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To evaluate cases of head trauma cases with CT scan

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Abstract

Background: Head injury is common nowadays. The present study was conducted to evaluate cases of head trauma cases with CT scan.

Materials & Methods: The present study was conducted in the department of Radiodiagnosis. It comprised of 78 cases of head injury. General information such as name, age, gender, type of trauma, associated factors were recorded. In all patients CT scan was taken.

Results: Out of 78 cases, males were 42 and females were 36. Age group 10-20 years had 4 males and 2 females, 20-30 years had 15 males and 14 females, 30-40 years had 17 males and 15 females, 40-50 years had 3 males and 3 females, 50-60 years had 3 males and 2 females each. The difference was non-significant ($P=0.12$). Outcome of head injuries were brain swelling seen in 5 males and 6 females, localized brain edema in 9 males and 8 females, epidural hematoma in 3 males and 2 females, sub arachnoid hemorrhage in 5 males and 4 females, subdural hematoma in 4 males and 3 females, intra cerebral hematoma in 3 males and 4 females, intra ventricular hematoma in 2 males and 2 females, brain contusion in 4 males and 3 females and pneumocephalous in 7 males and 4 females. The difference was non-significant ($P>0.05$).

Keywords: CT scan, Head injury, Intra cerebral hematoma

Introduction

With the constant increase in high velocity accidents and violence over the past decades, the matter of acute head trauma is one of prime importance in today's medical practice^[1]. In his classic textbook dealing with head trauma, Brock states that. "The appalling number of accidents in modern life makes the subject of injury as important as that of any pandemic scourge." Head injury is a significant cause of mortality and morbidity in trauma patients, and closed head injury is one of the most common reasons for hospital admission following injury. Because of different study methods, case definitions, time periods, and geographic locations, the reported annual incidence of head injuries has varied widely from 114-295 injuries per 100,000^[2].

The majority of head injuries presenting to hospital services have a minor injury and only a small proportion of these cases will be admitted. Trauma is a one of the most common cause of death and lifelong disability in the early decades of life of which majority of cases are neurological trauma. A sound practical understanding of the neuropathological trauma is more essential to forensic pathologist than other aspects of this subject because head injuries provide the major contribution to the death due to assaults, falls and transportation accidents^[3] CT scan should be used as a screening procedure for all patients and in those patients who present with clear focal neurological abnormalities on examination. This imaging modality is a cheap, quick, sensitive imaging technique for the majority of brain lesions. But these techniques are relatively costly, less easy to perform and are not easily available^[4]. The present study was conducted to evaluate cases of head trauma cases with CT scan.

Materials & Methods

The present study was conducted in the department of Radiodiagnosis. It comprised of 78 cases of head injury. Ethical clearance was obtained before starting the study and written consent was taken from patient's family members.

General information such as name, age, gender, type of trauma, associated factors. In all patients CT scan was taken. All CT images were read by trained radiologist for the presence, absence of brain abnormalities. The results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

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Results

Table I: Distribution of patients

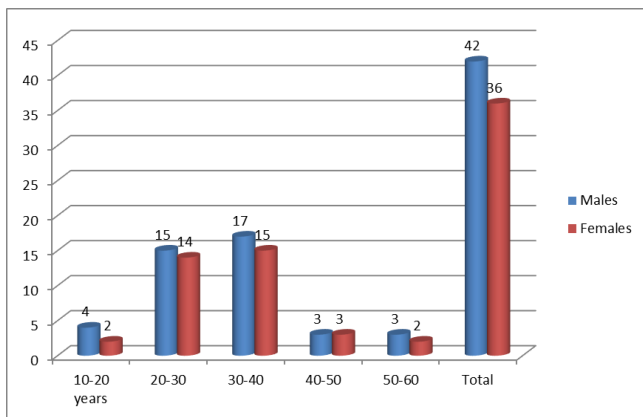
Total- 78		
Gender	Males	Females
Number	42	36

Table I shows that out of 78 cases, males were 42 and females were 36.

