and management strategies were collected in those proforma.

Results

During study period total 310 cases presented to our emergency department, among them 210 cases were of RTA. The mean age of these patients with road traffic accidents was 31.8 (SD 15.7) years where majority were at 20-29 years of age group (Figure 1). There were 74% male patients who encountered road traffic accidents (Figure 2).

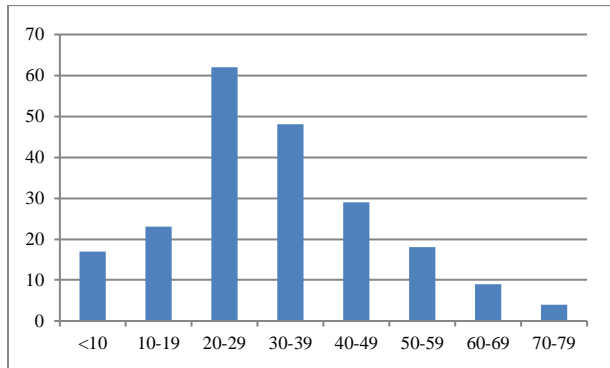


Figure 1: Distribution of patients in different age categories.

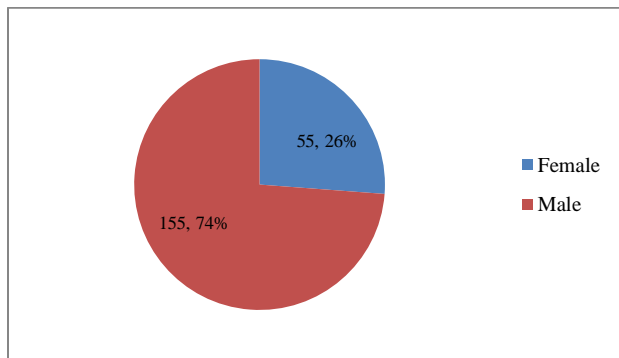


Figure 2: Distribution of gender among patients with RTA.

Among the patients with RTA, majority were the rider of motorbike/ scooter (44.8%) followed by the pedestrian (30%) (Figure 3). Evidence of external injuries among those patients were more on the extremities (48%) followed by head and face (39%) (Figure 4). However, all the external injuries were not associated with major internal injuries (58.1%) (Table 1). Though majority didn't have internal injuries, there were significant number of patients who had obvious internal injuries. Among all the patients, 18.1% of patients had isolated fracture/ dislocation of the bones of limbs, 10.5% had head injuries with significant CT findings, and

4.8% were cases of polytrauma whose more than one type of body parts were injured on further imaging (Table 1).

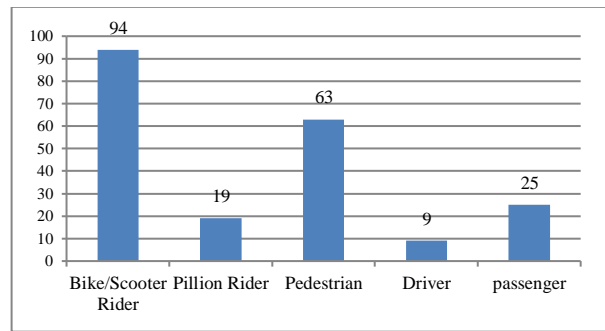


Figure 3: Distribution of different categories of RTA.

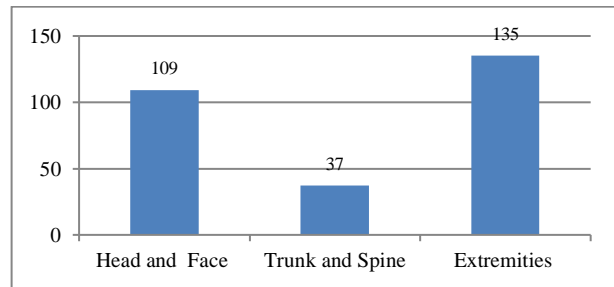


Figure 4: Evidence of external injuries in patients with RTA

Table 1: Evidence of internal injuries in patients with RTA

Categories of internal injuries	Frequenc y	Percent
No internal injuries	122	58.1
Intracranial injuries	22	10.5
Facial injuries	4	1.9
Chest injuries	5	2.4
Abdominal/ retroperitoneal/ Pelvic/ spine injuries	9	4.3
Fracture/ dislocation of limbs	38	18.1
Polytrauma	10	4.8
Total	210	100.0

Among the different type of bony injuries found in the patients following RTA, majority were tibia/fibula fracture followed by radius/ulna fracture/ dislocation (Figure 5). Among patients with head injuries contusions were seen in majority of cases followed by isolated skull fracture without parenchymal injury (Figure 6). Diffuse axonal injury, extra dural hematoma, traumatic sub-arachnoid hemorrhage, sub-dural hemorrhage were also seen in significant number of the patients (Figure 6). Spinal injuries which include Cervical

to lumbosacral spine were also the major finding in these RTA patients (Figure.7).

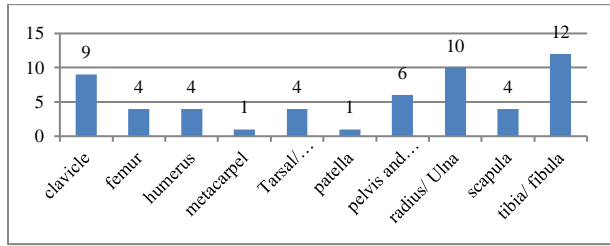


Figure 5: Frequencies of different bones fractured/dislocated during RTA.

