Research Paper

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Study of Road Traffic Accident in Ahmedabad :an Observational Study

Medical Science

KEYWORDS : Head injury,GCS,GOS

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ABSTRACT

Background: Head injury is one of the epidemics of industrialized world and it is becoming one of the major burden of our health care system also.Majority of head injury is due to rash driving and mere avoidance to follow simple traffic rules.

Aims and objective: To study the various aspects of head injury patients and their effect on the outcome of head injury patients.

Material and Methods:Institutional based observational study was carried out. Patients in the age group of 20-70 years were included in the study.various factors related to head injury was observed and there outcome analysis was done.

Results: The age of the patient in the present study ranged from 20 -70 years. The mean age was 36.5±12.5 years ,Most of the patients in the study were of younger age group probably due to increased involvement in outdoor activities and living a high-tech lifestyle. majority of the patients were male (94 percent). Eighty percent (n=40) of our patients were brought to accident and emergency department in a average time period of 3 hours since injury and remaining 20% (n=10) within 6-12 hours after injury. majority of the patients had road side accidents (72 %). Twenty six patients(52%) had GCS 9-13 (moderate) and twenty four patients(48%) had GCS < 8(severe). Twenty one patients had hemorrhagic contusion. Eleven patients had extradural hemorrhage. Seven patients had subdural hemorrhage. Four patients had subarachnoid hemorrhage. Four patients had depressed fracture skull. While diffuse axonal injury and Pneumocephalus were seen in one patient individually, one patient had normal CT scan report. Forty two patients were managed conservatively and the rest required surgical intervention. In the moderate head injury group 2 patients expired (GOS-1) while 24 were discharged (GOS -5). In the severe head injury group 19 patients died (GOS-1) while 1 patient was discharged in a vegetative state (GOS-2) and 4 patients were discharged (GOS-5).

Conclusion: Head injury is a frequently encountered injury in emergency departments of most hospitals. It is of special concern due to its rise in incidence, morbidity and mortality. Stringent traffic rules, awareness among masses, programmes to upgrade the skills of paramedical staff in managing on spot emergencies and better medical facilities may decrease the incidence of head trauma.

INTRODUCTION

Head injury is an important cause of mortality in the industrialized world.[1] With an increasing trend in industrialization and numbers of vehicles on the road, the incidence of head injury is increasing day by day. This is primarily due to not following of traffic rules by not wearing helmets and seat belts while driving. Road side accidents constitute about 50% of cases of head injury in persons below 75 years of age.

Head injury is considered to be a major public health problem as it is a leading cause of death and disability in children and adults in their most productive years. It also makes considerable demands on health services. According to the World health organization Traumatic brain injury is one of the epidemics of 21st century similar to HIV.It is a major problem in both developed and developing countries.2

In the present study we included 50 patients of isolated head injury to study their causes, age distribution and final outcome.

MATERIAL METHOD:

In the our study fifty patients of isolated head injury (admitted in the neurosurgical ward of our institution) were included. Written informed consents were taken from their attendants. After initial resuscitation necessary investigations were carried out. They were then assessed according to their mode of injury, time lag before hospital admission, severity (Glasgow Coma Scale) of injury, age and sex distribution, CT scan findings and treatment modality. The outcomes were noted and depicted as given below

Depicting GOS

Score	Rating	Definition
5	Good Recovery	Resumption of normal life despite minor deficits
4	Moderate Disability	Disabled but independent. Can work in sheltered setting
3	Severe Disability	Conscious but disabled. Dependent for daily support
2	Persistent vegetative	Minimal responsiveness
1	Death	Non survival

All the data were computed and analyzed statistically.

OBSERVATIONS

Fifty patients of isolated head injury were selected for the study. It was conducted in the neurosurgical department of our institution over a period of six months.

Age distribution

The age of the patients ranged from 20 -70 years. In 20-30 years age group there were 17 patients, 30-40 years 13 patients and 40-50 years 8 patients. Further 50-60 years age group had 7 patients and 60-70 five patients.

Sex distribution

TABLE 1

Sex	No of patients	Percentage (%)
Male	47	94
Female	03	06

Table 1 shows the sex distribution of the patients. Out of 50 patients 47 of them were males and 3 females.

Mode of injury

TABLE 2

Mode of injury	No of patients	Percentage (%)
Accident	36	72
Assault	06	12
Fall	06	12
Unknown	02	04

Table 2 shows the mode of injury in these patients. Accident was the most common mode of injury accounting for 72 percent of the cases. Assault and fall was responsible for 6 percent and the causes of rest 4% were unknown.

Time lag of before hospital arrival
TABLE 3

Time lag (In hrs)	No of patients	Percentage (%)
0-3	20	40
3-6	20	40
6-9	06	12
9-12	01	02
12-15	02	04
Not known	01	02

Table 3 shows the time lag before arriving at the hospital. Twenty patients came within 3 hours of injury. Another 20 patients presented within 3 -6 hours after injury. Six patients presented within 6-9 hours after injury. Two patients presented 12 hours after injury and in one patient time lag since injury were not known.

GCS of the patients at the time of admission
TABLE 4

GCS at admission	No of patients	Percentage (%)
9-13	26	52
< 8	24	48

Table 4 shows the GCS of the patients at admission. Twenty six patients had GCS 9-13 (moderate) and twenty four patients had GCS < 8(severe).

