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ORIGINAL ARTICLE

Outcome of Traumatic Head injury Cases- A CT Scan Study

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ABSTRACT:

Background: Head injury is any trauma to the scalp, skull, and brain. The present study assessed patients of head injury with CT scan. **Materials & Methods:** The present study was conducted on 104 cases of head injury of both genders. In all patients CT scan was taken. All CT images were read by trained radiologist for the presence and absence of brain abnormalities. **Results:** Out of 104 cases, males were 64 and females were 40. Age group 10-20 years had 2, 20-30 years had 50, 30-40 years had 45, 40-50 years had 3 and 50-60 years had 2 cases. The difference was significant (P< 0.05). The outcome of head injuries were brain swelling seen in 26, localized brain edema in 20, epidural hematoma in 4, sub arachnoid hemorrhage in 15, subdural hematoma in 22, intra cerebral hematoma in 10, intra ventricular hematoma in 2, brain contusion in 4 and pneumocephalous in 1. The difference was significant (P< 0.05). **Conclusion:** Authors found that maximum cases were seen in males and age group 20-30 years had maximum cases of head injury of brain swelling.

Key words: Brain swelling, CT scan, Trauma

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INTRODUCTION

Head injury is any trauma to the scalp, skull, and brain. It remains the most common cause of death following trauma, with particularly high mortality and morbidity in low- and middle-income countries (LMIC).[1] Head injury according to WHO will surpass many diseases as the major cause of death and disability by the year 2020. The general incidence of traumatic brain injury (TBI) in developed countries is approximately 200/100,000/year.[2] In sub-Saharan Africa, there is a paucity of accurate trauma data on the contribution of head injury to trauma-related mortality. However, sub-Saharan Africa demonstrates a higher head injury-related rate varying from 150 to 170/100,000, respectively, due to motor vehicle crashes compared to a global rate of 106/100,000.[3] Polytrauma due to road traffic accidents (RTA) is a leading cause of head injury in teenagers and young adults. Amongst the severely injured patients, majority survives with severe disability and few continue to be in a vegetative state. Increasing age is associated with poorer outcome in patients with head injury. Computed tomography (CT) has become the diagnostic modality of choice for head trauma due to its accuracy, reliability, safety, and wide availability.[4]

Head injury data are difficult to compare internationally for various reasons, including inconsistencies and complexities of diagnostic coding and inclusion criteria, transfers to multiple care facilities (i.e. patient admissions may be counted more than once), and regional medical practices.[5] The present study assessed patients of head injury with CT scan.

MATERIALS & METHODS

The present study was conducted in the department of Radiodiagnosis. It comprised of 104 cases of head injury of both genders. 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 and absence of brain abnormalities. The results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 104		
Gender	**Males**	**Females**
Number	64	40

Table I shows that out of 104 cases, males were 64 and females were 40.

