

Pattern and Severity of Bony Injuries among Motorcyclist Admitted in Orthopedic Ward

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ABSTRACT

Objective: To observe the nature and severity of injuries to extremities among motorcyclists resulting from traffic accidents admitted in Orthopedic ward.

Method: This study has been conducted in civil hospital Karachi between the time periods of Jan2011 till Dec2011. The patients included in this study were admitted from Accident and emergency department and from outpatient clinics, these patients were referred from other part of the province. All motor bike accident victims with bony injuries were included in this study. After evaluation and emergency management, data of patients was collected and statistical analysis was done through SPSS 10.

Results: During this period a total 1280 patients had been admitted in orthopaedic unit II, among which 340(26.56%) patients were motorbike accident victims. These 340 patients had a total of 380 bone related injuries which was due to the fact that more than one bone was fractured in 25 of these patients. It was seen that a majority of the victims were male (310 out of 340--91.17%) whereas female victims were a minority (30 out of 340 -8.82%). Among these patients. It was seen that 205 were between the age group of 16 to 35 years and the most common cause of injury was collision with another vehicle, this was seen in 215 cases (63.23%). Fractures TIBIA was seen in 165 patients and tibia the most common was the open fracture, the femur was the second most common fractured bone in motorbike accident victims.

Conclusion: Motorbike riders are known to be more vulnerable to road accidents and due to the severity of the lower limb injuries they remain bed ridden for longer periods of time, this unfortunately also becomes a socio economic problem. These injuries can be prevented by putting into effect laws that enforce road safety measures.

Key words: Motorbike accidents, Fracture tibia, Extremity injury Open fracture.

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INTRODUCTION

In 2002 road traffic accidents caused more than 2 million deaths all over the world. It was the 2nd leading cause of deaths among 15 - 44 years of age and 80% of these deaths occurred in developing countries.¹ By 2020 road traffic accidents are expected to be the 3rd leading cause of death and disability worldwide.²

In developing countries the road traffic accidents affect the production age group of 15–44 years. Currently it is the 9th leading cause of disability and adjusted life year lost globally, moreover 90% of the disability and adjusted life year lost occurs in developing countries worldwide due to road traffic accidents.³ Being

economical and convenient city traffic the use of motorbikes has increased tremendously during the last few years. Approximately 180,000 motorcycles get registered per year in Karachi. Unfortunately motorcyclists also contribute to a significant number in the mortality and morbidity in road traffic accidents. Even in developed countries, the accident risk of motorcycles is 20 times more per kilometer than drivers of other vehicles.⁴⁻⁶ As observed in previous studies^{7,8} head and lower limb injuries are very common among riders, which make up to 30-80% of the injured bikers who were admitted in the hospital.^{9,10}

This study was conducted to assess the nature and severity of limb injuries among motorcyclists resulting from road traffic accidents admitted in Orthopedic ward.

MATERIAL AND METHOD

This prospective study was conducted in Orthopedic Unit II Civil Hospital and Dow University of Health and Sciences Karachi from Jan 2011 to Dec 2011. This is a tertiary care hospital having 1500 beds.

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Karachi is a cosmopolitan city of 180 million people. Subjects included in the study were admitted through accident and emergency department; referrals from other parts of the province were also admitted throughout patient department. Victims of motorcycle accidents with bony injuries were included in the study. Approval obtained from ethical committee of Dow University of Health Sciences.

Fractures assessed in detail and classified into open and closed fractures, open fractures further classified according to GASTILO and ANDERSON’S classification patients having soft tissue injuries only, systemic injuries like head, thoracoabdominal or vascular were excluded from the study.

Data management and analysis was done using SPSS version 10.0.

