

## An Epidemiological Study of Acute Head Injury and It's Evaluation by CT scan

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### Abstract

Head injury is a morbid state resulting from gross subtle structural changes in the scalp. Skull and/or the contents of the skull produce by mechanical forces. The application of blunt force to the head may result injury to the contents of the skull either alone or with a fracture skull. In six month study period total 64 cases of head Injuries were admitted in B.C. Roy Hospital. Total number of Male patients admitted in Hospital due to head Injuries were 46(71.87 %) and female were (28.12%). 32.81% the victims aged between 21 to 30 years. In present series of study R.T.A. was most common cause of Head Injury 85.95%. Most common CT finding was Skull fracture 34.37% followed by cerebral contusion 32.81%, extradural hematoma 25% and 21.87 % subarachnoid hemorrhage. CT scan was the main tool for the imaging the Skull and its contents.

**Key Words:** CT scan, Head Injury, Extradural Hematoma, Fracture skull

### Introduction:

The incidences of Head injuries are increasing with great mechanization in industry and increase in high velocity transport. [1]

The Injuries could be caused by direct violence or indirectly and by blunt force trauma or penetrating Injury. [2] Patient with severe head injury has a mortality rate of more than 50% and those who survive are often left with severe neurological deficits. Haldia is a petrochemical city and is well connected with National highway.

Mostly the victims' succumbed to fatal head Injuries in road traffic accidents are common in all kinds of accidental injuries. Any kind of craniocerebral injury can be caused by any kind of blow or any sort of head. [3]

Till now, CT scan remains the investigation of choice of head injuries. CT scan is performed without Intravenous contrast administration on both brain and bone without setting. It distinguishes between extracerebral and intracerebral lesions and can separate those patients with compressing hematomas that require immediate surgery from those in whom craniotomy might be of no benefit or even be harmful.

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So this study has been taken to determine the various epidemiological factors of

head injury like Age, Sex, occupation, area wise distribution and various aspects of CT finding.

### Material and Method:

This study was conducted in Emergency and surgical I.C.U. of B.C. Roy Hospital from July 2013 to Dec 2013. During this period 64 head injuries cases were admitted to B.C. Roy hospital Haldia. The Patients were studied from at the time of admission to the ward and followed up in the hospital until recovery or death. The head injuries were evaluated by CT scan of Head.

Plain (Non contrast) CT was done in all patients taking 10 axial sections from base of Skull to the vertex. The information was collected from the Interviews from relatives, patient case sheet and interrogation from police.

The information was collected into a Performa including age, sex, marital status, occupation, factors responsible for head injury and CT finding of each case and was analyzed.

### Results and Observations:

In 6 months study total 64 cases of head injuries were admitted in B.C. Roy Hospital Haldia. Total no of male patients admitted in hospital due to head injury were 46 (71.87%) and female were 18 (28.12%). (Fig. 1)

In this study Twenty one victims were the aged between 21 to 30 years (32.81%). (Table 1) In our study Forty one cases (64.06%) belongs to urban population and rest rural (35.93%). (Fig. 2)

Students were the most common victim 18.75% followed by Businessman, agriculture and housewives respectively. (Table 2) Most common factors responsible for the head Injury

was R.T.A. 85.93% followed by physical assault 9.37% and fall from height 4.68%. (Table 3)

Present study showed that most common CT finding was skull fracture (34.37%) followed by cerebral contusion 32.81%, extradural hematoma 25%, subarachnoid hemorrhage 13.06% and subdural hematoma 4.06 % respectively. (Fig. 1 & 2)

**Discussion:**

In the present study male are more affected than female similar to the other studies. The reasons are that male is more involve in outdoors visits, more active involve in occupation and sustaining more stress and strain. The similar study was conducted by Mebratu et al. [5] In our study most of the victims belong in the age group of 21-30 yrs and 31-40 years and is consistent with studies available from India and other countries.

The age around 20-40 years is the most active phase of life during which there is tendency to take risk. The lower proportion of victims above 60 years could be due to generally less mobility. Present study showed that most common victims were businessmen followed by students and least was retired person and unknown.

Business occupations are most active phase of life and are most involved in outdoor visit. Retired person are continued to their home and less movable. The most common CT finding in our studies was skull fractures (34.37%) similar to study done by Asaleue et al [4] in which skull fractures was 42%. [4]

In this study other CT findings were cerebral contusion (32.81%) followed by extradural hematoma (25%), subarachnoid Hemorrhage (21.8%) and intracerebral Hemorrhage (21.87%). In 10.93% cases CT scan finding was normal.

**Conclusion:**

The present study revealed that male aged 21-30 years and occupation by Business were more involved. Most common cause of head injury was road traffic accident.