Graph I Distribution of patients

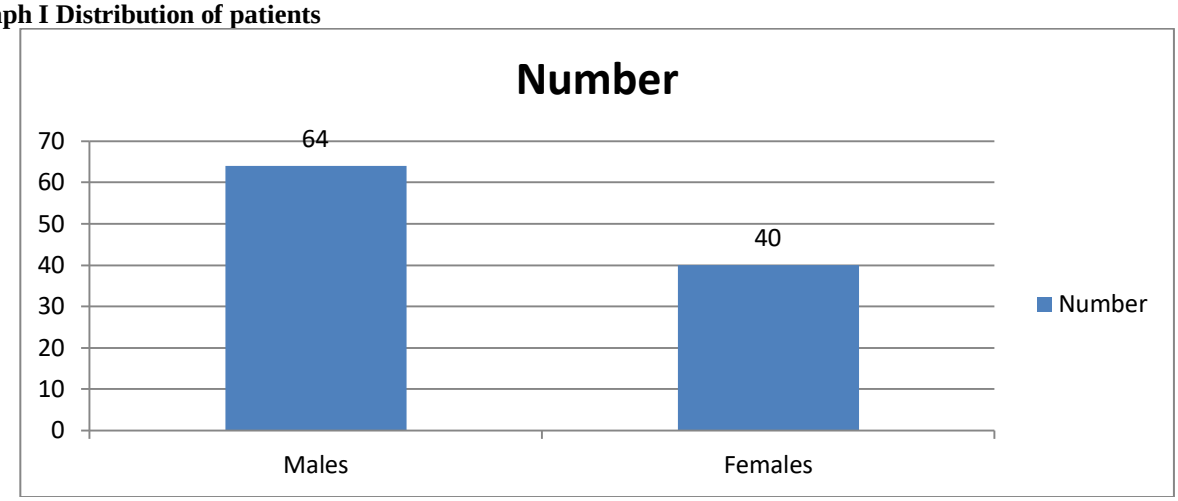


Table II Age wise distribution of patients

Age group (Years)	Males	P value
10-20	2	0.01
20-30	50	
30-40	45	
40-50	3	
50-60	2	

Table II, graph II shows that age group 10-20 years had 2, 20-30 years had 50, 30-40 years had 45, 40-50 years had 3 and 50-60 years had 2 cases. The difference was significant (P< 0.05).

Graph I Age wise distribution

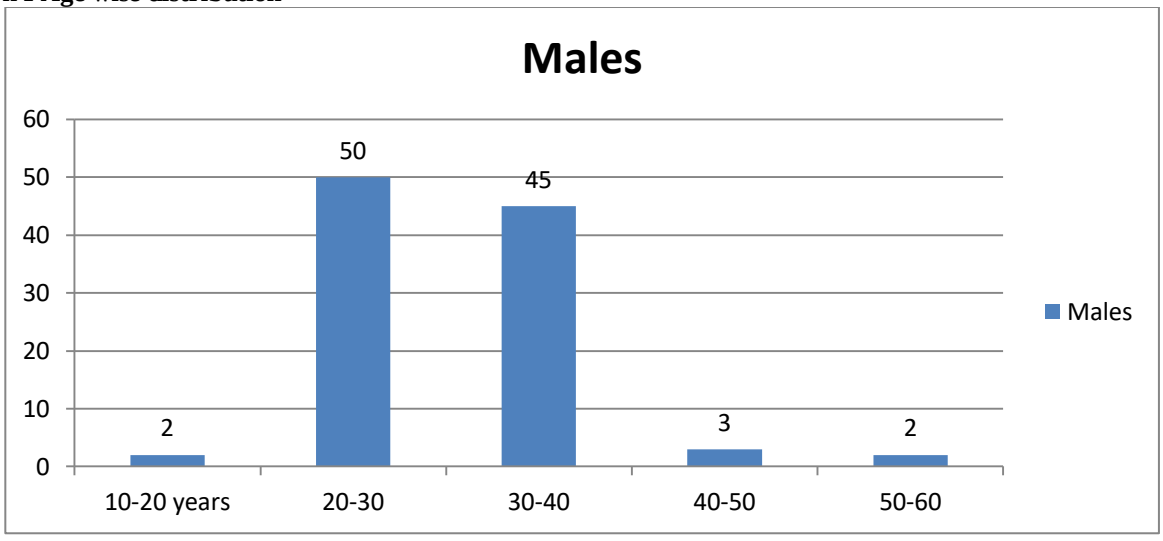
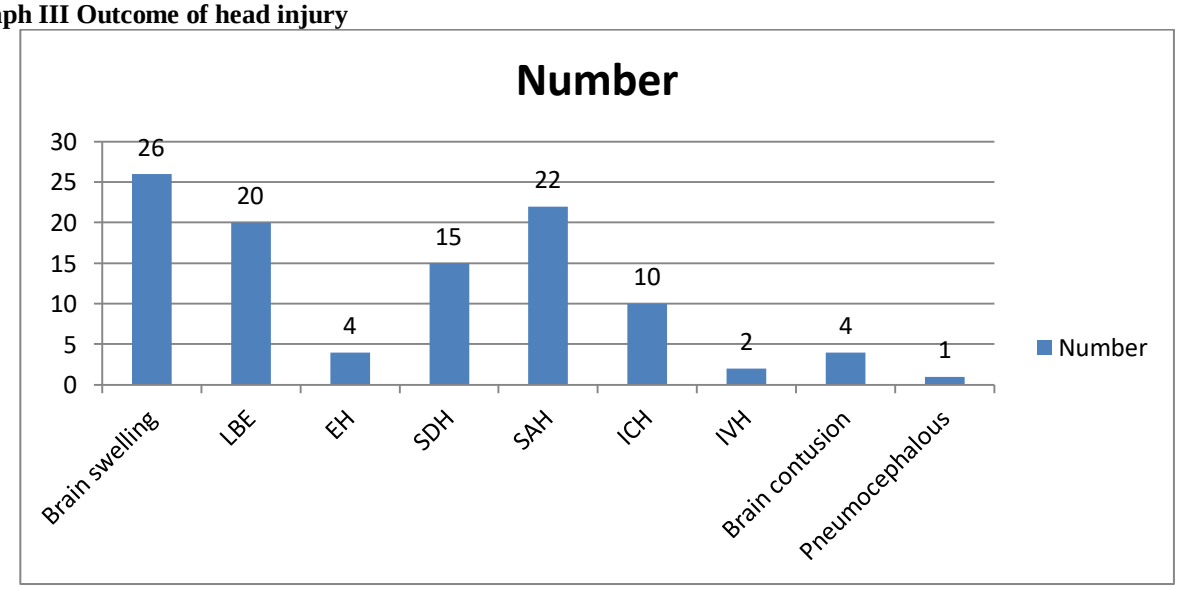


