

Six Months' Analysis of Head Injury due to Motor Bike Accidents in Punjab Institute of Neurosciences (PINS), Lahore

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ABSTRACT

Objectives: To analyze the head injury with special emphasis on motor bike accidents, different age groups affected and its impact on society. The study was conducted at the Neurosurgical unit 1 PINS, Lahore, for six month duration.

Material and Methods: This is a prospective study. In this study 1600 cases of head injury due to motor bike accidents who presented in the causality department of Neurosurgical Unit 1 were studied.

Results: A total of 1600 cases were included caused by motor bike accidents from May 2018 to October 2018. Most common age group was 12 to 45 years 1056 (66%) of cases, above 45 years 448 (28%) cases, children 0-11 years 96 (6%) cases. In gender distribution 1280 (80%) males and 320 (20%) females. There were only 256 (16%) wearing helmets and 1344 (84%) without helmets. Severity of injury sustained in all cases was: GCS = 13-15 in 1088 (68%) cases; GCS = 9-12 in 368 (23%) cases and GCS = 3-8 in 144 (9%) cases.

Conclusion: Head injury due to motor bike accidents is involving the most productive age and increasing the burden on family and health care system. Strict implementation of traffic rules and use of helmets can reduce the incidence.

Keywords: Head injury, Motorbike accidents.

INTRODUCTION

Traumatic brain injury caused by motor bike accidents is not top of mind for most riders, most of us are thinking about how much far it can be to hop on a bike and get on the road. Unfortunately, motor bike accidents can ruin anyone's life on the road. On a per mile basis, motorcyclists are approximately 16 times more likely than the occupants of a passenger car to suffer fatal injuries. This is because a rider has a higher chance of falling off or being ejected from the bike and hitting their head once they land.

This study was done to highlight the consequences of the head injury due to motor bike accidents and the importance of wearing a helmet while riding.

MATERIAL AND METHODS

This Prospective study was done on 1600 patients who

visited the causality department of Neurosurgical Unit 1 PINS LHR over a period of 6 months from May 2018 to October 2018. The data was obtained from the medical record of patients. Patients of all age groups and both genders were included in the study. All the patients other than motor bike accidents were excluded from the study. Each case was analyzed with respect to gender, agegroup, safety measures taken by the riders, the severity of injury and the outcome.

Gender distribution was studied among the patients by dividing the whole study population into male and female sub groups. Age distribution was studied by dividing the population into three age groups. Group I from 0 – 11 years of age, group II from 12 – 45 years of age, group III age above 45 years.

Severity of injury was assessed by GCS at the time of presentation. GCS scores from 13 – 15 was grouped

as mild head injury. GCS score from 9 – 12 was grouped as moderate head injury and a GCS score from 3 – 8 was grouped as a severe head injury.

The type of injury was categorized on the basis of CT scan brain plain findings and was divided into EDH, SDH, Contusions, cranial vault fractures and base of skull fractures.

The outcome was determined by the Glucoma Outcome Scale (GCS) scale as below 1 – 5.

Grade 1: Represents death.

Grade 2: Permanent vegetative state.

Grade 3: Conscious, but severe disability.

Grade 4: Disabled, but independent.

Grade 5: Return to normal activities.

RESULTS

Total 1600 cases were included in the study. In the gender distribution, there were 1280 (80%) males and 320 (20%) females. There was a strong male predominance in head injury patients with male to female ratio 8:2 as shown in table 1.

Table 1: Sex Incidence.

Sex	Number	Percentage
Male	1280	80%
Female	320	20%
Total	1600	100%

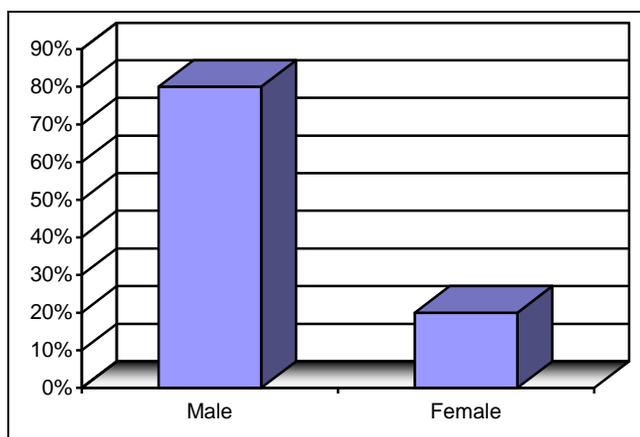


Fig. 1: Sex Incidence.

Table 2: Sex Incidence Month Wise.

Month	Male	Female
May	225	56
June	262	61
July	205	48
August	240	58
September	235	62
October	113	35
Total	1280	320

Age Range

The data of 1600 cases was analyzed for age distribution. There were 90 (6%) cases in the age group 0 – 11 years, 1056 (66%) cases in the age group 12 – 45 years and 448 (28%) cases above 45 years. It is evident that group 12 – 45 years is predominately affected by head injury.

Table 3: Age Range.

