

Epidemiological Study on Road Traffic Accident Victims Presented to Emergency Department of Tertiary Hospital

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Abstract

Background: Trauma is a leading cause of mortality and morbidity globally. In our country more than a million are injured and killed in road traffic accidents. This study aimed to describe the different pattern of injuries of patient attending the emergency department. *Objective:* An epidemiological study on road traffic accident victims presented to emergency department of Amrita institute of medical sciences and research centre. *Methodes:* A total number of 95 patients were enrolled in the study. A pre-organized data sheet was prepared for each patient attended the emergency department of amrita institute of medical sciences. It contains data about socio-demographics, trauma data, clinical evaluation result as well as treatment strategies. *Results:* Most (22.1%) of the patients were aged between 20-30 years. The mean age of the patient was 35.8 years. There were 76 Males (83%) and 19 females (18%). More than half of the patients were from urban areas. Most patients (57.8%) are injured by two wheelers. 16 patients did not wear helmet, in which 8 patients (50%) had head injury. Most road traffic accidents are occurs in between 8-10 am. *Conclusion:* Trauma is a major health problem, especially in the young population in our country. Two wheelers are the commonest vehicle involved in the road traffic accidents. Trauma is a leading cause of morbidity and mortality among all age groups and injuries from road traffic accident is the most common cause of disability in the developing world.

Keywords: Road traffic accidents; Two wheelers; Helmet; Injuries.

Introduction

Road traffic accidents are leading cause of morbidity and mortality among all age groups. Motorcycles have become an increasingly popular mode of transportation; motorcycle registration in the United states topped 8.1 million in 2007. They enjoy the freedoms that come with their chosen form of transportation, but they are also exposed to dangers. In two-third of motorcycle accidents involving another vehicle, the driver of the other vehicle violated the motorcycle riders right of way and caused the accidents and it has no protective measures in the event of a crash. The female pillion riders sit sideways with both legs to the left of the vehicle because the common

mode of dress and they do not wear helmet. Helmets have repeatedly been proven to reduce the severity of the head injury in crashes. Helmet have shown a protective effect for brain injuries or skull fractures, and have also been shown to reduce overall mortality. The highest combined risk of dying or being severely injured was found in males and driving at excessive speed on urban links. Driving under the effect of alcohol or drug is one of the cause of RTAs and mortality associated with it. Teens as drivers are known for rash driving impulsively and also to get away reasons. They cause accidents due to inexperience and speed. Some drivers suddenly overtake the vehicle in front, not anticipating another speeding vehicle is coming from opposite direction, which



result in collision. It is often seen that the vehicle may suddenly take turn to either to left or to right without using indicator.

The accidents can be prevented and lives can be protected and saved after the accidents, in case of the injured could be transported to the trauma center or to appropriate hospitals within the golden period during which the resuscitation could salvage the patients.

Methodology

Inclusion criteria

- Patients 18 years or above who had road traffic accident

Exclusion criteria

- Patients younger than 18 years of age
- Burns
- Electrocution
- Pregnancy

Structure and location

This is a prospective observational study done on 95 patients who had road traffic accident and referred to Amrita Institute of Medical Sciences from July 2016 to June 2017. During the time period there was maintained a proforma to collect the details and data regarding patients with history of RTA. The data were collected by the emergency medical technicians.

Data collection

The clinical data collected from a pre-organized data sheet for each patient. The socio-demographic data included data regarding age, sex, marital status, occupation, residence and date and time of occurrence of injury, Type and cause of injury, time of hospital arrival, and any pre-hospital intervention. All of the included patients were subjected to clinical evaluation and treatment after arrival to emergency department, as per ATLS (Advanced Trauma Life support) guidelines. The data of each patient was mentioned in the pre-organized data sheet. Outcome of each patient was collected and it was divided in to: the patient was discharged after treatment of trivial trauma, admitted to emergency room for observation, admitted as an inpatient for further evaluation and management or discharged

later and death. Data were collected including history and the result of clinical examination, investigation and managements. All of them were coded, entered and analysed using the statistics.

Statistical Analysis

The data collected were compiled using Microsoft Excel. All statistical analysis carried out using IBM Statistical Package for Social Sciences (SPSS Version 20). We used frequency and percentage to present categorical variable and median to present numerical variable.