RESULTS

In Orthopedic Unit II, 1280 patients were admitted from 1st Jan 2011 to 31st Dec 2011. 340 of these patients (26.56%) were the victims of motorbike accidents sustaining 380 bony injuries. 25 patients had more than one bone fractured. 205 patients were between the age group of 16-35 years. Males outnumbered females (Table 1). Accidents of motorbike with other vehicles were noted in (63.23%) and turnover of motorbike accidents was (20.58%) (Table 2). Lower limb injuries represented the predominant type of injury involving 312 bones. There were 210 (55.25%) closed fractures. In 165 patients (43.42%) the frequently found fracture was that of tibia shaft. Open fractures of tibia were observed in 107 patients (63.69%) (Table 3). Hospital stay was 5-70 days with the average of 45 days, patients with the type III open fracture of tibia remained hospitalized even for longer period.

Table 1: Age and Sex

Total No. of Patients = 340

Sex		Age	
Female	30 (8.82%)	Below 15	20
Male	310 (91.17%)	16- 35	205
		36-45	81
		46-above	34

Table 2: Mechanism of Injuries

Total No. of Patients = 340

1	Accident of motorcycles with other vehicles	215 (63.23%)
2	Turnover of motorcycles accidents	70 (20.58%)
3	Collision with fixed objects like pole	55 (16.17%)

Table 3: Total No. of Patients = 340

Total No of Bones = 380

	Closed	Open				
		I	ii	iii (a)	iii (b)	
Femur	98	81	9	5	3	0
Tibia	165	58	36	39	17	15
Radius-ulna	43	30	7	4	2	0
Hummers	10	7	1	2	0	0
Carpal/ M.C	15	8	2	1	2	2
Tarsal/ M.T	49	28	12	3	2	4
Total	380	212	67	54	26	21

DISCUSSION

Motorbike accidents are one of the leading cause of major health problems in developing countries. Karachi is a cosmopolitan city of 180 million people where transport system is not well established. Over the last few years motorbike use has increased tremendously as it is economical and easy to manage in rush hours. Last year in Karachi 12,000 cases of road traffic accidents were reported, majority of them were pillion riders between the age group of 16 – 24 years (Daily Dawn 11 May 2011).¹¹ In our study 60.29% victims belonged to the age group of 16 – 34 years and males dominated with 91.17% Wick¹² in his study reported 90.7% males and average age of 28.8 years, Kortor¹³ reported male to female ratio 22:1 and mean age of 43.1 years, Oluwadiya¹⁴ reported male to female ratio 2.8:1 and mean age of 31.9 years, Shamivo¹⁵ from Jamaica reported 95.2% males. In our society females do not drive motorbikes. Males are obviously more prove to motorbike accidents as they are out on the roads to fulfill their professional responsibilities.

In 2004, a study conducted in Pakistan revealed 22.4% male sufferers per 1000 population of road traffic accidents as opposed to 6.9 female sufferers per 1000 population of road traffic accidents.¹⁶

This study, like other studies^{12,13,17-20} revealed that motorbike accident victims sustained more of lower limb injuries, tibia was the most common fractured bone seen in 43.34% and out of these 64.84% were open fractures, whereas M. Zargar⁹ has reported tibia fracture in 49.8%, Aslam²¹ reported tibia fractures in 39% cases and Wick¹² in 19.7% and Bawu²² reported tibia fractures in 17.9%. In our study open fractures were 44.21%, Fatmiah⁷ reported open fractures in 13.6% and fracture tibia in 43.5% cases.

Fracture tibia is more common because it is superficial and more exposed to direct trauma and lack of leg protective device and poor driving habits like weaving in and out of traffic. Average hospital stay in our study

was 45 days, type II open fracture tibia remained hospitalized for a longer period and needed multiple surgical procedures Wick¹² reported 35.4 days and Shamir¹⁵ 10 days, Bawu²² reported 12 days and Phillip²³ reported 19.23 days of hospitals stay.

We found that the most common mechanism of injury was accident with other vehicles (63.23%) as reported by other investigators.^{7,9,14} This indicates the poor driving skills and impatient of bike riders.

CONCLUSION

In a cosmopolitan city like Karachi with huge population and heavy traffic, high incidence of motorbike accidents result in serious injuries to the lower extremities. Ultimately high admission rates in Orthopedic wards, prolong stay and tremendous burden on economical resources.

These sufferings and injuries can be avoided if effective traffic rules and laws are strictly implemented.

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