■ *Original Article*

# HEAD INJURY- A CASE PROFILE STUDY FROM EASTERN REGION OF NEPAL.

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**Abstract**

**Background:** Head injury is a common presentation in emergency rooms .Management often is decided by time of trauma, clinical presentations and availability of facilities. **Objective:** To outline the general characteristics of head injury patients presenting to emergency. **Methods:** This is an observational (case series) study done in BPKIHS emergency room over a period of six months. All the acute head trauma cases presenting to the department of emergency, BPKIHS, were evaluated based on the semi closed clinical performa including major clinical indicators of intracranial trauma. **Results:** Among 255 head injury patients, males were more common. Fall was the commonest mode of injury resulting in 71.42% in those under ten years where as road traffic accidents was commonest in twenty to fifty yeras age group.23% reached the hospital after12 hours of injury. Loss of consciousness and vomiting were the commonest history.9.4% had consumed alcohol at presentation. Mild head injury was commonest (76.5%). 23% were discharged from emergency within 12 hours.14.9% underwent neurosurgical intervention. 187 of 255 underwent CT scan, 132 were abnormal. Contusions were commonest. For the normal CT scan the mean GCS score was 13.65 and for abnormal CT scans the mean GCS was 12.48 with SD of 2.8 and 3.4 respectively, p=0.025.

**Keywords:** head injury, clinical features, emergency, classification, Glasgow coma score, CT scan.

## Background

Head injury is any trauma that leads to injury of the scalp, skull or brain[1]being used synonymously with terms like craniocerebral injury or traumatic brain injury in many places. It can be classified as mild, moderate and severe based on Glasgow coma score which is simple, widely used and highly reproducible. A coma score of thirteen to fifteen correlates with mild head injury, nine to twelve is moderate head injury and eight or less is severe head injury[2] .Head injury is a common presentation in the emergency department worldwide with injuries to the central nervous system accounting for 40 to 50 percent of death in trauma[3].Identification of serious injuries from a continuum of mild to serious head injury is a challenge to doctors working in emergency.

## Materials and methods

A prospective observational study (case series) was done at B P Koirala Institute of Health Sciences, Dharan. Samples were collected from November to April 2005/2006.

All the cases of head injury were evaluated with help of semi closed questionnaire and analysed using frequencies, cross tabulations as necessary using Microsoft excel and SPSS.Variables studied were the clinical features of head injuries,CTscan when performed and outcome in terms of discharges from emergency , admissions for observation and neurosurgical interventions.

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## Results

A total of 255 head injury patients attending emergency room were analysed .The predominant ager ange was 20 to 50 years, the working age group. Males were involved more commonly. The distribution of cases of head injury by age and sex is shown in figure.1 below

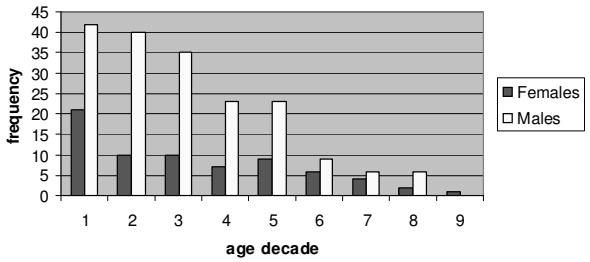



**Figure 1: Head injury by sex and age decade.**

Fall injuries, road traffic accidents and physical assaults were the common mode of injuries. Fall was the commonest mode resulting in 71.42% injuries in those under ten years where as road traffic accidents was commonest in twenty to fifty age group causing 42.67% of head injuries.

10.6% arrived in emergency within one hour of injury .The time of arrival with cumulative frequency is shown in table 1 .

**Table 1: Time elapsed since accident at arrival in emergency room**

| Time | Frequency | Cumulative percent |
|---|---|---|
| <1 hour | 27 | 10.6 |
| <12 hours | 160 | 73.3 |
| 12- 24 hours | 22 | 82.0 |
| >24 hours | 37 | 96.5 |
| Not known | 9 | 100 |

Vomiting and loss of consciousness were the commonest clinical features in head injury patients brought to emergency. Clinical characteristics of patients enrolled in study are tabulated (Table 2)