Age	Number	Percent
0 – 11 Years	90	6%
12 – 45 Years	1056	66%
Above 45 Years	448	28%
Total	1600	100%

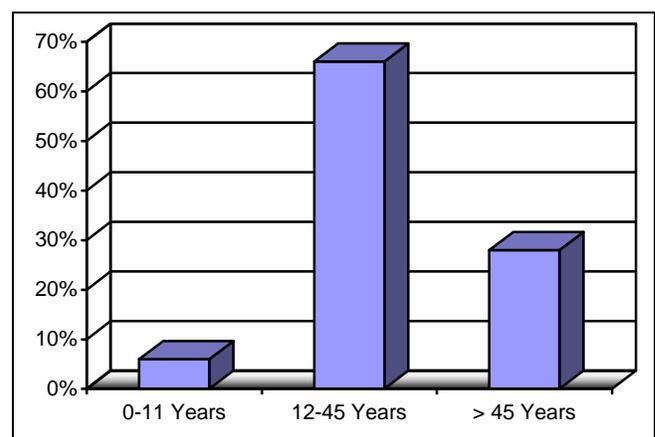


Fig. 2: Age Incidence.

Mode of Injury

The mode of injury in all the cases were by motor bike

accidents and their month wise distribution is as follows.

Table 4: Monthly Distribution.

Month	Number
May 2018	320
June 2018	337
July 2018	308
August 2018	285
September 2018	233
October 2018	117

Use of Helmet and Severity if Injury

Among 1600 cases of motorbike accidents, almost exclusively male population was found to be affected. In age distribution analysis, age less than 12 years 96 (6%) cases, 12 – 45 years accounted for 1056 (66%) of cases and age above 45 years 448 (28%) cases.

There were only 256 (16%) wearing helmets while 1344 (84%) were without helmets. Severity of head injury sustained in all cases was as below.

GCS = 13 – 15 in 1088 (68%).

GCS = 9 – 12 in 368 (23%).

GCS= 3 – 8 in 144 (9%) cases.

The type of head injury sustained was depressed fractures in 288 (18%) of cases. Epidural hematoma in 448(28%) cases. Subdural hematoma in 224 (14%) cases, contusion in 176 (11%), linear fractures in 160 (10%) of cases and scans of the rest of the patients were normal.

Table 5: GCS.

GCS	Number	Percentage
13 – 15	1088	68%
9 – 12	368	23%
0 – 3	144	9%
Total	1600	100%

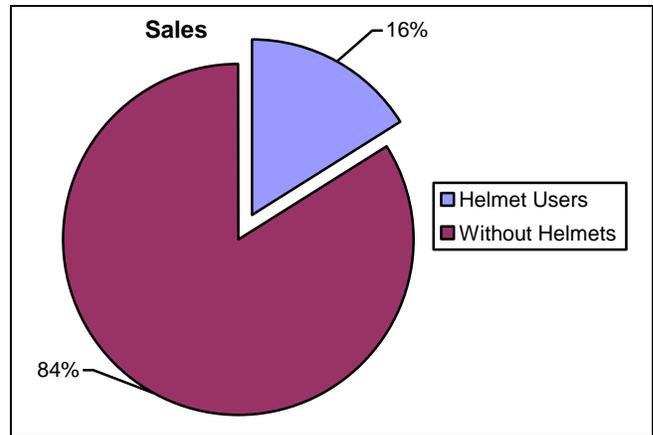


Fig. 3: Use of Helmets.

Outcome

Outcome on the Glasgow outcome scale was grade 5 in 67%, grade 4 in 11%, grade 3 in 8%, grade 2 in 5%, grade 1 in 7% cases.

Table 6: Outcome (GCS).

GCS	Number	Percentage
5	1104	69%
4	176	11%
3	128	8%
2	80	5%
1	112	7%
Total	1600	100%

DISCUSSION

Traumatic brain injury is the leading cause of disability, morbidity and mortality worldwide and is responsible for a significant proportion of all traumatic deaths in the U.S. Every year an estimated 1.5 million require emergency treatment because of traumatic brain injury. Head injury due to motor bike accidents is on up rise in developing countries due to increased traffic load, better roads, poor civic sense, weakly implemented traffic rules and regulations and lack of safety measures taken by Bikers.

Lahore is the 2nd largest city of Pakistan and the capital of Punjab and PINS is the largest center for management of Head injury in Pakistan where patients are received from all over Punjab. The analysis of data of 1600 patients who arrived in the causality of

Neurosurgical Unit 1 over a period of 6 months shows that there is increased proportion of male patients involved as compared to females. 66% of them fall in the age group of 12-45 years, which is comparable to previous study and constitute the main working group of the population and motorbike accidents are 70% cases were of road side accidents which is much higher than the previous study. 66% cases suffered from mild head injury, 23% sustained moderate head injury and 9% suffered severe from head injury. Only 16% taken safety measures (helmet). There were 69% cases who had a good recovery. 5% cases went into a vegetative state and mortality rate was 7%.

CONCLUSION

We concluded from our study that motor bike accidents are a major cause of head injury and it is involving the population in the most productive age group which is increasing the burden on the family of patients and on the health care system. Use of helmets significantly decreases the incidence and severity of head injury. Government implemented the E- Challan system on 24 September 2018 and in the very next month we observed the reduction of head injury cases in our causality department by more than 50%. So steps should be taken by the government to further strengthen and modify the traffic laws and its implementation putting more emphasis on separate road lines for the bikers and speed limits, giving subsidy on helmets and increasing the awareness program in electronic and social media.

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Date of Submission: 8-2-2019

Date of Printing: 15-3-2019