Table II Evaluation of outcome of head injury

Outcome	Number	P value
Brain swelling	26	0.04
LBE	20	
EH	4	
SDH	15	
SAH	22	
ICH	10	
IVH	2	
Brain contusion	4	
Pneumocephalous	1	

Table III, Graph III shows that outcome of head injuries were brain swelling seen in 26, localized brain edema in 20, epidural hematoma in 4, sub arachnoid hemorrhage in 15, subdural hematoma in 22, intra cerebral hematoma in 10, intra ventricular hematoma in 2, brain contusion in 4 and pneumocephalous in 1. The difference was significant (P< 0.05).

Graph III Outcome of head injury



DISCUSSION

Radiological imaging techniques provide some of the most important diagnostic, prognostic, and pathophysiologic information in the management of brain injury.[6] The introduction of computed tomography (CT) in 1973, revolutionized the assessment of head-injured patients, and it gives direct visualization of the brain tissue and lesion. Since its introduction, it has been rated the gold standard for evaluation of acute head trauma.[7] CT is readily available, fast, and compatible with equipment for monitoring of vital functions and artificial ventilation. Magnetic resonance imaging (MRI) is recommended for patients with acute TBI when the neurologic findings cannot be explained by CT.[8] The present study assessed patients of head injury with CT scan.

In present study, out of 104 cases, males were 64 and females were 40. Age group 10-20 years had 2, 20-30 years had 50, 30-40 years had 45, 40-50 years had 3 and 50-60 years had 2 cases. The difference was significant (P< 0.05).

Zimmerman et al[9] found that from 317 patients studied 198(62.5%) were male and 119 (37.5%) were female. Head injury was more common in male. 80(25.23%) were below 15 years of age, 221(69.73%) were between 16 to 65 years and only 16(5.04%) were above 66 years of age. The mean age was 28.57 years. In 239(75.4%) of patients the CT scan was normal. The most common cause of head injury was fall which was found in 210(66.2%) patients followed by RTA 82(25.9%) and Physical Assault 25(7.9%). Fall as a cause of head injury was more common in children and old people, with the RTA being more common in adults and adolescents. The most common positive finding in CT was contusion which was found in 32(10.1%), 25(7.9%) had SDH, 11(3.5%) of the patients had EDH, 10(3.2%) had SAH. Headache was

found to be nonspecific for predicting positive CT findings.

We observed that outcome of head injuries were brain swelling seen in 26, localized brain edema in 20, epidural hematoma in 4, sub arachnoid hemorrhage in 15, subdural hematoma in 22, intra cerebral hematoma in 10, intra ventricular hematoma in 2, brain contusion in 4 and pneumocephalous in 1. The difference was significant ($P< 0.05$).

Hukkelhoven et al[10] 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.

CONCLUSION

Authors found that maximum cases were seen in males and age group 20-30 years had maximum cases of head injury of brain swelling.

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