**Table 2: Clinical characteristics of the patients enrolled in study**

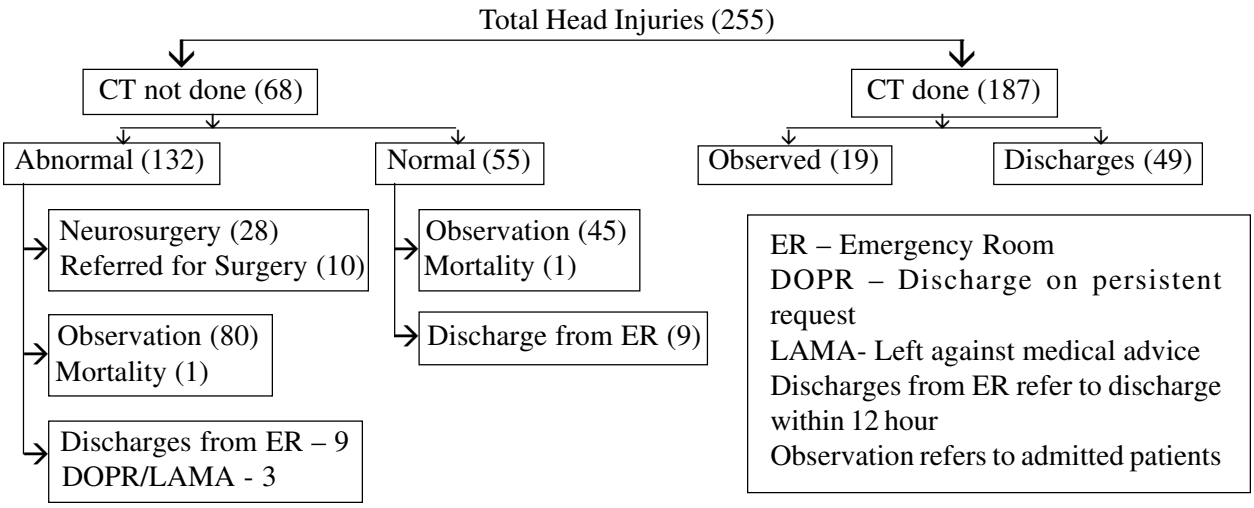
| | | |
|---|---|---|
| Loss of Consciousness | 181 | 66.7% |
| Vomiting | 118 | 46.3% |
| Basal fracture signs | 67 | 26.3% |
| Abnormal pupils | 32 | 12.5% |
| Depressed fracture on palpation | 20 | 7.8% |
| Seizure | 8 | 3.1% |
| Cranial nerves palsy | 16 | 6.3% |
| Alcohol consumption | 24 | 9.4% |
| Shock | 4 | 1.6% |

Mild head injury was commonest with 77%. Alcohol was consumed in 9.4% of patients evaluated. The initial GCS improved in 7 of the persons during consecutive evaluation. Severity of head injury as classified by initial Glasgow coma scale is shown in Table 3.

**Table 3: Glasgow coma scale and severty of head injury**

| | |
|---|---|
| Mild | 77 % |
| Moderate | 13 % |
| Severe | 10% |

187 patients out of 255 underwent CT scan. Out of them, 132 CT scan were abnormal. Contusions were the commonest lesions. Other lesions seen were epidural hematoma, subdural hematoma, intraparenchymal bleed, subarachnoid haemorrhage, depressed fracture skull and linear fracture skull. Surgically amenable lesions like epidural hematoma, subdural hematoma and depressed fracture skull occurred in 16%, 19% and 12% respectively. For the normal CT scan the mean GCS score was 13.65 and for abnormal CT scans the mean GCS was 12.48 with SD of 2.8 and 3.4 respectively, p=0.025. 23% were discharged from emergency within 12 hours.14.9% underwent neurosurgical intervention.A distribution of the cases is given in flowchart 1.




## Discussions

The predominant age group presenting to the emergency room with head injury were from 20 years to 50 years (61.45%) with a male preponderance. This is at par with other works which say that head injury patients are mostly young[3,4] Falls were the commonest mode of injury followed by road traffic accidents as mentioned in a multihospital study by McGarray et al[5] .Textbook of trauma states that falls are more common in the first decade of life[3].Quayle et also found that falls were the commonest mode of injury in paediatric patients resulting in more than half of the head injuries[6].This was demonstrated in this study also, as 43% of the falls causing head injury occurred in the first decade of life. 160 patients arrived to the emergency room within 12 hours, which is fairly good given the difficult geographical situation. Most of the injuries presenting to the emergencies were mild head injuries as reported in various studies.[3,7,8,10] Mild head injury was commonest .Many of the cases were discharged from emergency itself as seen in many studies. The neurosurgical intervention rate in our study is quite high(14%) compared to many other studies who have mentioned neurosurgical intervention of <1%[3,9,11].This might be due to the fact that our hospital is the primary referral centre for the eastern region with a rarity of neurosurgical facility in nearby area. However due to technical problems some cases were referred.

## Conclusion

Head injury is common. A careful clinical examination combined with judicious CT scan can help emergency doctors to separate mild head injury from severe and help in their management.

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