CT Head findings
TABLE 5

CT Findings	No of Patients	Percentage
Extradural hemorrhage	11	22
Subdural hemorrhage	7	14
Subarachnoid hemorrhage	4	08
Hemorrhagic contusion	21	42
Depressed fracture	4	08
Diffuse axonal injury	1	02
Pneumocephalus	1	02
Normal study	1	02

Table 5 shows the CT Head findings of all the patients. Twenty one patients had hemorrhagic contusion. Eleven patients had extradural hemorrhage. Seven patients had subdural hemorrhage. Four patients had subarachnoid hemorrhage. Four patients had depressed fracture skull. While diffuse axonal injury and Pneumocephalus were seen in one patient individually, one patient had normal CT scan report.

Treatment modality
TABLE 6

Treatment modality	No of patients	Percentage
Conservative	42	84
Surgical	08	16

Table 6 shows the treatment modality in these patients. Forty two patients were managed conservatively and the rest required surgical intervention.

Outcome of the patient
TABLE 7

Type of head injury	No of patients	Expired (GOS-1)	Vegetative (GOS-2)	Discharged (GOS-5)
Moderate	26	02	00	24
Severe	24	19	01	04

Table 7 shows the outcome of the patients . In the moderate head injury group 2 patients expired (GOS-1) while 24 were discharged (GOS -5). In the severe head injury group 19 patients died (GOS-1) while 1 patient was discharged in a vegetative state (GOS-2) and 4 patients were discharged (GOS-5).

GOS after surgery
TABLE 8

Outcome	No of patients	Percentage
Discharged (GOS-5)	4	50
Vegetative (GOS-2)	1	13
Expired	3	37

Out of the 8 patients who required surgical intervention 4 were discharged with a GOS-5. 1 patient was discharged with GOS-3. 3 patients expired after surgery.

DISCUSSION

Head injury is a broad term and is defined as damage to the brain and underlying blood vessels of the brain, scalp and skull. Its incidence is on a rise due to increase in the number of road traffic accidents which results from the increase in number of vehicles on the road3. Other common causes of head injury include assault, fall from height etc. However most of these injuries are minor because the skull provides the brain with considerable protection. Once this barrier is overcome head injury may present to us in various ways like extradural hemorrhage, subdural hemorrhage, hemorrhagic contusion, subarachnoid hemorrhage etc.

Traumatic brain injury is an integral part of head injury. It is a form of acquired brain injury which occurs when a sudden trauma causes damage to the brain. TBI can result when the head suddenly and violently hits an object or when an object pierces the skull and enters brain tissue. Symptoms of a TBI can be mild, moderate, or severe depending on the extent of the damage to the brain. A person with a mild TBI may remain conscious or may experience a loss of consciousness for a few seconds or minutes. Other symptoms of mild TBI include headache, confusion, light headedness, dizziness, blurred vision or tired eyes, ringing in the ears, bad taste in the mouth, fatigue or lethargy, a change in sleep patterns, behavioral or mood changes, amnesia, lack of concentration, attention, or thinking. A person with a moderate or severe TBI may show these same symptoms, but may also have a headache that gets worse or does not go away, repeated vomiting or nausea, convulsions or seizures, dilatation of one or both pupils of the eyes, slurred speech, weakness or numbness in the extremities, lack of coordination, increased confusion, restlessness and agitation.

The present study was conducted in fifty patients with isolated head injury admitted to our Department of Neuro Surgery over a period of six months. The aim was to know the changing pattern of head injury and their effect on the outcome of these patients. All the patients were first resuscitated and relevant blood investigations were done. The following inference were drawn

Age Distribution

The age of the patient in the present study ranged from 20 -70 years. The mean age was 36.5±12.5 years which is at par with the studies of Gan BK et al4 , Carolina et al5, Greuters et al6. Most of the patients in the study were of younger age group probably due to increased involvement in outdoor activities and living a high-tech lifestyle. The elderly persons tend to have lower impact injuries like falls. This may be due to the co morbidities associated with advance age such as poor eyesight, impaired balance, postural hypotension.

Sex distribution

In the present study majority of the patients were male (94 percent) We had around 6 percent (n=3) females in our study which is little less when compared to Greuters et al6, Vavilala et al7 and Carolina et al. This is probably due to the preponderance of males being drivers in India and their involvement in outdoor activities.

Time since injury

Eighty percent (n=40) of our patients were brought to accident

and emergency department in a average time period of 3 hours since injury and remaining 20% (n=10) within 6-12 hours after injury. Patients from nearby villages and towns form bulks that drain in our institution. Poor communication and referral to various health centres add to the delay. The golden hour of head injury is generally breached due to the above causes.

Mode of head injury

In the present study majority of the patients had road side accidents (72 %) which is at par with Kanchana et al8. Carolina et al5observed that 45.8 % of their patients had accident as a mode of injury while in Gan BK et al4 observed accidents to be the mode of injury in 54.7 % of their cases. The high incidence of accidents in our study is probably due to the ever increasing number of vehicles on road and due to the disobeying of traffic rules like riding a bike without a safety helmet and drunked condition while driving. Western countries have strict traffic norms which may be responsible for less number of road side accidents.

CONCLUSION

Head injury is a frequently encountered injury in emergency departments of most hospitals. It is of special concern due to its rise in incidence, morbidity and mortality. Stringent traffic rules, awareness among masses, programmes to upgrade the skills of paramedical staff in managing on spot emergencies and better medical facilities may decrease the incidence of head trauma.

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