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Original Research Article

Pattern of Head Injury Cases At A Tertiary Care Centre In Southern Rajasthan

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Abstract

Background: The incidences of head injuries are growing with increasing number of high speed motor vehicle, more movement of the public and mechanization as well as modernization in industry. Head injury is most common causes of mortality in road traffic accidents and fall from Height. This study is conducted to explore and evaluate pattern of Head injuries in victims reporting to the tertiary health care Hospital**.**

Material and Methods: This study was a prospective analysis of 450 patients of head injury reporting at the Emergency Department, Pacific Institute of Medical Sciences, Umarda, Udaipur, Rajasthan India, during the period 2020 to 2021.

Result: Most common cause of Head Injury victims reporting to the tertiary care hospital was Road Traffic Accident. Male victims were more commonly getting Head injury due to Road Traffic Accident followed by Occupational Head injury, while Female victims were getting Head injury due to fall from Height followed by Road Traffic Accident. Common age group involved in Head injury was of 21-40 years. It was clearly reflected that in Head injury, commonest lesion was scalp laceration followed by fractures to the skull.

Conclusion: The study showed that most head injury victims, brought to a tertiary care hospital, were due to road traffic accidents and males are more prone to get Head injury. By establishing good pre-hospital care and provision of efficient and well organized trauma services at Road side can minimize or prevent mortality due to road traffic accidents and fall from Height.

Keywords: Head Injury, Skull fracture, Road traffic accidents and Fall from Height.

Introduction

The incidence of head injury is progressing at a greater mechanization in industry and an increase in high-velocity transport. The injuries could be caused by a blunt or

penetrating force such as a fall at the feet or buttocks. There is no relation to the severity of injury to skull bones and to the extent of cerebral disorder. Head Injury can be defined as, "morbid state, resulting from gross or fine drawn structural changes in the scalp, skull, and or the contents of the skull, produced by mechanical forces. [1]" It has also been defined as physical damage to the brain, skull or scalp produced by an external force. [2] Depending upon the dura-matter condition whether it was torn or not, head injury may be termed as open or close type. [3] The degree and extent of injury to the skull and its contents is not necessarily proportional to the quantum of force applied to the head. According to Munro [4] "any type of cranio-cerebral injury can be caused by any kind of blow on any sort of head trauma."

Various head injuries, with or without peripheral trauma, is the commonest cause of death and/or disability up to the age of 45 years in developed countries. [5] This analysis on the pattern of head Injury in road traffic accidents and other factors influencing the Pattern of head injuries Head injury is a major public health concern and has already attained epidemic proportions in India. As a result cranio-cerebral trauma places a huge psychological as well as financial burden upon the society. In India, the problem has aggravated over the last two decades, mainly due to increased vehicular traffic and poor maintenance on the road. The numbers of head injury cases are expected to elevate further, due to urbanization as well as increase vehicular load and high speed motor vehicles. The analysis of prognosis in head injury is crucial depending up on the specialized care team involved in this management.

Materials and Methods

This study was a prospective analysis of 450 patients of head injury reporting at the Emergency Department, Pacific Institute of Medical Sciences, Umarda, Udaipur, Rajasthan India, during the period between 2020 to 2021. All the patients of head injury who were reported to the Emergency Department were followed during their Treatment and stay at the hospital from admission to discharge or death. Information was obtained regarding: Nature of head Injury (Scalp, Skull, Intra-cranial), Mode of injury (Fall From Height, Road Traffic Accident, Assault, Occupational injuries).

Results

Circumstances of different types of Head injuries are shown in Table 1. Majority of victims are of Road Traffic Accident 268 (59.55%) cases followed by Fall From Height 90 (20.0%) cases. Assault 19 (4.22%) and Occupational Head injury 72 (16%) cases, whereas other like gunshot etc comprised of 1 (0.23%) cases.

According to the Table 1, suffering from head injury to male victims were commonly due to Road Traffic Accident 226 (65.27%) cases followed by Occupational Head injury 70 (20.37%) cases, FFH and Assault were 28 &16 cases (9.40% & 4.70%) respectively. Suffering from head injury to Female victims were commonly due to FFH 62 (55.56%) cases followed by Road Traffic Accident 42 (41.03%) cases, Assault and Occupational Head injury were 3 &2 cases (2.56% & 0.85%) respectively.

Table 1: Circumstance of head injury

Cause of injury	Male	%	Female	%	No. of cases	%
RTA	226	66.30	42	38.53	268	59.55
FFH	28	8.21	62	56.88	90	20.00
Assault	16	4.65	3	2.76	19	4.22
Occupational	70	20.55	2	1.83	72	16.00

Other	1	0.29	0	0.00	1	0.23
Total	341	100.00	109	100.0	450	100.0

In the Table 2, it is clearly reflected that in Head injury, commonest lesion was Scalp laceration i.e. 226 cases (50.2%), followed by fractures of skull 75 cases (16.6%) which is commonest in intra-cranial lesions. SDH 55 cases(12.2%) was commonest intra- cranial hemorrhage followed by SAH 47 cases (10.4%). Contusion and EDH injuries were 40 (8.8%) and 7 (1.8%) cases respectively.

