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RESEARCH ARTICLE

A STUDY OF HEAD INJURY PATIENTS IN A TERTIARY CARE HOSPITAL OF TRIPURA, INDIA.

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Abstract

Background: India has the rather unenviable distinction of having the highest rate of head injury in the world. In India, more than 100,000 lives are lost every year with over 1 million suffering from serious head injuries. In India, 1 out of 6 trauma victims die, while in the United States this figure is 1 out of 200. This seemingly unbreachable gap speaks volumes of the perfected trauma management procedures in US and their near absence in India. The global incidence rate of traumatic head injury is estimated at 200 per 100 000 people per year; however, this rate is uncertain and a likely underestimate. Traumatic brain injury according to the World Health Organization, will surpass many diseases as the major cause of death and disability by the year 2020. With an estimated 10 million people affected annually by traumatic head injury, the burden of mortality and morbidity that this condition imposes on society, makes traumatic head injury a pressing public health and medical problem.

Methods: Hospital based Cross Sectional study.

Results: Road Traffic Accident(RTA) was found to be the leading (65.7%) cause of traumatic brain injury mostly in the age group of 21-30 years of age. However, in case of age group 1-10 years, fall was found to be the most common factor. Injuries ranged from scalp hematoma (75%) cases followed by cerebral contusions in 26.3%.

Conclusion: Road Traffic Accidents (RTA) was the most common cause of head injury, with most common affected group being the young adult males. As much as 40% of these injuries were found to be in urgent need of medical attention.

Introduction:-

Head injury is one of the most devastating types of injury, and it results in varying degrees of paralysis, loss of consciousness, amnesia and even death. Head trauma accounts for the majority of trauma deaths [1]. The effects of serious head injury are not limited to an individual's health; it also creates a financial burden for families and societies. The burden of traumatic head injury is manifested throughout the world, and is especially prominent in

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Low and Middle-Income Countries which face a higher preponderance of risk factors for causes of traumatic head injury and have inadequately prepared health systems to address the associated health outcomes. Half of those who die from Traumatic brain injury do so within the first two hours of injury. It is now known that only a portion of neurological damage occurs at the moment of impact (primary injury); damage progresses during the ensuing minutes, hours and days. The secondary brain injury can result in increased mortality and disability.

Consequently, the early and appropriate management of head injury is critical to the survival of these patients. Thus Time, while being a critical factor in the overall prospects of a patient is yet to be fully appreciated. Research has also shown that traumatic brain injury (TBI) usually requires long-term care and therefore incurs economic cost to health systems. For this reason,India needs to develop surveillance systems and conduct epidemiologic studies to measure the impact of neurotrauma among their people to guide the development of more effective preventive methods

Materials and methods:-

Study Design: Hospital based Cross-sectional study.
Study Setting: Department of General Surgery, A.G.M.C & G.B.P. Hospital.
Study population: All patients admitted in General surgery wards with Head injury.
Study duration: 1 year (October 2016 to September 2017)
Inclusion criteria: patients of all age and sex admitted with head injury in the general surgery ward of A.G.M.C & G.B.P. Hospital
Exclusion criteria: 1) patients who do not give consent
2) brought dead cases
Sample size: all patients admitted in the duration of study period in the ward.
Study tools: The study participants were briefed regarding the purpose of the study and their consent was taken. Data was collected by interviewing the patient and using the clinical and diagnostic reports.
Ethical consideration: Ethical committee approval and informed consent was taken from every patient explaining the full study before being included in the study.

Results:-

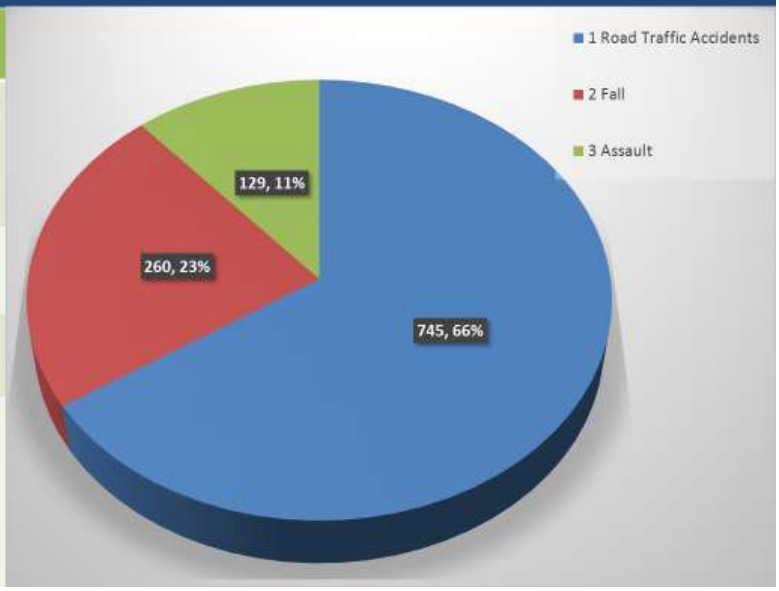
Total of 1134 patients were included in the study out of which 815 (71.86%) were male and 319(28.14%) were female. Among these, the age group of 21-30 years was the most common affected group, with 265 (23.36%) males and 88 (7.8%) females.

