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ORIGINAL RESEARCH

Assessment of incidence of head injury

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ABSTRACT

Background:A head injury is any trauma to the head, except small face wounds. The present study was conducted to assess incidence of head injury.**Materials & Methods:**94 victims of head injuries of both genderswere selected. Records were kept of parameters like the amount of time between an incident and the hospital's arrival, the amount of time between the hospital's arrival and the patient's death, the type of fracture, the pattern of the skull fracture, cerebral hemorrhage, and other serious injuries.**Results:** Age group 20-30 years had 28 males and 18 females, 30-40 years had 12 males and 11 females, 40-50 years had 8 males and 7 females and >50 years had 6 males and 4 females. The difference was non- significant (P> 0.05). Type of incidence was Pedestrians in 19, bicycle in 37, 4 wheelers in 18 cases and motorcyclist in 20 cases. Site of fracture was frontal in 45, parietal in 25, temporal in 14 and occipital in 10 cases. Amount of time between incidence and arrival to hospital was 0-1 hour in 48, 1-2 hours in 26 and >2 hours in 20. Amount of time between arrival to hospital and death was 4-6 hours in 46, 6-24 hours in 30 and >1 day in 18 cases. Type of meningeal hemorrhage was epidural & subdural in 47, subarachnoid in 23 and subdural in 24 cases. The difference was significant (P< 0.05).**Conclusion:** Both epidural and subduralhemorrhage was the foremost cause of death. Age group 20 to 30 years had maximum cases of head injury.

Key words: Head injury, forensics, death

INTRODUCTION

A head injury is any trauma to the head, except small face wounds. Even though it is not recognized as a separate entity in this categorization, the term "head injury" is used significantly more frequently than the numerous ICD categories that it falls under. Actually, it can occur at any severity level, ranging from a bump that produces no symptoms to a strike that seriously damages the brain. However, it's not always clear what conditions must be met for a situation to qualify as a head injury.[1]

Depending on the type of damage and its cause, patterns of fatal head injuries can change. Head injuries that result in death are frequently caused by traumatic brain injury (TBI).[2]A variety of events, including car crashes, falls, assaults, and injuries sustained in sports, can cause traumatic brain injury (TBI). Mild concussions to serious brain damage that results in a coma or even death are possible outcomes of the injury. Skull fractures can result from a serious blow to the head. The fracture may cause deadly results if it damages the brain, blood arteries, or other important structures within the skull, depending on its position and severity.[3]

There are several causes of intracranial hemorrhage, including brain aneurysms, trauma-related blood vessel ruptures, and other illnesses.[4]Intracerebrospinal bleeding may be fatal if untreated. Road traffic accidents (RTAs) are the leading cause of death and injury worldwide. RTA accounts for 50 million injuries and an estimated 1.2 million deaths every year; in hospitals in developing countries, it occupies 30 to 70 percent of the orthopaedic beds.[5] Young adults account for 45–50% of all brain injury cases, making them the most common victims. All forms of transportation include some degree of risk, but modern cars often feature fast engines that increase the force of an impact from collisions.[6]The present study was conducted to assess incidence of head injury.

MATERIALS & METHODS

The present study conducted on94 victims of head injuries of both genders in the department of Forensic Medicine and Toxicology, Shri Krishna Medical college, Muzaffarpur. Duration of the study was from March 2020 to September 2020. Family members or relative gave their consent for participation in the study.

Data such as name, age, gender etc. was recorded.Records were kept of parameters like the amount of time between an incident and the hospital's arrival, the amount of time between the hospital's arrival and the patient's death, the type of fracture, the

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pattern of the skull fracture, cerebral hemorrhage, and other serious injuries. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table Distribution of victims

Age group (years)	Male (54)	Female (40)	P value
20-30	28	18	0.57
30-40	12	11	
40-50	8	7	
>50	6	4	

Table I shows that age group 20-30 years had 28 males and 18 females, 30-40 years had 12 males and 11 females, 40-50 years had 8 males and 7 females and >50 years had 6 males and 4 females. The difference was non- significant (P> 0.05).

