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A STUDY ON CORRELATION OF DEGREE OF MIDLINE SHIFT ON CT SCAN AND GLASGOW COMA SCALE IN PATIENTS OF ACUTE TRAUMATIC HEAD INJURY

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Abstract

Background: The larger the amount of the midline shift on CT scan the poorer will be the outcome of traumatic head injury. Other variables such as Glasgow coma scale have been subsequently introduced to build more complex and accurate prognostic model.

Methods: A study was conducted on patients with acute traumatic head injury. Most common and important complication of traumatic head injury is the development of an increased intracranial pressure resulting in midline shift. The larger the amount of the midline shift on CT scan the poorer will be the outcome of traumatic head injury.

Results: External injury of scalpel is seen in 92% of cases, blackening of eye in 50% & vomiting in 50%. Cerebral contusion (50%) was the most common CT scan finding followed by depressed fracture (32%), subdural hematoma (22%) than extradural hematoma (6%). Hemorrhagic contusion was the most common CT scan finding irrespective of GCS score. In patients with GCS 3-5 other outcome findings are extradural hematoma, subdural hematoma, & depressed fracture. In patients with GCS 6-8 other common findings are extradural hematoma, depressed fracture & hemorrhagic contusion. In patients with GCS 9-12 other common findings were hemorrhagic contusion, depressed fracture & intra cerebral hematoma. In patients with GCS 13-15 other common findings were depressed fracture, hemorrhagic contusion.

Conclusions: The increased degree of midline shift in patients with head injuries by CT scan was related to the severity of head injury (GCS= 3-12) and was significantly related to poor final clinical outcome.

Keywords: CT scan, Glasgow coma scale, acute traumatic head injury.

Introduction

Traumatic head injury affects up to 2% of population per year, constitute the major cause of death.

Most common and important complication of traumatic head injury is the development of an increased intracranial pressure resulting in midline shift.

The larger the amount of the midline shift on CT scan the poorer will be the outcome of traumatic head injury. Other variables such as Glasgow coma scale have been subsequently introduced to build more complex and accurate prognostic model. In Glasgow coma scale it was found that confident prediction could be made only after 24 hours[1,2].

Methods

***The criteria for inclusion of patients in the present study* were**

- All traumatic head injury patients.
- All patients who had initial cranial Computed Tomography (CT) scan after head injury.

In all the patients CT scan was reviewed separately from clinical information. The degree of midline shifting was divided into three categories; no shifting, midline shifting up to 10 mm & midline shifting greater than 10 mm. Clinical information such as age, gender, mechanism of head injury, Glasgow coma scale & clinical outcome were collected.

Severity of head injury is classified into 3 subgroups; mild degree (GCS=15), moderate degree (GCS=13-14), severe degree (GCS=3-12).

Results

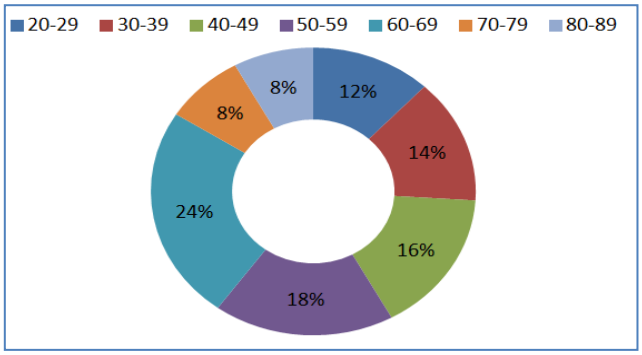

Figure 1: Age wise distribution in case of TBI.
Most of patients (24%) 60-69 years agegroup.

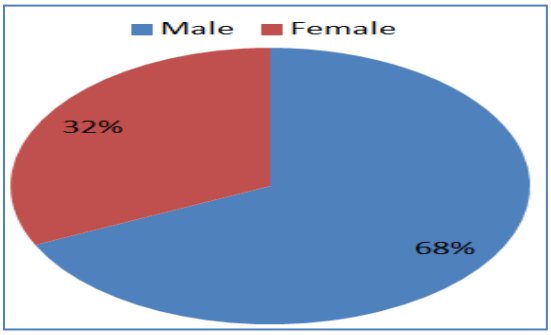

Figure 2: Sex wise distribution in case of TBI.

Out of 100 cases included in the study 68 % are males while females constituted only 32% showing male preponderance in acute TBI.

Table 3: Distribution of etiologies in acute TBI.

Etiology	No. of cases
RTA	60
Fall	22
Assault	18
Total	100

60% cases were RTA.

External injury of scalpel is seen in 92% of cases, blackening of eye in 50% & vomiting in 50%. Cerebral contusion (50%) was the most common CT scan finding followed by depressed fracture (32%), subdural hematoma (22%) than extradural hematoma (6%). Hemorrhagic contusion was the most common CT scan finding irrespective of GCS score. In patients with GCS 3-5 other outcome findings are extradural hematoma, subdural hematoma, & depressed fracture. In patients with GCS 6-8 other common findings are extradural hematoma, depressed fracture & hemorrhagic contusion. In patients with GCS 9-12 other common findings were hemorrhagic contusion, depressed fracture & intra cerebral hematoma. In patients with GCS 13-15 other common findings were depressed fracture, hemorrhagic contusion.

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.

The present study found that the presence of midline shift especially with SDH was significant. This meant that the outcome would be poorest if the midline shift with SDH compared to other lesion in patients with brain injury.

Conclusion

The increased degree of midline shift in patients with head injuries by CT scan was related to the severity of head injury (GCS= 3-12) and was significantly related to poor final clinical outcome.

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