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Research Article

**CHARACTERISTIC FEATURES OF ROAD TRAFFIC
INJURIES IN PATIENTS ATTENDING THE EMERGENCY
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Abstract:

Objective: Roadside traffic accidents are the second most common cause of mortality in Pakistan. One of the utmost significant steps to prevent traffic-related trauma and its consequences is to get information about the epidemiology of injuries. We did this work to find strategies to identify and prevent Roadside traffic injuries.

Study Design: A prospective cross-sectional study.

Place and Duration: In the Emergency Department of Mayo Hospital Lahore for two year duration from March 2017 to March 2019.

Methods: This study included patients with Road traffic injuries enrolled from March 2018 to March 2019. Demographic features, vehicle type of which injury occurred and injured body area were documented for every patient.

Results: Out of 600 patients selected for the study, 480 (80%) men and 120 (20%) women, and the average age was 29.90 ± 17.52 . Most of the individuals were illiterate. The utmost road traffic injuries incidence is associated with risky motorcyclists assigned to 75% of motorcycles. The most frequently injured area was the lower limbs, face and head.

Conclusion: The most traumatic patient belongs to illiterate individuals and motorcycle riders. It is significant to educate public for the safe use of motorcycles and raises public awareness about the causes of traffic rules.

Keywords: Injury pattern, trauma, road accidents.

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INTRODUCTION:

Trauma is the chief health threats, especially in the 1st forty years of life. Injuries in Pakistan are the main source of mortality for individuals under the 50 years of age, and trauma is the major burden on the government. According to reports by the WHO in the Eastern Mediterranean, road traffic accidents and related injuries are the significant problems in this area and are accountable for 1 in 4 deaths in this area¹. In the Eastern Mediterranean; fatal road traffic injuries (RTIs) is 27.2 per 100,000 and 19 per 100,000 globally²⁻³. In Pakistan, the RTIs mortality is 31.8 per 100,000 in 2015, had the maximum proportion in this area.

Although tertiary prophylaxis (post-event efforts to optimize trauma results) remains the most operative technique of injury control, primary prophylaxis (elimination of a traumatic event) is equally important for optimizing trauma⁴. To plan a strategy to prevent traffic-related injuries and their consequences, one should know the epidemiology of injuries⁵. The victim can be a pedestrian, car, motorcyclist or cyclist, and the distribution of injuries can vary significantly between groups. The injury severity is a significant factor in morbidity and mortality⁶. World health organization explained that more epidemiological studies on the type of RTI should be done to address this problem and vulnerable populations in low- and middle-income countries⁷. Since there is no national injury recording system, RTI epidemiological data is incorrect. Therefore, the impact of this significant health problem is not fully understood⁸.

To establish this study, an injury pattern for road accident victims entered the emergency room were recorded. We hope that this study will help identify the trauma model of road accident victims and suggest possible prevention strategies.

METHODS:

This prospective cross-sectional study was held in the Emergency Department of Mayo Hospital

Lahore for two year duration from March 2017 to March 2019.

After the ethical acceptance, this cross-sectional study was performed prospectively in all patients with traumatic injuries admitted to the emergency department.

The study included 600 patients who arrived at the emergency room. Patients who had a traffic accident and refused admission were excluded from the study. We also exclude outpatient services without having to call an ambulance.

The data collected using a checklist explaining the purpose of the analysis to residents of emergency medicine. The study main variables were: gender, age, level of education, type of vehicle, damaged body surface and the results of patient treatment in the hospital. Data is encrypted and entered in SPSS 21.0 and exhibited as mean \pm SD. Accordingly, one-way analysis of variance (ANOVA) and chi-square analysis were applied. The P value is taken as 0.005.

RESULTS:

Out of 600 patients selected for the study, 480 (80%) men and 120 (20%) women, and the average age was 29.90 ± 17.52 . In all accident types, the proportion of men's is advanced for road accidents; There was a statistically important relationship between type of accident and gender ($P < 0.000$). Considering the education level (for 505 patients over 15 years); the majority of victims had no education: 170 (28.33%) had no basic education, and 205 (34.16%) had only basic education.

The most sensitive group (83%) of all patients were motorbikes riders and pedestrians, and the other (17%). It should be noted that motorcycles are involved in 69.86% of pedestrian road accidents ($n = 102$). The risk attributed to motorcycles can be estimated as follows: $58.7\% \text{ "motorcyclist"} + (58.7\% \times 17\% \text{ "pedestrian"} = 73\%$.

Table 1 shows the type of vehicle used by victims according to sex and age.