CT scan is the main tool for the evaluation of acute head injury which categorized the mild. Moderate and severe head injuries and it is essential for rapid surgical intervention in moderate and severe head injuries. To decrease the incidence, mortality and morbidity following precaution and measures should be taken by government and local authorities:

- Government should equip law, enforcement agents involved in regulating and monitoring

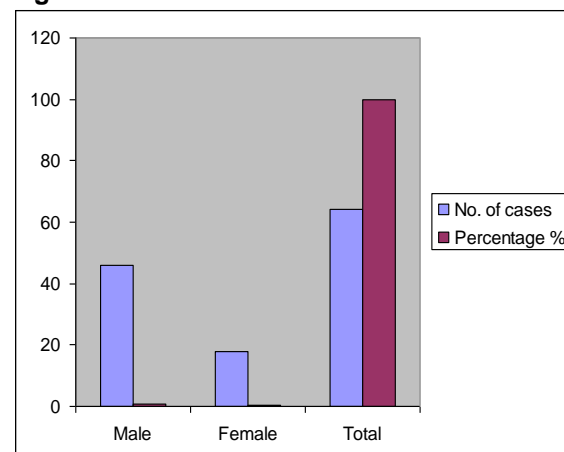
road users to ensure and enforce safe driving.

- Motorcycle Helmet campaign, anti drunken driving campaign road traffic injury Prevention School, safe communities and establishment of trauma centre and pre hospital care system which are proven way of tackling R.T.A.
- The hospitals even the P.H.C. should be facilitated with CT scan for the rapid triage of acute head injury and its management.

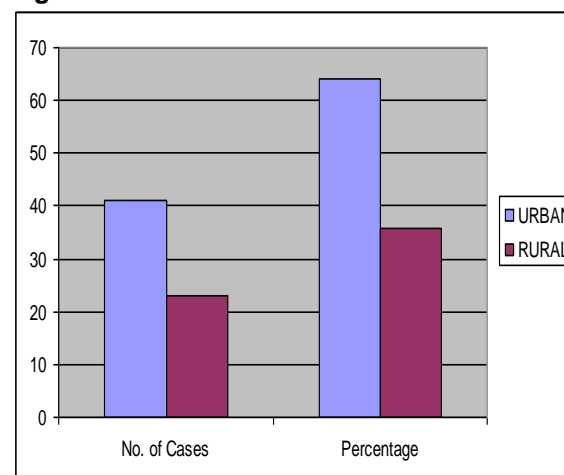
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**Fig. 1: Incidence of Sex**



**Fig. 2: Area Wise Distribution**



**Table 1: Incidence of Age**

Age group (Yrs)	Male	Female	Total	Percentage
0-10	2	1	3	4.68
11-20	6	1	7	10.93
21-30	15	6	21	32.81
31-40	11	4	15	32.81
41-50	5	3	8	12.5
51-60	4	2	6	2.37
>60	3	1	4	6.25
	46	18	64	100

**Table 2: Victim's Occupation**

Occupation	Cases N=64	Percentage
Business	21	32.81
Student	12	18.75
Hose wives	09	14.06
Agriculture	08	12.50
Labourer	03	4.68
Unemployed	08	12.50
Retire servicemen	02	3.12
Unknown	01	1.56
Total	64	99.98

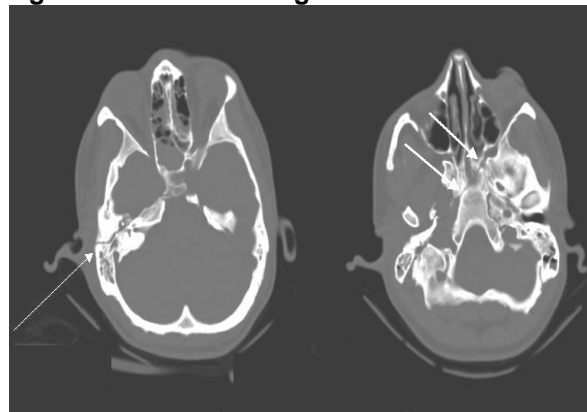
**Table 3: Causes of Head Injury**

Causes	Cases , N=64	Percentage
R.T.A.	55	85.93
Physical assault	06	09.37
Fall from height	03	04.68
Total	64	99.98

**Table 4: CT finding in Head Injuries**

CT Scan	Cases	Percentage
Normal Brain	7	10.93
Skull Fracture	22	34.37
Extra Dural Hematoma	16	25
Subarachnoid Hemorrhage	14	21.87
Intracerebral Hemorrhage	14	21.87
Cerebral contusion	21	32.81
Subdural Hematoma	09	14.06

**Fig. 1: CT scan showing Skull Fracture**



**Fig. 2: CT scan Showing Epidural Hematoma**