Result

This prospective descriptive study including 95 patients, who had presented with road traffic accidents in emergency department of Amrita institute of medical sciences and research centre from July 2016 to June 2017. According to this study 82 patients (86%) are from the urban areas and 13 patients from the rural areas. From 95 patients 55 patients (57%) reached the hospital with in 1hour, followed by 17 patients (17%) reached within 5 hours, 8 patients (8%) reached in 5-10 hours and other 8 patients (8%) reached in >24 hours. out of 95 patients 43 patients are injured within 5 km from the hospital, followed by 70 patients in >5 km, 9 patients in 25 km, 4 patients in >25 km and 18 patients from out of ernakulam. 51 patients injured by two wheelers, in which 35 patients (36.8%) wearied helmet and 16 patients (16.8) didn't wear helmet. Majority of the patients 54(56.8%) didn't get first aid and 35 patients (36.8%) got first aid. In which 63 patients (63.3%) had minor soft

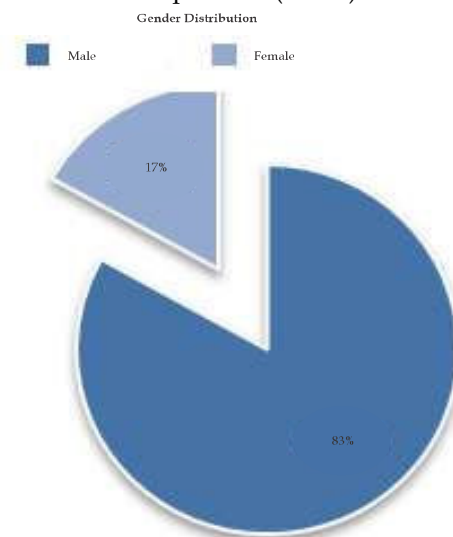


Fig. 1: Gender distribution of the study subjects

tissue injuries, 16 patients (16.8 %) had major soft tissue injuries, 17 patients (17.8%) had bony injuries, 8 patients (8.4%) had head injuries 1 patient (1%) had major solid organ injury. According to GCS 88

patients (90%) showed GCS 13 to 15, followed by 2 patients (2.1%) 13 to 14, 2 patients (2.1%) shows 10 to 13 and 3 patients (3.1%) shows < 10.

