

ORIGINAL RESEARCH

Incidence of head injury- An autopsy study

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ABSTRACT

Background: Patterns of fatal head injuries can vary depending on the cause and nature of the injury. The present study was conducted to evaluate incidence of head injury.

Materials & Methods: 76 victims of head injuries of both genders were studied. Parameters such as time interval between incidence and arrival to hospital, time interval between arrival to hospital and death, pathological fracture, pattern of skull fracture, intracranial haemorrhage and other major injuries were recorded.

Results: Age group 20-40 years had 22 males and 16 females, 40-60 years had 10 males and 12 females and >60 years had 8 males and 8 females. The difference was non-significant ($P > 0.05$). The time interval between incidence and arrival to hospital was 0-1 hour in 36, 1-2 hours in 22 and >2 hours in 18. The time interval between arrival to hospital and death was 4-6 hours in 40, 6-24 hours in 28 and >1 day in 8 cases. Type of incidence was Pedestrians was 18, 2wheelers in 32 and 4 wheelers in 10 cases and motorcyclist in 16 cases. Site of fracture was frontal in 36, parietal in 20, temporal in 14 and occipital in 6 cases. Type of meningeal hemorrhage was subdural in 38, subarachnoid in 24 and epidural & subdural in 14 cases. The difference was significant ($P < 0.05$).

Conclusion: Age group 20 to 40 years showed the most cases of head injury. Subdural hemorrhage was the leading cause of death.

Key words: Head, Hemorrhage, Pedestrians.

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Introduction

Any trauma to the head, except from minor facial wounds, is considered a head injury. The term "head injury" is used far more frequently than the many ICD categories that it falls under, although it is not recognized as a distinct entity in this classification. In actuality, it can encompass all levels of severity, from a bump that causes no symptoms to a hit that causes severe brain damage. But the requirements for a situation to count as a head injury are far from obvious.¹

Patterns of fatal head injuries can vary depending on the cause and nature of the injury. Traumatic Brain Injury (TBI) is one of the most common causes of fatal head injuries.² TBIs can result from various incidents, such as motor vehicle accidents, falls, assaults, and sports-related injuries. The injury can range from mild concussions to severe brain damage, leading to coma or death. A severe impact to the head can cause fractures in the skull. Depending on the location and severity of the fracture, it can lead to

damage to the brain, blood vessels, or other vital structures within the skull, resulting in fatal consequences.³

Intracranial hemorrhage occur due to various reasons, such as a ruptured blood vessel from trauma, a brain aneurysm, or other medical conditions. If left untreated, intracranial hemorrhage can be life-threatening.⁴ Road traffic accidents (RTA) are the primary global source of injuries and fatalities. RTA is responsible for an estimated 1.2 million fatalities annually and 50 million injuries, and it takes up 30 to 70 percent of the orthopaedic beds in hospitals in underdeveloped nations.⁵ Young adults are the most frequent victims of head injuries, accounting for 45–50% of all causes. Every mode of transportation carries some level of danger, but new motor vehicles frequently have high-speed engines that create momentum that magnifies the effects of accidents.⁶ The present study was conducted to evaluate incidence of head injury.

Materials & Methods

The present study comprised of 76 victims of head injuries of both genders. The consent was obtained from relative or family members. Data such as name, age, gender etc. was recorded. Parameters such as time interval between incidence

and arrival to hospital, time interval between arrival to hospital and death, pathological fracture, pattern of skull fracture, intracranial haemorrhage and other major injuries were recorded. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

Results

Table I: Age and gender wise distribution

Age group (years)	Male	Female	P value
20-40	22	16	0.91
40-60	10	12	
>60	8	8	

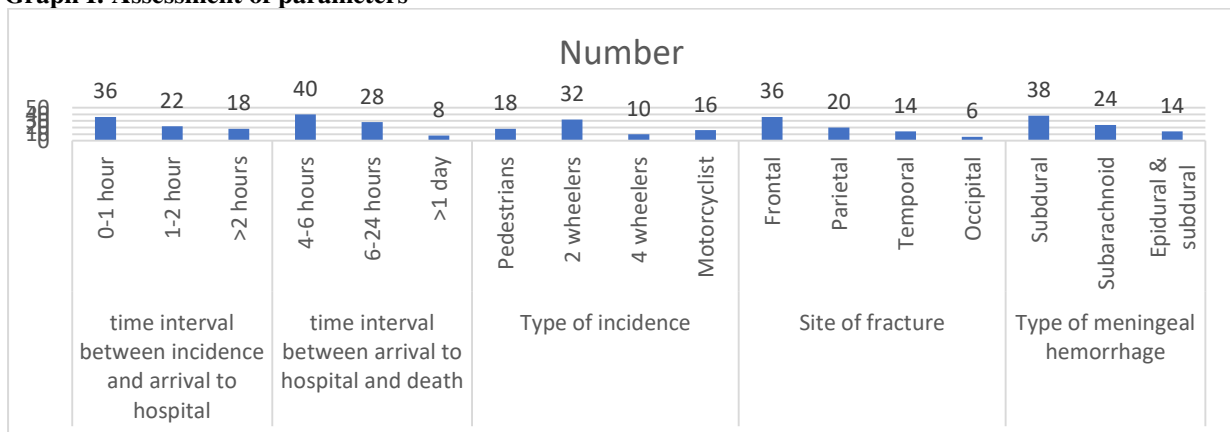
Table I shows that age group 20-40 years had 22 males and 16 females, 40-60 years had 10 males and 12 females and >60 years had 8 males and 8 females. The difference was non-significant (P> 0.05).

