Pattern of Cranio-Cerebral Injuries at a Tertiary Care Centre – A Retrospective Study

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Abstract

Head injuries are accounting for most serious injuries in terms of morbidity and mortality1. The present study was carried out at a tertiary care hospital, Maharashtra for duration of three years. This study was conducted on 173 cases, which were directly brought to mortuary for postmortem examination from the site of incidence. The objective of this study is to find out the pattern of skull fractures irrespective of cause of injury. Linear fracture was found to be more common among the total no of cases. In the present study it was observed that skull fractures are more commonly seen in assault cases. In this study it is observed that extradural hemorrhage is most commonly associated with motor cycle riders. It has been also noticed that younger age group (21-30 years) are most commonly effected age group. In this present study it is noticed that abrasions are the most common type of injuries associated with skull fractures.

Key words: *Cranio-cerebral injuries, Skull fractures, Hemorrhages and autopsy.*

Introduction

Cranio-cerebral injuries accounts for the most serious injuries in terms of morbidity and mortality.[1]Cause of caranio-cerebral injuries may be assault, RTA, fall from height and even fall on ground.[1]Head is the most common part injured in road traffic accident as it is the most prominent and vulnerable part of human body by virtue of its situation and to sustain serious and fatal injuries owing to the great risk of striking the head.[2]Depending upon the severity of violence involved, cranio-cerebral injuries can be associated with injury to the scalp, skull, intracranial hemorrhages and injury to brain tissue.[2]

Cranio-cerebral injuries are a major public health problem and have already attained epidemic proportion in India. As a result cranio-cerebral trauma places a huge financial and psychological burden upon the society. [3]

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Material and Mathod

The present study was carried out at CPR hospital of RCSM GMC Kolhapur, for period of three years. This study was done on 173 cases, which were directly brought to mortuary for postmortem examination from site, irrespective of cause of injury. Hospitalized and operated cases were excluded from the present study.

The present study has been carried out after obtaining the ethical clearance and consent from the relatives to collect the relevant information.

Meticulous postmortem examination was done, skull and brain was specifically studied for the presence of fracture, hematoma, hemorrhage and injury to the brain tissue. To study the fractures and other injuries, magnifying lenses and measuring tape were used. Detailed study of police inquest and police record was done.

All data was collected and analyzed.

Results

The results of the present study which was carried on 173 cases at CPR hospital of RCSM GMC Kolhapur, for period of three years, which were directly brought to mortuary for postmortem examination from site,

irrespective of cause of injury are as follows.

In the present study we found that skull fractures are more commonly seen in motorcycle riders cases i.e. 56 cases (32.36%) followed by assault i.e. 52 cases (30.05%), least commonly seen in fall from height i.e. 7 cases (4%).

Table 1: Pattern of skull fractures according to the type of case.

Case	No of Cases	Percentage %
Motor Cycle Rider	56	32.36 %
Assault	52	30.05 %
Pillion Rider	41	23.69 %
Four Wheeler Accident	09	5.20%
Railway Accident	08	4.60 %
Fall From Height	07	4.10 %
Total	173	100 %

Most common type of fracture seen is linear fracture i.e. 72 cases (38.92%) followed by depressed fracture i.e. 59 cases (31.89%), and least common type of fracture seen is ring fracture i.e. 1 case (0.54%). Sutural fracture, gutter fracture and ponds fracture are not seen in any cases of this study.

Table 2: Pattern of type of skull fracture.

Type of Fracture	No of Cases	Percentage %
Linear	72	38.92
Depressed	59	31.89
Communited	51	27.57
Signature	2	1.08
Ring	1	0.54
Sutural	0	0
Gutter	0	0
Ponds	0	0
Total	185	100 %

In this present study we found that the most common type of Intracranial hemorrhage is extradural hemorrhage; i.e. 121 cases (40.88%), followed by subdural hemorrhage i.e. 102 cases (34,46%). least common type of intracranial hemorrhage is intra cerebral i.e. 12 cases (4.06%) and is always seen with one or the other type of intracranial hemorrhage.

