

An Epidemiological Study of Pediatric Extradural Hematoma in A Developing Country

¹Dr.Chirantan Banerjee. ²Dr.Garga Basu ³Dr.Kanchan Sarkar Chakravorty
⁴Dr.Sandip Pal

DEPARTMENT OF NEUROSURGERY, MEDICAL COLLEGE, KOLKATA

I. Introduction

Trauma victims occupy 10-38% of hospital beds in the country as reported by WHO SEARD, Jan., 2001. The burden of road traffic injury alone amount to Rs 55000 crores (3% of GDP) in direct and indirect socio- economic losses as reported by India Injury Report (2005) ¹. Head injury continues to be a nightmare not only for public but also for the neurosurgeon, because of high morbidity and mortality. There has been no change in mortality and morbidity of severe head injury in last 30 years². Though spontaneous intracranial haemorrhage is uncommon in children, it is an important cause of death and permanent neurological deficit in children. Common causes for spontaneous intracranial haemorrhage include congenital vascular anomalies of brain, brain tumour and congenital heart disease³.

II. Aims And Objectives

Study the epidemiology of pediatric extradural hematoma in India and take preventive measures to reduce morbidity and mortality related to this.

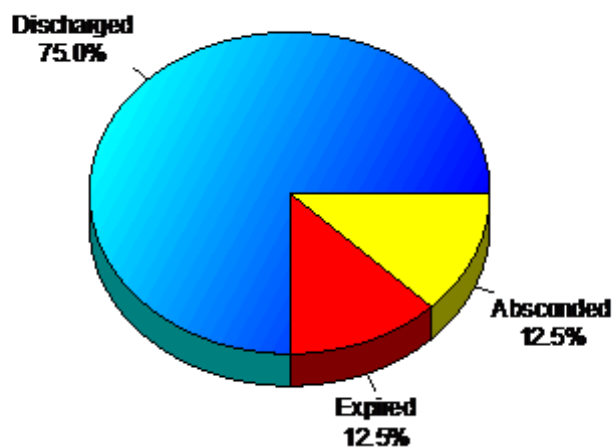
III. Material And Methods

1. Detailed history, clinical and neurological examinations
2. Investigations like NCCT Brain, x-ray cs spine.

IV. Result And Discussion

Table 1- Patients distribution (n=104)

S.No.	Status	No.	Percentage
1.	Total number of patients enrolled	104	100
2.	Patients discharged	78	75
3.	Patients expired	13	12.5
4.	Patients absconded	13	12.5



n=104

Epidemiological Profile

Table 2: Age wise distribution of Patients (n=104)

S.No.	Age group	No.	Percentage
1.	<3 years	5	4.8
2.	3-5 years	14	13.5
3.	6-11 years	36	34.6
4.	12-18 years	49	47.1

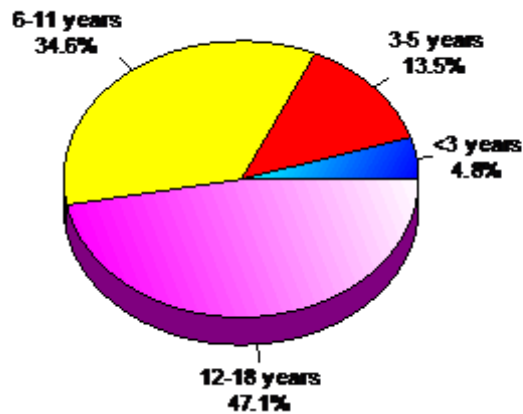


Table 3: Gender wise distribution of Patients (n=104)

S.No.	Gender	No.	Percentage
1.	Female	30	28.8
2.	Male	74	71.2

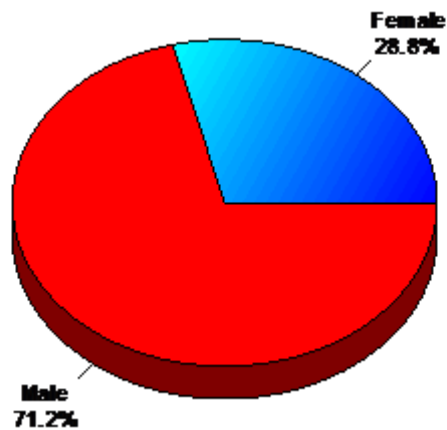


Table 4: Cause of Injury (n=104)