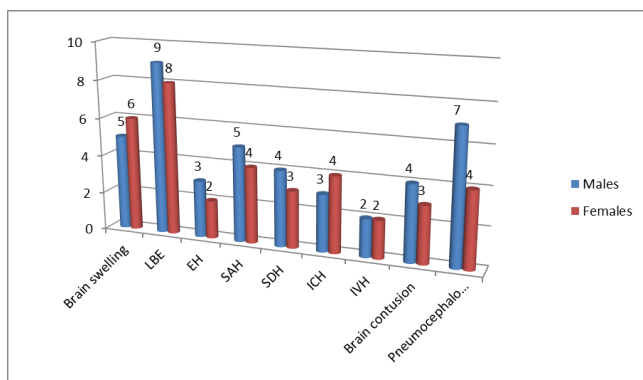
Table II: Age wise distribution of patients

Age group (Years)	Males	Females	P value
10-20	4	2	0.21
20-30	15	14	
30-40	17	15	
40-50	3	3	
50-60	3	2	
Total	42	36	

Table II, graph I shows that age group 10-20 years had 4 males and 2 females, 20-30 years had 15 males and 14 females, 30-40 years had 17 males and 15 females, 40-50 years had 3 males and 3 females, 50-60 years had 3 males and 2 females each. The difference was non- significant (P-0.12).



Graph I: Age wise distribution



Graph II: Outcome of head injury

Graph I shows that outcome of head injuries were brain swelling seen in 5 males and 6 females, localized brain edema in 9 males and 8 females, epidural hematoma in 3 males and 2 females, sub arachnoid hemorrhage in 5 males and 4 females, subdural hematoma in 4 males and 3 females, intra cerebral hematoma in 3 males and 4 females, intra ventricular hematoma in 2 males and 2 females, brain

contusion in 4 males and 3 females and pneumocephalous in 7 males and 4 females. The difference was non- significant (P> 0.05).

Discussion

Minor head injury comprises a large proportion of head trauma patients, and brain CT scan is widely used as a scanning test in these patients, although this can be expensive. Numerous studies concerning utilization of CT scan have focused on patients with minor head injury to reduce negative reports, and consequently savings for the health-care system [5].

The huge raise in the cases of acute head injuries may be due to high number of vehicles, poor roads, ignorance of the traffic rules and regulations. A fracture on radiography indicates a significant force has applied to the bony vault. However, the lack of visualization of a fracture does not exclude a significant injury to the underlying brain; therefore, a skull fracture may or may not indicate a brain parenchyma injury.⁶ The present study was conducted to evaluate cases of head trauma cases with CT scan.

In this study out of 78 cases, males were 42 and females were 36. Age group 10-20 years had 4 males and 2 females, 20-30 years had 15 males and 14 females, 30-40 years had 17 males and 15 females, 40-50 years had 3 males and 3 females, 50-60 years had 3 males and 2 females each. This is similar to findings of study of Clifton [7]. Brain contusions can be hemorrhagic and non hemorrhagic and they are commonly found in patients who sustained blunt head trauma and in acceleration and deceleration trauma where they present as coup or contre coup injuries [8].

Dublin *et al.* [9] found that minor head injuries accounted for 15.1% of all studied patients. This group consists of 914 (75.6%) males and 295 (24.4%) females. The mean age was 29.4 ± 19.9 years with a range from 1-106 years. Males outnumbered females in all of age groups, and patients of 20-30 years of age had the largest rate of brain CT scan examination. The main cause of injury was traffic accidents in 727 (60.1%), followed by falls in 344 (28.5%), fights 87 (7.2%), and other reasons in 51 (4.2%). The places of accident occurrence were streets in 657 (54.3%), homes in 240 (19.9%), roads in 148 (12.2%), work places in 109 (9%) and other places in 55 (4.5%). Of the 1209 patients, 77 cases (6.4%) had a GCS score of 13, 212 (17.5%) had a score of 14, and 920 (76%) had a score of 15.

We found that outcome of head injuries were brain swelling seen in 5 males and 6 females, localized brain edema in 9 males and 8 females, epidural hematoma in 3 males and 2 females, sub arachnoid hemorrhage in 5 males and 4 females, subdural hematoma in 4 males and 3 females, intra cerebral hematoma in 3 males and 4 females, intra ventricular hematoma in 2 males and 2 females, brain contusion in 4 males and 3 females and pneumocephalous in 7 males and 4 females.

Subdural hematomas which are more common in patients with head injury are evaluated using subdural CT win- dows (*i.e.*, wider soft tissue windows) as they compensate for the partial volume averaging in CT [10].

Conclusion

Authors suggested that CT scan is best diagnostic tool in cases of head injury. They found most commonly localized brain edema and pneumocephalous.

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