Table II Assessment of parameters

Parameters	Variables	Number	P value
Type of incidence	Pedestrians	19	0.05
	Bicycle	37	
	4 wheelers	18	
	Motorcyclist	20	
Site of fracture	Frontal	45	0.12
	Parietal	25	
	Temporal	14	
	Occipital	10	
Amount of time between incidence and arrival to hospital	0-1 hour	48	0.05
	1-2 hour	26	
	>2 hours	20	
Amount of time between arrival to hospital and death	4-6 hours	46	0.53
	6-24 hours	30	
	>1 day	18	
Type of meningeal hemorrhage	Epidural & subdural	47	0.84
	Subarachnoid	23	
	Subdural	24	

Table II shows that type of incidence was Pedestriansin 19, bicycles in 37, 4 wheelers in 18 cases and motorcyclistin 20 cases. Site of fracture was frontal in 45, parietal in 25, temporal in 14 and occipital in 10 cases. Amount of time between incidence and arrival to hospital was 0-1 hour in 48, 1-2 hours in 26 and >2 hours in 20. Amount of time between arrival to hospital and death was 4-6 hours in 46, 6-24 hours in 30 and >1 dayin 18 cases. Type of meningeal hemorrhage was epidural & subdural in 47, subarachnoidin 23 and subdural in 24cases. The difference was significant (P< 0.05).

DISCUSSION

Head injuries are a serious public health and socioeconomic issue that, globally, disproportionately affect the youth population and result in death and disability.[7,8] The phrase "traumatic brain injury (TBI)" has taken the place of "head injury" in modern usage.[9] According to the definition of TBI, it is a "cerebral insult not of a degenerative or congenital nature, due to external mechanical force that may result in cognitive, physical, and psychosocial functions being permanently or temporarily disabled, with or without altered level of consciousness."[10] Worldwide, the prevalence of traumatic brain injury (TBI) is on the rise due to factors such as growing mechanization, insufficient traffic education, and lax enforcement of traffic safety regulations, particularly in developing nations like India.[11,12]The present study was conducted to evaluate incidence of head injury.

We found that age group 20-30 years had 28 males and 18 females, 30-40 years had 12 males and 11 females, 40-50 years had 8 males and 7 females and >50 years had 6 males and 4 females. Ramesh et al[13] recorded the incidence of head injuries, correlate with manner of death (Suicide, Homicide, and Accident) in deceased died due to fracture of the skull, age relationship, sex relationship, agent causing skull fractures, common skull bone fractures and the cause of death. During this study 364 cases were brought for postmortem examination. Out of which, 94 cases were due to fatal head injuries. Out of this the most common circumstance causing skull fractures are road traffic accidents (RTA) in 77cases (81.94 %). Male preponderance over females noted in this study with males constituting 80 cases (85.10 %) and females 14 cases (14.89 %). The most common age group affected was 21-30 years. Blunt force is the most common agent causing the skull fracture in 90 cases

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(95.74 %) and least is sharp in 4 cases (4.25 %). Among skull fracture comminuted fracture were seen in 46 cases (48.93%), Linear fracture in 38 cases (40.42%), depressed fracture in 8cases (8.5%) and Sutural fracture in 1 case and Gutter fracture in 1 case (1.06%) respectively. Temporal bone was the commonest bone fracture in 17 cases (18.08%). It was noted that the main cause of death was head injury in 59 cases (62.77%).

We observed that type of incidence was Pedestrians in 19, bicycle in 37, 4 wheelers in 18 cases and motorcyclistin 20 cases. Site of fracture was frontal in 45, parietal in 25, temporal in 14 and occipital in 10 cases. Amount of time between incidence and arrival to hospital was 0-1 hour in 48, 1-2 hours in 26 and >2 hours in 20. Amount of time between arrival to hospital and death was 4-6 hours in 46, 6-24 hours in 30 and >1 day in 18 cases. Type of meningeal hemorrhage was epidural & subdural in 47, subarachnoidin 23 and subdural in 24 cases. Solankiet al[14]studied the various epidemiological factors associated with road traffic accidentcases. 400 road traffic accident cases were studied. Among the 400 study subjects, majority (81.0%) were males, while (19%) females, most of them (33.25%) were in age group of (15-25) years. The motorcyclist comprised (42.5%) of RTA cases, followed by (20.25%) of occupants of car and jeep. Fatal injury (death) was more common(27.56%) in cases of motorized vehicle followed by the pedestrians (10.40%). Among 252 drivers majority (85.71%) were male and (32.94%) of them were not having driving licence. Highest RTAs (33.14%) occurred in drivers who had driving licence issued within two years. Nearly half (49.25%) of RTA cases took place between 5 PM to 9 PM and a good number of drivers(20.23%) reported that they were fatigued at the time of accident.

Chattopadhyayet al[15]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.

CONCLUSION

Authors found that both epidural and subdural hemorrhage was the foremost cause of death. Age group 20 to 30 years had maximum cases of head injury.

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