S.No.	Cause	No.	Percentage
1.	Fall from height (FFH)	58	55.8
2.	Road traffic accident (RTA)	32	30.8
3.	Fall of object (FOO)	7	6.7
4.	Assault	4	3.8
5.	Others	3	2.9

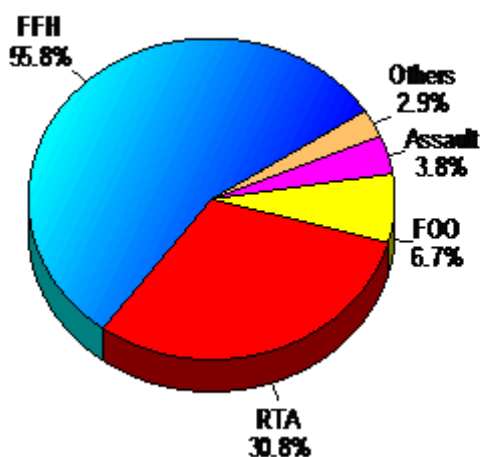


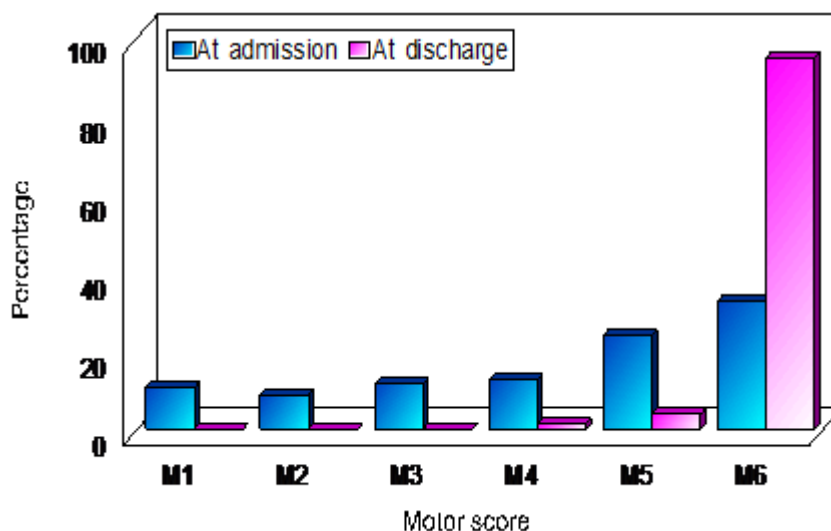
Table 5: GCS at admission (n=104)

S.No.	GCS	No.	Percentage
1.	3-8	24	23.08
2.	9-12	20	19.23
3.	13-14	30	28.85
4.	15	30	28.85

Table 6: Motor Score at admission & Discharge

S.No.	Motor score	At admission (n=104)		At Discharge (n=78)	
		No.	%	No.	%
1.	M1	11	10.6	0	0.0
2.	M2	9	8.7	0	0.0
3.	M3	12	11.5	0	0.0
4.	M4	13	12.5	1	1.3
5.	M5	25	24.0	3	3.8
6.	M6	34	32.7	74	94.9

$\chi^2=72.144$ (df=5); $p<0.001$



At admission around one third (30.8%) patients had motor score upto M3 while at discharge none of the patients had motor score <M4. Majority (94.9%) of patients had motor score of M6 at the time of discharge. Statistically a significant change in motor score was seen from at admission motor score ($p<0.001$).

Ct Scan Findings

Table 7: Site of EDH

Site of EDH	Number of patients
Frontal (F)	30
Fronto-temporal (FT)	5
Temporal (T)	5
Temporo-parietal (TP)	34
Parietal (P)	19
Fronto-temporo-parietal (FTP)	3
Fronto-parietal (FP)	2
Parieto-occipital (PO)	3
Fronto-parieto-occipital (FPO)	1
Posterior fossa (Post fossa)	2
	104

Table 8: Abnormal pupillary reaction at admission (n=104)

S.No.	Pupillary reaction	No.	Percentage
1.	Abnormal pupillary reaction	45	43.3
2.	Normal pupillary reaction	59	56.7

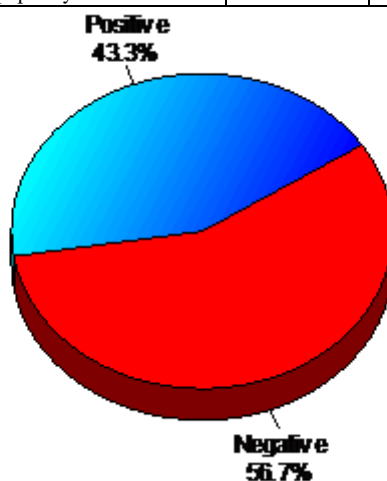


Table 9: Cranial Nerve Palsy (III or VII) at admission (n=104)