Table 2: Frequency of different lesions in head injury

Lesions	Cases	%
Scalp-laceration	226	50.2
Skull fracture	75	16.6
Contusion	40	8.8
SDH	55	12.2
SAH	47	10.4
EDH	7	1.8

As per the study, Table 3 shows the pattern of skull fracture. Individually temporal bone was involved in skull fracture i.e 22 cases (26.51%) followed by frontal bone which was 21 cases (25.30%). 24 cases were having involvement of more than one bone (28.92%)

Table 3: Pattern of skull fracture

Bone involved	Cases	%
Frontal	21	25.30
Temporal	22	26.51
Parietal	12	14.46
Occipital	4	4.82
Multiple bone	24	28.92
Total case	83	100.0

In this study from Table 4, it is concluded that there was survival of Head injury victim was 94.4% (472 cases) in a tertiary Care Hospital. while 5.6% (28 cases) expired in Hospital due to fatality of Head Injury.

Table 4: Mortality pattern

Outcome	Cases	%
Live	425	94.4
Expired	25	5.6
Total	450	100

Discussion

With exploding population, increasing numbers of automobile vehicles on the road, tendency of violating traffic rules and traffic systems have greatly contributed to increase in head injury due to the road traffic accident. Head injury is also very common in assault and Fall from Height injuries and vulnerability of the head is the reason that the fatal injuries are inflicted with intention to kill a person. Firstly, expenditure in treating these victims and secondly being in the most productive age group; it results in huge productive man-days

loss. An increased incidence of head injury has the direct repercussions on increased fatalities. Road traffic accident was the most common mode of head injury in the adult age group. The overall increase in vehicular traffic to the roads is responsible for automobile accidents being the most common mode of fatal injury. In Road Traffic Accidents, head injury is the most common cause of mortality followed by Thoraco-abdominal and the musculo-skeletal injuries in that order. [5-7] In our study, we found out that in head injury, the most common cause was Road Traffic accidents followed by fall from height. This is in accordance with the study done by Chen CL [8] which showed 70% road traffic accident, 15.3 % fall from height and assault 8.7% and the result of Kremer C [9] also match with this study. In Road Traffic Accidents male: Female victims ratio was 5:1 in the present study, which is in conformity with other workers, [10-13,14] who have reported the range from 1.7: 1 to 8: 1. However, the proportional changes of male: Female to 0.5:1 in fall from Height victims. The male predominance in our study also fits well with the reporting of another research of a similar nature. [15-19] This gender bias could be because males work outdoors and therefore, they are more commonly exposed to road traffic accidents, assault and occupational injuries

Scalp laceration observed in 50.2% cases, Skull fractures, at one or multiple sites, observed in 16.6 % of the victims. In the present study, there were 226 individuals with injuries to the scalp. There were 224 cases with no scalp injury at all. The commonest type of injury was laceration and hematoma. Study conducted in Delhi by Tyagi [23] reported scalp injuries to be present in 76%, while Gupta 24 reported 89% of scalp laceration. These findings are consistent with this study. Cases of head injury with fractures of the skull tend to have more complications and are more often fatal than those without fracture. [6,7] The bones involved in order of frequency, in the study were: Frontal (25.30%), Temporal (26.51%), Parietal (14.46%) and Occipital (4.82%). However, in the most common cases, i.e. 24 cases (28.92%) the fractures were found at multiple sites. Akang [22] in their study reported: Frontal (12%), Temporal (9%) and Parietal (9%). Chandra [10] reported: Temporal (59%), Occipital (58%) Parietal (50%) and Frontal (49%). Both series, however, have reported the skull fractures at multiple sites as the most common. [24,25] The commonest intracranial haemorrhage being subdural in our study, followed by subarachnoid is in conformation to the observations made by Akang [22] The findings differ with the observations of Chandra [10] who have reported subarachnoid haemorrhage as the commonest.

Conclusion

The study showed that most head injury victims, brought to a tertiary care hospital, were due to road traffic accidents and males are more prone to get Head injury. So it warrants the urgency to establish good pre-hospital care and provision of efficient and prompt trauma services at teritiary care hospitals to prevent mortality aroused from RTA. RTA remains the most common cause for Head injury and demands good neurosurgical care for such patients. By the compiling the records of these traumas at national level or international level can underline risk factors involved in these accidents, will be extremely helpful in the policy building and making the decisions for health promotion and health building at national or international level.

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