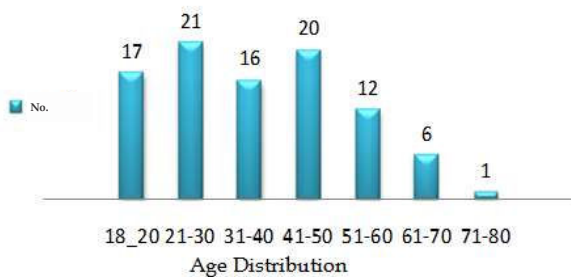


Fig. 2: Age distribution of the study subjects

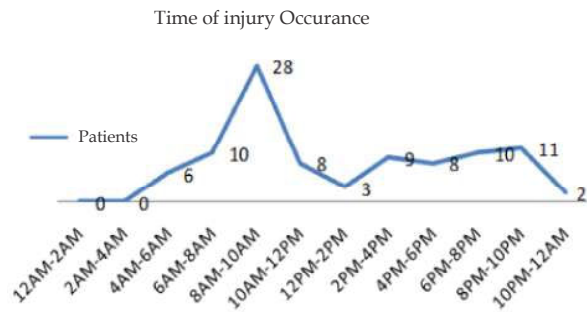


Fig. 5: Time of injury occurrence

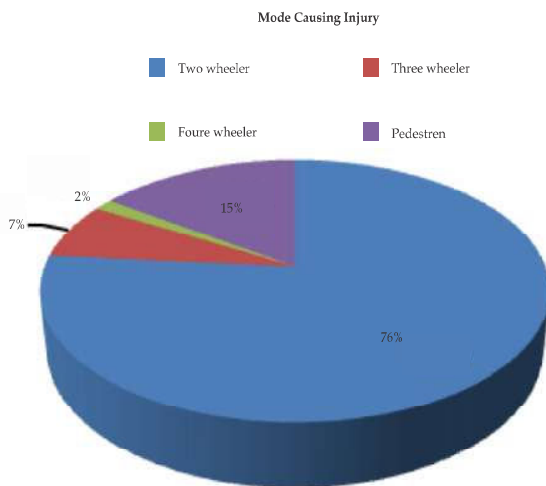


Fig. 3: Mode causing injuries of the study groups

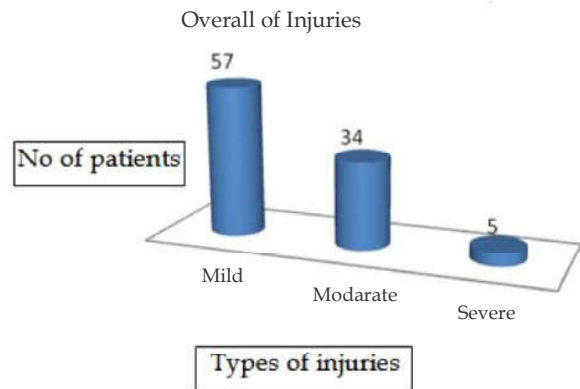


Fig. 6: Types of injuries of study subjects

Discussion

Trauma is a leading cause of disability and preventable cause of death. The present study aimed to describe the pattern of different injuries in road traffic accidents patient attending the emergency department. The most common age group involved was between 20-30 years followed by 40-50 years. According to National crime Records Bureau, Delhi, maximum numbers of cases were between the age group 15-44 years. Similar results were found in studies conducted in Delhi by Mehta and in Nepal by Jha [1]. Unlike many chronic diseases that occur later in one's life, trauma has a disproportionate impact on young and middle aged people. Male gender predominated in road traffic accident patients (83%) in present study. It was also proven by Vieira RCA, Hora EC, Oliveria D V, Vaez AC in Sergipe [2]. It is possible to suggest that males are more liable to trauma and hence they constitute the majority of that kind of studies.

Relation between the head injury and patients who did not wear helmet

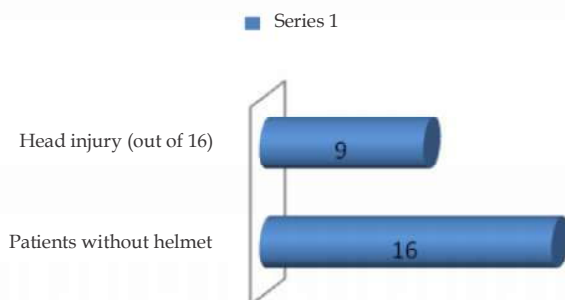


Fig. 4: Head injured persons in study subjects

Motor cycles are the popular mode of transportation, motorcycle registration in the United states topped 8.1 million in 2007 [3]. In this study two wheelers are the commonest vehicle involved in the road traffic accidents, and also most patients are injured by two wheelers ,because there is no protection provided by the vehicle at the event of crash. About 50% of people who do not wear helmet having head injury. Another study demonstrated that injury prevention strategies targeting helmet use could increase utilization of this safety device and thus decrease the occurrence of severe head injuries in victims of motorcycle crash [4]. It has been reported that helmet reduce the probability of the occurrence of head injuries, the severity of the head injuries when they occur [5,6].

Most of the accidents are occurs in between 8-10am, out of 95 patients, 21 patients (22.1%) injured at this time period. Rapid transport to the hospital is critically important. One of the factor responsible for mortality is due to delay in transportation of the patient to the hospital. The golden period for survival after sustaining injury is the first one hour. In the current study most patients reached hospital within 20-60 minutes from the injury site. 55 patients (57%) came within 1 hour, 7 patients (7.3%) came within 1-5 hours, 8 patients (8.4%) reached in 5-8 hours, other (8%) reached in 24 hours and most of them came from another hospital for further management. Most of the patients were not subjected to pre-hospital intervention as they were not transported by ambulance. And 39% patient had first aid before reaching the hospital, but all first aids got from the nearest hospital, not at the injured site. Current thinking prioritizes methods for the decrease of pre-hospital time by addressing only life threatening injuries through control of bleeding, cervical spine stabilisation, and similar interventions.

The majority (92.6%) of the patients were alert on AVPU scale and showed GCS 13-15.(4.1%) of patients showed GCS 10-13, and these patients admitted. 1% of patients are unresponsive and showed GCS <10, and these patients were admitted. According to this study most of the patients (60%) had mild injuries, followed by moderate injuries (35%) and severe injuries (5%). In this 95 patients, 63 (66.3%) patients had minor soft tissue injuries, and these patients needs minor care, 16 (16.8%) patients had major soft tissue injuries, 17 (17.8%) patients had bony injuries, X-Rays are taken to conform fracture, and fractures are stabilized. 8 (8.4%) patients had head injuries, 1 (1%) patients had major solid organ injury.

Conclusion

This is a retrospective observational study of 95 patients admitted to the Emergency Medicine Department of Amrita Institute of Medical Sciences, Kochi, who presented to emergency room with road traffic accident between July-2016 and June 2017 and satisfied inclusion and exclusion criteria.

Out of 95 patients, 78 (82%) patients were males and 17 (16%) patients were females. 21 (22.1%) patients were in the age group of 20-30 years. In this study, 24 (25.2%) patients were injured in between 8-10 am, and the time interval between accident and hospitalization was 20-45 minutes, the current thinking prioritizes methods for the decrease of pre hospital time by addressing only life-threatening injuries through control of bleeding, cervical spine stabilization, and similar interventions. 51 patients (57.8%) were injured with two wheelers. Based on the helmet use, it was found that 16 patients (16.8%) did not use helmet in which 9 patients (9.4%) had head injury, so it is concluded that, two wheelers are the commonest vehicle involved in the road traffic accidents, helmet use is very important in two wheeler riders.

Hence trauma is a major health problem, especially in young population. Trauma is a leading cause of morbidity and mortality among all age groups and injury from the road traffic accident is the most common cause of disability in the developing world.

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