SR.NO.	AGE	MALE	FEMALE	TOTAL
1	1-10	68 (6%)	20 (1.76%)	88 (7.76%)
2	11-20	92 (8.11%)	22 (1.8%)	114 (10%)
3	21-30	265 (23.36%)	88 (7.8%)	353 (31.2%)
4	31-40	155 (13.66%)	70 (6.17%)	225 (20%)
5	41-50	143 (12.6%)	82 (7.2%)	225 (20.4%)
6	51+	92 (8.11%)	37 (3.26%)	129 (11.4%)
		815 (71.86%)	319 (28.14%)	1134

Most common cause of head injury was found to be road traffic accidents (RTA) with 745 (65.7%) recorded patients followed by fall 260 (22.9%) cases and assaults in the remaining 129(11.34%) patients.

Mode of Injury

SR. NO.	MODE	NUMBER
1	Road Traffic Accidents (RTA)	**745 (65.7%)**
2	Fall	260 (22.9%)
3	Assault	129 (11.4%)
	TOTAL	1134



Road traffic accidents RTA was found to be most common in the age group of 21- 30 years having 242(32.48%) patients included in the study with road traffic accident (RTA), while fall was most common in the age group of 0-10 years with 88(33.84%) of total patients admitted with history of fall, followed by assault being more common in the age group of 21-30 years with 46 patients (35.65%).

Mode of Injury in different age groups

SR. NO.	MODE	0-10	11-20	21-30	31-40	41-50	50+
1	RTA	78 (10.46%)	116 (15.57%)	**242 (32.48%)**	181 (24.29%)	73 (9.79%)	55 (7.38%)
2	Fall	**88 (33.84%)**	67 (25.76%)	33 (12.69%)	26 (10%)	29 (11.15%)	27 (10.38%)
3	Assault	2 (1.55%)	7 (5.42%)	46 (35.65%)	31 (24.03%)	20 (15.50%)	33 (25.58%)
	TOTAL	168	190	**321**	238	122	115

Various lesions found in the head injury patients are scalp hematoma in 736(75%) patients followed by cerebral contusions in 298 (26.3%) patients and skull fractures in 170 (15%) patients.

Various Types of Lesions in Head Injury

SR. NO.	TYPE OF LESION	NO. OF PATIENTS
1	SCALP HEMATOMA	**736 (75%)**
2	CEREBRAL CONTUSION	**298 (26.3%)**
3	SKULL FRACTURE	**170 (15%)**
4	CEREBRAL EDEMA	**155 (13.7%)**
5	SUBDURAL HEMATOMA	80 (7%)
6	EXTRADURAL HEMATOMA	62 (5.5%)
7	SUBARACHNOID HEMATOMA	43 (3.8%)
8	INTRAVENTRICULAR HEMORRHAGE	22 (2%)
9	PNEUMOCEPHALUS	30 (2.6%)

The distribution of lesions in various age groups is as follows:

Distribution of Lesions in various age groups

SR. NO.	TRAUMATIC LESION	0-10	10-20	20-30	30-40	40+	TOTAL
1	CEBRAL EDEMA	22 (14.2%)	27 (17.4%)	**42 (27%)**	35 (22.6%)	29 (18.7%)	155
2	SUBDURAL HEMATOMA	3 (3.7%)	4 (5%)	16 (20%)	21 (26%)	36 (45%)	80
3	EXTRADURAL HEMATOMA	0	1 (1.6%)	11 (17.7%)	22 (35.5%)	27 (43.54%)	62
4	SUBARACHNOID HEMORRHAGE	4 (9.3%)	2 (4.6%)	9 (21%)	10 (23.3%)	18 (41.9%)	43
5	CEREBRAL CONTUSION	29 (9.7%)	35(11.7%)	**100(33.6%)**	54 (18.1%)	79 (26.5%)	298
6	SKULL FRACTURE	18 (10.6%)	23 (13.5%)	**57(33.5%)**	31(18.2%)	40 (23.%%)	170
7	INTRAVENTRICULAR HEMORRHAGE	2 (9%)	0	7(31%)	5 (22.7%)	8 (36.3%)	22
8	SCALP HEMATOMA	**58 (7.8%)**	**72(9.7%)**	**248 (33.6%)**	125 (17%)	233 (31.6%)	736
9	PNEUMOCEPHALUS	2 (6%)	9 (30%)	7(23%)	0	12 (40%)	30
10	DIFFUSE AXONAL INJURY	0	0	4 (50%)	3 (37.5%)	1 (12.5%)	8

Comparing various modes of Injury in conjunction with various types of Lesions shows the results as follows:

Mode of Injury in Conjunction with various types of Lesions

SR. NO	MODE OF INJURY	SDH	EDH	SAH	CEREBRAL CONTUSION	CEREBRAL EDEMA
1	RTA	**72 (90%)**	**50 (80.6%)**	**29 (67.4%)**	**212 (71.1%)**	**126 (81.2%)**
2	FALL	6 (7.5%)	81 (13%)	11 (25.6%)	70 (23.5%)	21 (13.5%)
3	ASSAULT	2 (2.5%)	4 (6.4%)	3 (7%)	16 (54.6%)	8 (5.3%)
	TOTAL	80	62	43	298	155

Conclusion:-

Majority of the patients admitted to the hospital with head injury was found to be males than females, with a ratio of 3:1. Among them, majority (54%) were aged less than 30 years. Road Traffic Accident(RTA) was found to be the most common cause of head injuries with around 66% cases mostly in the age group of 21-30 years. Around 40% of head injury patients had significant brain injury.

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