

Original Research Paper

A Study of Fatal Internal Injuries without Significant External Injuries in Road Traffic Accidents in Imphal from 2009-2014

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Abstract

A retrospective study of the road traffic accident cases starting from July 2009 to June 2014 was done. The aim was to find out those cases where fatal internal injury occurred without visible or significant external trauma. 84 cases out of 362 cases were selected. These cases were analysed regarding parameters like age and sex of the victim, the type of vehicle involved, manner of production, period of survival, type of road, cause of death, wearing apparel of the victim and relationship between visible external and internal injuries. In all these cases, a fatal internal injury was present in the absence of corresponding external injury. Therefore, it is suggested that absence of visible external injury should not be taken lightly as it may be associated with a fatal wound inside. The first 6 hrs turned out to be the most crucial. Head should be properly investigated for any injury as this has turned out to be the most vulnerable part. Nevertheless, a complete bodily investigation is a must to avoid any unwanted incident as well as a safeguard from allegations of medical negligence.

Key Words: Road Traffic Accidents, Fatal Internal Injury, External Injury

Introduction:

On Sep 11, 2001, the twin towers of the WTC were destroyed and history recorded over 3000 people was killed. Not many people are aware that about the same number of people die every day worldwide on roads.

Our roads which are meant to take us places often become venues of loss and sources of sorrow. WHO has decided to tackle the root causes of road accidents, a global scourge characteristic of our technological era, whose list of victims insidiously grows longer day by day?

How many people die or are injured? How many families have found them-selves mourning, surrounded by indifference that is all too common, as if this state of affairs were an unavoidable tribute society has to pay for the right to travel? [1]

Material and Methods:

A retrospective study of the road traffic accident cases starting from July 2009 to June 2014 was done.

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The cases were analysed regarding parameters like age and sex of the victim, type of vehicle involved, manner of production, period of survival, type of road, cause of death, wearing apparel of the victim, and relationship between visible external and internal injuries.

Observations and Results:

In the five studies, there were 362 RTA cases. Of these only 84 cases showed internal fatal wound without significant external injury. Out of these total 84 cases, 70 were male and 14 were female. (Table 1) Maximum number of victims were aged 50 yrs and above, followed by 41-50 yrs, 31-40 yrs, 21-30 yrs, 11-20 yrs and 0-10 yrs group. (Table 2)

In this study we observed that Pedestrians were the most vulnerable group, followed by two-wheeler riders, driver of four-wheelers, occupants of four-wheelers, cyclists and pillion riders. (Table 3)

More than 50% of the victims survived only up to 6 hrs; few survived more than 24 hrs. (Table 4) Majority of the cases occurred on highways, followed by metallic roads and 'katcha' roads. (Table 5) Intracranial haemorrhage was the most common cause of death followed by brain injury. Other causes of death included haemorrhagic shock, post-operative death, injury to liver, injury to vital organs. (Table 6)

In the head and neck region, in 60 cases external injuries corresponded with internal

injuries and in 12 cases, did not correspond. In the chest, 3 cases showed corresponding external and internal injuries and 31 cases external and internal injuries did not correspond. In the abdomen, 2 cases showed corresponding injuries and in 22 cases, external and internal injuries did not correspond. (Table 7)

Regarding wearing apparel, 60 cases were thickly clothed and 24 were thinly clothed. (Table 8) Four wheelers were the most common causative agents. (Table 9)

Discussion:

In this study, it is observed that fatal internal injuries without significant external injury were more commonly seen in the older age group in males, mostly pedestrians, involving mainly the head and victims were usually thinly clothed. The causative agent was a four-wheeler in most of the cases.

Age could be a deciding factor since majority of the victims was in the older age group. The reasons could be the slower reflexes, weakening eyesight and physique of people in this age group. In other studies of road traffic accidents, 21-30yrs [2-4] and 20-40 yrs were more commonly involved as young adults in these age groups are more ambulatory and hence exposed to greater risk as compared to persons belonging to other age groups. Since the present study deals with a different aspect, older age group is involved.