Table II: Assessment of parameters

Parameters	Variables	Number	P value
time interval between incidence and arrival to hospital	0-1 hour	36	0.85
	1-2 hour	22	
	>2 hours	18	
time interval between arrival to hospital and death	4-6 hours	40	0.05
	6-24 hours	28	
	>1 day	8	
Type of incidence	Pedestrians	18	0.04
	2 wheelers	32	
	4 wheelers	10	
	Motorcyclist	16	
Site of fracture	Frontal	36	0.92
	Parietal	20	
	Temporal	14	
	Occipital	6	
Type of meningeal hemorrhage	Subdural	38	0.05
	Subarachnoid	24	
	Epidural & subdural	14	

Table II, graph I shows that time interval between incidence and arrival to hospital was 0-1 hour in 36, 1-2 hours in 22 and >2 hours in 18. The time interval between arrival to hospital and death was 4-6 hours in 40, 6-24 hours in 28 and >1 day in 8 cases. Type of incidence was Pedestrians was 18, 2wheelers in 32 and 4 wheelers in 10 cases and motor cyclist in 16 cases. Site of fracture was frontal in 36, parietal in 20, temporal in 14 and occipital in 6 cases. Type of meningeal hemorrhage was subdural in 38, subarachnoid in 24 and epidural & subdural in 14 cases. The difference was significant (P< 0.05).

Graph I: Assessment of parameters



Discussion

Head injury is a major public health and socioeconomic problem causing death and disability particularly among young population throughout the world.⁷ Nowadays, the term “head injury” has been replaced by the new term “traumatic brain injury (TBI).”⁸ TBI is defined as “cerebral insult not degenerative or congenital nature, due to external mechanical force that possibly leads to permanent or temporary disabilities of cognitive, physical, and psychosocial functions with or without altered level of consciousness.”⁹ The incidence of TBI is rising worldwide because of increased mechanization, inadequate traffic education, and poor implementation of traffic safety rules, especially in developing countries like India.¹⁰ The present study was conducted to evaluate incidence of head injury.

We observed that age group 20-40 years had 22 males and 16 females, 40-60 years had 10 males and 12 females and >60 years had 8 males and 8 females. Menon et al¹¹ in their study 682 victims of road traffic accidents who died due to injuries sustained to the head were autopsied. Most of the accidents had taken place during the afternoon and evening hours (1400-2200 hours). There was a marked male preponderance (84.6%). The most vulnerable age group was found to be between 21 and 30 years. Two wheelers occupants were most commonly involved. Skull fractures were present in 88.88% of the cases. Fractures of the vault were found in 88%, base of the skull in 35.97% and a combination of both in 35% of cases. In most of the cases, fissured fractures were found (23%). Among intra-cranial haemorrhages, subdural haemorrhage was found in 52.63% and subarachnoid haemorrhage in 27.27% of cases. Contusions and lacerations of brain were found equally in 35% of cases.

We found that the time interval between incidence and arrival to hospital was 0-1 hour in 36, 1-2 hours in 22 and >2 hours in 18. The time interval between arrival to hospital and death was 4-6 hours in 40, 6-24 hours in 28 and >1 day in 8 cases. Chattopadhyay et al¹² suggested that through a comparison of attack patients with fatal and nonfatal head injuries, it is possible to highlight the significance of skull fractures as an indirect predictor of force of impact and intracranial hemorrhage. While assaults utilizing blunt weapons were more likely to result in survival, assaults involving firearms frequently resulted in fatalities. In 69.3% of cases, several cranial bones were implicated, and fatal cases frequently involved comminuted skull fractures. Only fatal cases of base of the skull fracture were observed, and the majority of fatal cases had both subdural and subarachnoid hemorrhage.

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was subdural in 38, subarachnoid in 24 and epidural & subdural in 14 cases. Amit et al¹³ reported that skull fracture had occurred in 87.30% of patients. The fissured fracture was the most common type of fracture (59.2%). Majority were a combination of both cranial vault and base of skull fractures rather than individual fractures.

Conclusion

Authors found that age group 20 to 40 years showed the most cases of head injury. Subdural hemorrhage was the leading cause of death.

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