S.No.	Cr. Nerve Palsy	No.	Percentage
1.	Present	19	18.273
2.	Absent	85	81.7

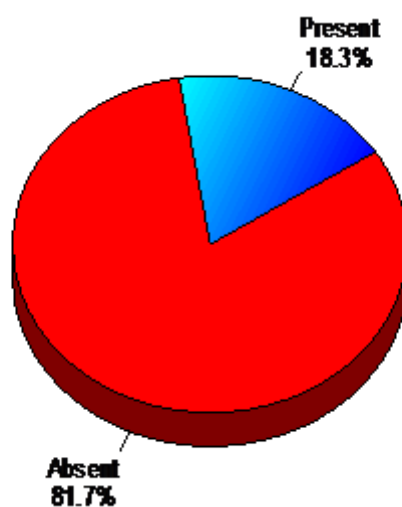


Table 10: Hemiparesis at admission (n=104)

S.No.	Paresis	No.	Percentage
1.	Present	11	18.273
2.	Absent	93	81.7

V. Conclusion

In this retrospective study on 104 patients of Paediatric EDH. 13 patients absconded during study. Out of 91 patients remained, 55 were managed surgically & 36 conservatively. We included absconded patients in incidence determinations but not in evaluation of outcome. 13 patients expired during study and 78 (75%) patients were discharged. Most common age group in our study was 12-18 years (47.1%). More common sex was male sex (71.2%). Most common cause was fall from height (55.8%). Assault is less common as it is less notified. Age wise, FFH was the most common cause of injury upto 11 years of age, but RTA was the most common cause in 12-18 years age group. 23.08% of patients in our study were admitted with severe head injury i.e. GCS at admission was 3-8. Patients were more commonly admitted with normal sized pupil reacting normal to light (56.7%). Most of the patients did not have cranial nerve palsy (81.7%) or any hemiparesis (81.7%). All 19 patients of 7 cranial nerve palsy had T P EDH AND 14 had T P #.

Bibliography:

- [1]. Mahapatra AK: A textbook of head injury. Modern Publishers, 3rd Edition, 2005, pg. 1.
- [2]. Holland D, Shigaki CL. Educating families and caretakers of traumatically brain injured patients in the new health care environment: a three phase model and bibliography. *Brain Injury* 12(12): 993-1009, 1998.
- [3]. Junque C, Bruna O, Mataro M. Information needs of the traumatic brain injury patient's family members regarding the consequences of the injury and the associated perception of physical, cognitive, emotional and quality of life changes. *Brain Injury* 11(4): 251-258, 1997.
- [4]. NIH Consensus development panel on rehabilitation of persons with traumatic brain injury. Rehabilitation of persons with traumatic brain injury. 282: 974-983, 1999.
- [5]. Friedman GF, Suzbon L *et al.* Apolipoprotein E epsilon 4 genotype predict poor outcome in survivors and traumatic brain injury. *Neurology* 15: 244-248, 1999.
- [6]. Kunter KC, Evlanger D, Tsai J *et al.* Lower cognitive performance of older football players positive for apolipoprotein E epsilon 4. *Neurosurg* 4: 651-657, 2008.
- [7]. Ahmed Al-Jarallah, Muhammad T. Al-Rifai, Anthony R. Riela, E. Steve Roach. Nontraumatic Brain Hemorrhage in Children: Etiology and Presentation. *J Child Neurol* 2000;15:284-28
- [8]. Warren D. Lo, JoEllen Lee, Jerome Rusin, Elizabeth Perkins; E. Steve Roach. Intracranial Hemorrhage in Children An Evolving Spectrum. *Arch Neurol.* 2008; 65 (12):1629-1633
- [9]. Pasaoglu A, Orhon C, Koc K, Selcuklu A, Akdemir H and Uzunoglu H. Traumatic extradural haematomas in paediatric age group Department of Neurosurgery, Erciyes University Medical School, Kayseri, Turkey. *Acta Neurochir (Wien).* 1990;106(3-4):136-9.

¹Dr.Chirantan Banerjee " An Epidemiological Study of Pediatric Extradural Hematoma in A Developing Country." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)* 16.7 (2017): 21-25.