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# The Role of Computed Tomography in The Evaluation of TBI Patients

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## Abstract

**Background:** Head trauma affects thousands of people every year. Neuroimaging techniques provide some of the most important diagnostic, prognostic, and pathophysiological information in the management of brain injury

**Methods:** 100 cases of acute TBI with positive CT scan findings were selected randomly during a period of 6 months from 25/9/15 to 25/3/16 and studied retrospectively.

**Results:** Out of the 100 patients, 62 had positive CT scans.All patients with positive CT scan had one or more of findings: headache, vomiting, age over 60 years, drug or alcohol intoxication, deficits in short term memory, physical evidence of trauma and seizures.

**Conclusions:** Neuroimaging is a crucial technique for evaluating and managing head trauma. CT is considered the imaging modality of choice in the management of acute brain injury.

**Keywords:** Stroke, computed tomographic scan.

## Introduction

Head trauma affects several hundred thousand individuals in the United States each year. It has been estimated that as much as seventy-five thousand brain injuries (approximately 20% of all head injuries) each year result in long-term disability and neuropsychological dysfunction[1].Motor vehicle accidents cause a large proportion of head injuries, particularly in the young male population. However, people in all age groups are subject to various causes of head trauma. In fact, the overall incidence of traumatic brain injury is similar to the incidence of stroke in the general population. The mortality associated with brain injury is the highest during the first 48 hours after trauma[2]. Since appropriate medical and neurological assessments of these patients plays an important role in initiating the needed therapies and determining prognosis, various neuroimaging methods have been employed in order to determine the extent and nature of brain injuries. The neuroimaging techniques include x-ray computed tomography (CT), magnetic resonance imaging (MRI), positron emission tomography (PET), and singlephoton emission computed tomography (SPECT). This review will consider the current and future applications of these imaging modalities as they pertain to the study and management of head trauma.

## Methods

100 cases of acute TBI with positive CT scan findings were selected randomly during a period of 6 months from 25/9/15 to 25/3/16 and studied retrospectively. In each case, the age, and sex of the patient, type of trauma, associated injuries and CT findings with their percentages are documented.

**Table 1: Age wise distribution in case of TBI.**

| Age (years) | No. of cases |
|---|---|
| 20-29 | 12 |
| 30-39 | 14 |
| 40-49 | 17 |
| 50-59 | 17 |
| 60-69 | 25 |
| 70-79 | 8 |
| 80-89 | 7 |
| Total | 100 |

Most of patients(50%) 60-69 years agegroup.

**Table 2: sex wise distribution in case of TBI.**

| Sex | No. of cases |
|---|---|
| Male | 70 |
| Female | 30 |
| Total | 100 |

Out of 100 cases included in the study 70 % are males while females constituted only 30% showing male preponderance in acute TBI.

**Table 3: Distribution of etiologies in acute TBI.**

| Etiology | No. of cases |
|---|---|
| RTA | 69 |
| Fall | 21 |
| Assault | 10 |
| Total | 100 |

69% cases were RTA.

**Table 4: CT scan finding wise distribution in case of TBI.**

| CT scan finding | No. of cases |
|---|---|
| Positive | 62 |
| Negative | 338 |
| Total | 100 |

Outof the 100 patients, 62 had positive CT scans.All patients with positive CT scan had one or more of findings: headache, vomiting, age over 60 years, drug or alcohol intoxication, deficits in short term memory, physical evidence of trauma and seizures.

**Discussion**

RTA is the most common etiological factor in TBI cases. Third and fourth decade of life is the commonest age group with male gender because they are involved in economic and social life[3-6]. It is found that children and young adults are most commonly involved in trauma [3-7]. In our study there is increase in the incidence of TBI from pediatric age group to young adults followed by a plateau which constitutes the age group of 40- 70 years which is followed by decline in incidence constituting the age group of above 70 years.

According to our study, RTA is the cause of injury in 69% of the cases, while falls constitute 21% of the etiology and 10% assault injuries.

**Conclusion**

Neuroimaging is a crucial technique for evaluating and managing head trauma. CT is considered the imaging modality of choice in the management of acute brain injury. CT provides a rapid assessment of structural brain injuries, is readily available in most medical institutions, and is of rela tively little cost. CT provides information regarding intracranial bleeds which may be associated with mass effect and which may require immediate surgical intervention.

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