Sex probably has some influence since males were more frequently involved. An association could be assumed between the lacks of adequate body fat and hence lesser cushioning effect from blunt trauma in case of males as compared to females.

Various studies by different workers [2, 4-7] also showed male preponderance.

The reason suggested by these workers was that male preponderance could probably be due to the social structure of the Indian society as most of the outside work is carried out by males and tendency of males not following the traffic rules and regulations. Moreover, females have minimal outdoor activity as compared to males. Pedestrians were the most vulnerable group as impact from any oncoming vehicle is bound to produce more serious effects. Some other authors also found pedestrians as the largest group of casualty in their studies. [4, 8, 9]

The period of survival was low in most of the cases since the internal trauma was massive.

Majority of the cases occurred on highways since vehicles usually ply at very high speeds on these roads.

The main cause of death turned out to be head injury (intracranial haemorrhage and brain injury) indicating that the head is the most vulnerable part of the body. This is similar with other studies. [2, 10-12]

Four-wheelers were the most commonly involved agents, producing severe internal injuries. This finding is similar with a study regarding the relationship between the type of vehicle and the internal injuries produced, which stated that collision between passenger vehicles and very large vehicles generate massive internal injuries by transmission of force through the victims. [13]

Conclusion:

Road traffic accidents are increasing worldwide causing loss of valuable lives. Most of them can be prevented by providing not only road safety education but also by increasing the emergency treatment procedures.

Absence of visible external injury should not be taken lightly. A fatal internal injury may be lurking inside. The first 6 hrs is the most crucial period. Head should be properly investigated for any injury as this has turned out to be the most vulnerable part. Nevertheless, a complete bodily investigation is a must. This will help in saving valuable lives and also in avoiding allegations of medical negligence later on.

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Photo 1: Liver Laceration without Any External Injury on the Abdomen



Photo 2: Intracranial Hemorrhage and Skull Fracture without Significant External Injury



Table 1: Sex-Wise Distribution

Sex	Cases	Percentage
Male	70	83.3
female	14	16.6

Table 2: Age-Wise Distribution

Age(years)	Cases	Percentage
0-10	1	1.19
11-20	10	11.9
21-30	12	14.28
31-40	16	19.04
41-50	17	20.23
50 & above	28	33.3

Table 3: Type of Victims

Type of Victim	Cases(84)	Percentage
Rider	23	27.38
Pillion rider	4	4.76
pedestrian	32	38.09
Occupant	9	10.71
Cyclist	6	7.14
Driver	10	11.90

Table 4: Period of Survival

Period of Survival	Cases(84)	Percentage
0-6 hrs	50	59.52
6-12 hrs	2	2.38
12-24 hrs	15	17.85
>24 hrs	17	20.23

Table 5: Type of Road

Type of Road	Cases(84)	Percentage
Metallic	23	27.38
Kutchra	10	11.90
Highway	51	60.71

Table 6: Cause of Death

Cause of Death	Cases(84)	Percentage
Haemorrhagic shock	6	7.14
ICH	57	67.85
Vital organ injury	2	2.38
Brain injury	9	10.71
Lung	1	1.19
Kidney	1	1.19
Spleen	0	0
Heart	1	1.19
Major vessel	0	0
Post op	4	4.76
Liver	3	3.57

Table 7: Relationship between Visible External and Internal Injuries

Injuries	Corresponds	Not corresponds
Head & neck	60	12
Chest	3	31
Abdomen	2	22

Table 8: Wearing Apparel

Wearing apparel	Cases(84)	Percentage
Thinly clothed	24	28.57
Thickly clothed	60	71.42

**Table 9
Type of Vehicle and Manner of Production**

Manner of production	Cases	Type of vehicle involved								
		Victim			Agent					
		Pedestrian	Two wheeler rider	Pillion rider	Four driver wheeler	Occupant	Cyclist	Two wheeler	Four Wheeler	
Knocked down	52	32	10	3	1	1	5	12	40	
Run over	0		0							
Head on collision	17	0	9	1	3	3	1	7	10	
Self-accident	15	0	4	0	6	5	0	0	0	