Table 1. Type of vehicle used by victims according to age and sex

Type of vehicle	Male No.	(%)	Female No.	(%)	Total No.	(%)	Age (Mean \pm SD)
Pedestrian	102	21.3%	44	36.7%	146	24.3%	31.38 \pm 23.91
Motorcycle	331	69.0%	21	17.5%	352	58.7%	28.0 \pm 13.10
Car	39	8.1%	48	40.0%	87	14.5%	30.31 \pm 14.14
Bicycle	8	1.7%	7	5.8%	15	2.5%	13.33 \pm 1.30
Total	480	100.0%	120	100.0%	600	100.0%	28.89 \pm 16.62

Lacerations and abrasions were the most predominant injuries in all anatomic areas. The injury was so severe that it caused laparotomy in all men and motorcycles that occurred in 14 patients (2.33%). There were 40 patients who had 8 Glasgow coma scales (GCS) requiring tracheal intubation including motorcyclists, passengers and vehicle drivers 18, 13 and 9.

248 of motorcycle (70.5%) have worn helmets, but the 2nd or 3rd passenger of the motorcycle did not wear helmet.

Of the 87 car vehicle injury victims, 52 were drivers and 35 passengers. 45 drivers (86.5%) fastened the seat belts and only 3 passengers fastened (8.5%).

According to the vehicle type the injury patterns are given in **Table 2**.

	No. of Head & Face	(%)	No. of Neck	(%)	No. of Trunk	(%)	No. of Lower Limb	(%)	No. of Upper Limb	(%)	To tal
Pedestrian	65	45%	3	2%	38	26%	81	55%	71	49%	146
Motorcyclist	183	52%	19	5%	47	13%	263	75%	175	50%	352
car occupant	39	45%	3	3%	23	26%	32	37%	6	7%	87
Bicycle rider	3	20%	0	0%	3	20%	4	27%	8	53%	15
Total	290		25		111		380		260		600

The lower limb is the supreme injured region among motorcyclist and pedestrian, 75% and 55.5%, respectively. Fracture of the tibia was the utmost communal fracture of the lower limbs in both groups, 35 and 30% of total lower limb injuries in motorcycles and pedestrians.

Motorcyclists intricate in 52% of the over-all 290 head trauma and 43 severe head trauma. Head and face injuries have the maximum proportion (55.6%) who do not use the car belt. The upper limb trauma was the most common injury among motorcyclists and radius fractures was the most usual.

260 patients (43.7%) had 1 trauma area, and 300 had more than 1 injury. Table 2 shows injury models by vehicle type.

Hospital mortality was 4.9% (29 cases); and 31.03% (9 cases) of these deaths took place in the emergency room. The most communal reason of death was brain death. The average span of stay at the emergency room varies from 115 minutes, 25 minutes to 15 hours.

DISCUSSION:

RTIs are growing in unindustrialized countries due to the fast pace of the automotive industry. In Pakistan, RTI is a serious health problem and causes 44 deaths per 1 lac, the maximum in any republic in the world. This could be a cautionary to policy makers to highlight RTI amongst health problems⁹.

In our analysis, we registered all individuals who came to our emergency room after RTA. As in other alike analysis, the majority of affected subjects are young males who participate in external studies and are an active part of society. The 5.4: 1 (562/104) was the M: F ratio, but studies of all injury mechanisms showed about 4: 1 Male to Female ratio, which was significantly lower than in this analysis¹⁰.

In this study, as in various studies in Pakistan and other unindustrialized regions, bikers were accountable for the highest proportion of trauma patients, and the 2nd most susceptible inhabitants are pedestrians. 57.8% of altogether pedestrian injuries were due to bikers, so stricter rules are needed to prevent motorcyclists from harming themselves and others. Often a motorcyclist violates traffic rules, flashes a red light or goes to the sidewalk, and no rules are imposed on drivers¹¹.

In this study; Maximum patients had no education or only basic education (505 patients over 15 years of age). This variance was statistically important ($p < 0.000$). Underlines the significance of community teaching, particularly the media have an important role¹². In adding, the inclusion of educational materials in the education system at an initial phase of education can be significant issue in this respect¹³.

We classify injuries by age, vehicle type, and sex and body parts to have improved strategies and planning for preventing traffic injuries on various kinds of vehicles¹⁴. The most injured area for both motorcyclists and pedestrians was the lower limb (leg). Head injuries are the utmost important injuries to vehicle passengers, especially rear-seat passengers¹⁵. Serious stomach damage was only seen on motorcycles. In France study, car accidents were related with lower limb injuries and head injuries. They probably coincide with the first action on the cyclist's legs (motor vehicle); followed by a fall, in which the head is usually injured, and internal organs are at second place.

CONCLUSION:

The costs of diagnosis and treatment of victims of road accidents are covered by the Ministry of Health, which is a huge economic load for the Pakistani government where resources are scarce. Therefore, it seems reasonable to propose

inhibition policies, such as stricter traffic rules, and thus raise public awareness. As To ensure accurate and trustworthy approximation of injury-related injuries and a full considerate of their consequences for the healthcare system, a national injury system and injury register should be used.

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