Table 3: Pattern of intracranial hemorrhage associated with skull fracture.

Type of Cerebral Hemrrhage	No of Cases	Percentage %
Extradural	121	40.88 %
Subdural	102	34.46 %
Subabrachinodid	61	20.60%
Intracerebeller	12	4.06%
Total	296	100 %

In this study we also found that most common type of injury associated with skull fractures is abrasion i.e. 156 cases (34.36%), followed by contused lacerated wounds i.e. 131 cases (28.85%) and least common type of injury seen is fire arm injury i.e. 1 case (0.22%). And most of the cases, these injuries are seen along with the one or the other type of injury.

Table 4: Pattern of type of injury associated with skull fractures.

Oter Injuries	No of Cases	Percentage %
Abortion	156	34.36
Clw	131	28.85
Fracture	108	23.79
Crush Injuries	31	6.83
Incised Wound	21	4.62
Stab Injury	6	1.32
Fire Arm Injury	1	0.22
Total	454	100 %

In this present study we also found that most commonly effected age group of victims is 21-30 years i.e. 52 cases (30%), followed by 31-40 years i.e. 51 cases

(29%). least commonly effected age group is 61-70 years i.e. only 1 case (1%). It is also seen that males (84.4 %) are most commonly affected as compare to females (15.5 %).

Table 5: Pattern of skull fractures according to the age group and sex.

Age Group	MALE	FEMALE	TOTAL	PERCENTAGE %
0-10 years	3	2	5	3%
11-20 Years	26	6	32	18%
21-30 Years	44	8	52	30 %
31-40 Years	47	4	51	29 %
41-50 Years	19	5	24	14 %
51-60 Years	6	1	7	5 %
>60 Years	1	1	2	1 %
Total	146	27	173	100 %

Discussion

The present study was carried out at CPR hospital of RCSM GMC Kolhapur, for period of three years. This study was done on 173 cases, which were directly brought to mortuary for postmortem examination from site, irrespective of cause of injury. This study shows that the skull fractures are more common in motorcycle riders cases i.e. 56 cases (32.36%) followed by assault i.e. 52 cases (30.05%). Similar findings were observed by Kirti jaiswal et al.[4] The most common type of fracture seen is linear (41%) followed by depressed fracture. similar findings are observed by Sreekanth S Nair et al.[5]The most common intracranial hemorrhage seen is extradural hemorrhage (69%), followed by Subdural hemorrhage (58%), similar findings were observed by Rahman MA et al[6].The most commonly seen type of injury associated with skull fractures is abrasion (90%), followed by contused lacerated wound (76%). similar findings were observed by soni SK, et al[1].The majority of the victims in this study are of 21-30 years age group (30%), followed by 31-40 years age group. similar findings were observed by S Gowda H et al.[7] and Dhakankar S et al.[8]

Conclusion

The conclusion of the the present study, whichwas carried out at CPR hospital of RCSM GMC Kolhapur, for a period of three years. This study was done on 173 cases, which were directly brought to mortuary for postmortem examination from site, irrespective of cause of injury is as follows.

From the present study we observed that, the skull fractures are most commonly seen in motor cycle accidents, followed by assault. Majority of the victims in this study are of 21-30 years i.e. nothing but the younger age group. Most common type of fracture is linear fracture, followed by depressed fracture. Most common type intracranial hemorrhage was extradural hemorrhage. The most common injury seen along with the skull fracture was abrasion.

Prevention

So road traffic accident and assault is an unfortunate economical burden for a developing country like India. Cranio-cerebral injuries due to Road traffic accidents are recognized as a major health problem causing death and disabilities among the population of this country. Mortality and morbidly due to vehicular accidents cannot be stopped completely but it can be definitely reduced by implementing strict road traffic rules as well as by improving road conditions by concerned authorities, at the same time users of the road and vehicles also realize their responsibility in following traffic rules. Awareness programmed regarding proper protective measures and effect of intoxicating substances on ones driving ability, help in preventing their injuries by accidents. Last but

not the least; better health care facilities are required for effective emergency transportation and treatment of victims of vehicular accidents.

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