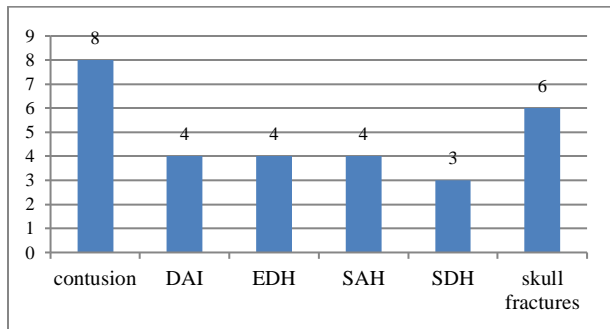


Figure 6: Frequencies of different types of head injuries as evident in CT scan.

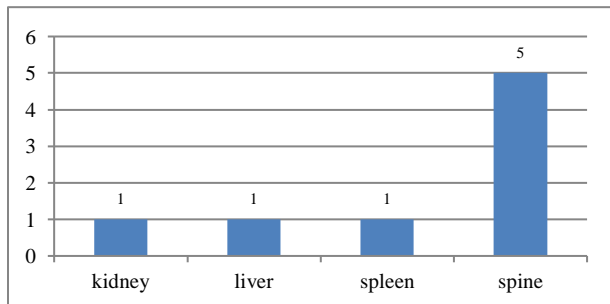


Figure 7: Frequencies of different types of abdominal and spinal injuries

Medicolegally all these patients were grouped into simple, grievous, life threatening, grievous and life threatening. Although majority (57.1%) of the patients had simple injury there were significant number of the patients who had other types of injury, among those patients with significant

finding 27.6% falls into grievous category followed by 13.3% into life threatening category (Table 2)

Table 2: Severity of injuries as per medicolegal aspect.

Types of Injuries	Frequency	Percent
Grievous	58	27.6
Grievous and life threatening	4	1.9
Life threatening	28	13.3
Simple	120	57.1
Total	210	100.0

Among these patients, 17.6% of them refused further treatment and was taken to other centre/home depending upon their nature of internal injuries. At the site of the study 29.5% underwent operative procedure and remaining 52.9% were managed conservatively (Table 3).

Table 3: Various management strategies done for patients with RTA.

Management	Frequency	Percent
Conservative	111	52.9
Operative	62	29.5
Refused treatment	37	17.6
Total	210	100.0

Association of age and gender with different category of RTA showed high significance with p value <0.01 (Table 4 and 5). This association showed male and young patients are high prone to RTA if they are the riders. However, there was no significant association of age, gender, category of the RTA with the severity of injury in this study which was done using Chi Square test.

Discussion

Road traffic accident seems to be epidemic in majority of developing and develop countries among the youngsters.^{1,2,4,8} As mention in the literature from Kuwait, Malaysia and western Nepal these accident are harming people between 20 to 29 years of age, which seems same as well Eastern part of Nepal.²⁻⁴

Table 4: Association of age and different category of RTA.

Age Category	Bike/Scooter Rider	Pillion Rider	Pedestrian	Driver	passenger	P Value
<10	0	2	13	2	0	0.000
10-19	7	1	9	0	6	
20-29	31	8	12	1	10	
30-39	29	5	7	2	5	
40-49	14	2	8	2	3	
50-59	11	0	6	0	1	
60-69	2	1	5	1	0	
70-79	0	0	3	1	0	
Total	94	19	63	9	25	

Table 5: Association of gender and different category of RTA.

Gender	Bike/Scooter Rider	Pillion Rider	Pedestrian	Driver	passenger	P Value
Female	12	10	20	5	8	0.000
Male	82	9	43	4	17	
Total	94	19	63	9	25	

Involvement of the young boys in RTA could also affect the overall burden to the society and development of the country.^{6,10,11} In this study second most common people victimized by the RTA are the pedestrian, which might be due to lack of proper walking lane in this part of Nepal. Injuries to the extremities, especially of Tibia/Fibula seem to be major cause of disability abstaining them from routine activities. In other parts of the world orthopedic injury are still the major causes of disability following RTA.¹²

Traumatic brain injury are also one of the major cause of mortality and morbidity following RTA.^{12,13,14} This type of injury not only makes people bed ridden but also significant affect the behavior, memory, relationship and show on.¹⁵⁻¹⁸ In this study Head injury seems to be the second most common type of injuries following RTA. contusions, DAI, traumatic SAH, SDH, EDH are the worse type of the injuries one can imagine in their lifetime because they are life threatening and severely affects the quality of life among survivors.^{15,16} These type of injury are also in significant proportion in this study.

According to Muluki Criminal Code 2074, injuries are classified as simple and grievous or

angabhangha. The following enlisted are grievous injuries.¹⁹

- a. privation of the sight of either eye,
- b. privation of smelling power of nose,
- c. privation of hearing power of either ear,
- d. privation of speaking power of the tongue,
- e. cutting of woman's breast
- f. emasculation of man and woman (making woman infertile or man impotent.
- g. privation of the backbone, hand, leg, or joint of such organ by breaking, fracturing dislocating it.
- h. any injury which cause the sufferer to be unable to perform his/ her professional work.

The existing legal provisions addressing injuries in Nepal look neither scientific nor practical. There should be amendment in number of conditions of angabhangha. All the fractures and dislocations leading disabilities of any bone or joint of any body part should come under angabhangha and any injury endangering life or life threatening injury also should be added in this section.

Conclusion

Road traffic accidents are more common among male, bike/scooter driver and 22-29 years of age group. Majority of the major injury were fracture/dislocation of extremities and intracranial

injuries. As per the medicolegal aspect, grievous and life threatening injuries are common findings among patients with road traffic accidents.

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