

Role of CT in Evaluation of Traumatic Head Injury

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Abstract

Background: Traumatic head injury is major concern in a developing country like India due to high prevalence of RTA's. CT is an accurate imaging modality and has been widely implicated in traumatic head injury. **Aims and Objectives:** The aim of this research was to study the role of CT in evaluation of traumatic head injury. **Subjects and Methods:** 50 cases of head trauma presenting to the ER and Radiology department were included in the study. All the patients underwent thorough clinical examination and detailed history and details pertaining to injury were obtained from attendants. All the necessary data was recorded and analyzed. CT scan was performed according to our hospital protocols and standard guidelines. **Results:** Males constituted for 72% of the total study population, the rest 28% were females. RTA was the most common mode of injury followed by fall and assault. Skull fractures were detected in 50% of the subjects, Contusions in 52%, Edema in 46%, Subdural Hematoma in 20%, Extradural Hematoma in 18%, Intracerebral Hematoma in 18%, Subarachnoid Hemorrhage in 12% and Intraventricular Hemorrhage in 10% of the study population. Mortality was seen in 12% subjects. **Conclusion:** CT is more sensitive than plain radiographs. CT has shown to detect various lesions in cases of head trauma and should be deployed in evaluation of acute head trauma cases.

Keywords: CT, Head Trauma, Traumatic Brain Injury.

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Introduction

Traumatic head injuries are a major cause of mortality in a developing country like India.^[1] The age groups 15-45 are especially more prone to RTAs and to Traumatic Brain Injury.^[2] Head trauma presents with loss consciousness and with a complex of varied clinical symptoms which makes its evaluation highly difficult for the ER physician, Radiologist and the other treating doctors. If head trauma is not evaluated properly, it can result in significant mortality and/or severe morbidity, disability for the rest of life.^[3] CT head is a sensitive and highly accurate imaging modality in evaluation of head trauma.^[4] This research was taken up to study the role of CT scan in the evaluation of traumatic head injuries

Subjects and Methods

Study Design: The present study was a Hospital based prospective study.

Study Setting: Meenakshi Medical College, Hospital and Research Institute, Enathur, Tamil Nadu.

Study Sample: 50 patients with head trauma presenting to the ER and Department of Radiology.

Inclusion Criteria

50 patients who presented to the Emergency Room with acute head trauma.

Exclusion Criteria

Subjects with history of cerebrovascular accidents, bleeds and those with bleeding disorders.

Methodology : All the patients underwent thorough clinical examination and detailed history and details pertaining to injury were obtained from attendants. All the necessary data was recorded and analyzed. CT scan was performed according to our hospital protocols and standard guidelines.

Statistical Analysis

The data was collected in MS Excel and presented as numbers and percentages in the form of tables and figures.

Results

Table 1: Gender Distribution.

Gender	No. of Patients
Male	36(72%)
Female	14(28%)

Males constituted for 72% of the total study population, the rest 28% were females.

Table 2: Mode of Injury.

Mode of Injury	No. of Patients
RTA	33(66%)
Fall	14(28%)
Assault	1(2%)
Others	2(4%)

As depicted from the above table, RTA was the most common mode of injury followed by fall and assault.

Table 3: Lesions.

Lesion	No. of Patients
Fracture	25(50%)
Cerebral Edema	23(46%)
Contusions	26(52%)
Subdural Hematoma	10(20%)
Extradural Hematoma	9(18%)
Intra cerebral Hematoma	9(18%)
Subarachnoid Hemorrhage	6(12%)
Intraventricular Hemorrhage	5(10%)

The different lesions detected in CT scan are depicted in the above table. Skull fractures were detected in 50% of the subjects, Contusions in 52%, Edema in 46%, Subdural Hematoma in 20%, Extradural Hematoma in 18%, Intracerebral Hematoma in 18%, Subarachnoid Hemorrhage in 12% and Intraventricular Hemorrhage in 10% of the study population.

Table 4: Mortality.

Mortality	No. of Patients
No Mortality	44(84%)
Mortality	6(12%)

As depicted in the above table, mortality was seen in 12% subjects.

Discussion

Traumatic Brain Injury is a common cause of mortality. RTAs are the most common cause of Traumatic Brain Injury in India and cause severe morbidity or mortality. Computed Tomography is a highly accurate imaging modality which has been highly implicated in head trauma. We have undertaken this study to evaluate the role of CT in traumatic head injury. This was a Hospital based prospective study which involved 50 cases of head trauma presenting to the ER. Males constituted for 72% of the total study population, the rest 28% were females. Similar results were also reported by Rao et al.^[5] RTA was the most common mode of injury followed by fall and assault. Studies by Rao et al and Taye et al.^[6] also reported similar findings. Skull fractures were detected in 50% of the subjects, Contusions in 52%, Edema in 46%, Subdural Hematoma in 20%, Extradural Hematoma in 18%, Intracerebral Hematoma in 18%, Subarachnoid Hemorrhage in 12% and Intraventricular Hemorrhage in 10% of the study population. Similar results were reported by Patel et al.^[7] Mortality was seen in 12% subjects which is similar to

mortality reported by Rao et al.

Conclusion

CT is more sensitive than plain radiographs. CT has shown to detect various lesions in cases of head trauma and should be deployed in evaluation of acute head trauma cases.

Ethical Clearance: Ethical Clearance was obtained from the Institutional Ethical committee prior to commencement of the study.

Conflict of Interest: Nil

Source of Funding: This study was self-funded.

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