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Original Article

An epidemiological study of road traffic accident cases admitted in a tertiary care hospital

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ABSTRACT

Background: Road traffic accidents are a leading cause of mortality and morbidity globally. In India, more than a million are injured annually and about a lakh are killed in road traffic accidents.[1] It causes the country to lose around 55,000 crores annually which is 2–3% of Gross Domestic Production (GDP).[2] This cross sectional study was conducted to elucidate the role of various factors involved in road traffic accidents.

Methods: Road traffic accident cases admitted to a tertiary care hospital between 01 Oct 2009 and 28 Feb 2011 were included in the study. A total of 182 patients were studied. Information was collected through questionnaire, hospital records and on-site visit. OPD cases, comatose patients and deaths were excluded.

Results: Two-wheelers were the commonest vehicle involved in vehicular accidents. Most accidents happened at a speed of 40–60 km/h (37.9%). Most of the patients were aged between 20 and 30 years. Majority had a driving experience of less than 5 years. Monsoons witnessed 46.7% cases. Most cases occurred between 6 and 10 pm. Among severe injuries, the commonest was lower limb fractures (19.8%).

Conclusion: There are multiple factors associated with road traffic accidents which due to the lack of road safety measures in the country are playing their role. It is the need of the hour to address this issue and formulate comprehensive, scientific and practical rules and regulations as well as evaluate its enforcement.

Introduction

Road traffic accidents are one of the leading causes of morbidity and mortality worldwide, accounting for over one million deaths per year.[1] Road traffic accidents are defined as a collision involving at least one vehicle in motion on a public or private road that results in at least one person being injured or killed.[2] They also have a huge impact on disability-adjusted life years (DALYs). It has been predicted that by 2020 global death rates from road traffic accidents will rise by 67% due to

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the effect of rapid population growth, industrialisation and an increase in road vehicles. The World Health Organisation predicts that road traffic injuries would become the sixth commonest cause of death by the year 2020 and the fifth by 2030.[2]

This increasing morbidity and mortality rate, particularly in those of working age group, has devastating consequences for the economic growth of countries. Of the worldwide annual average of 700,000 road accidents, 10% occur in India. Over 100,000 people are killed on Indian roads annually. By 2020 it is estimated that road traffic accidents would have its fatal effect on about 55,0000 people annually.[3]

In view of the above, this study was conducted with the aim to study the factors involved in road traffic accidents as well as elucidate the pattern of injuries sustained.

Materials and method

A cross sectional study was planned at a tertiary care hospital between 01 Oct 2009 and 28 Feb 2011. Road traffic accident cases which got admitted during this period were consecutively enrolled in the study after an informed consent.

Information was collected through a pre-tested questionnaire, perusal of hospital records and visit to the accident area to assess the nature of turnings, road conditions, sign boards, etc for corroborative evidence. Comatose cases, OPD cases and fatalities were excluded from the study. A total of 182 patients were studied. A limitation of this study was the exclusion of deaths and comatose cases which had to be done because it was difficult to obtain from relatives/eye-witnesses, the exact factors which were operating during the accident as mentioned in the questionnaire. Incorrect information rendered by patients on drug/alcohol or helmet use due to fear of punitive action can be a problem in such studies but the patients were taken into confidence for giving the correct information and the same cross-checked from hospital records.

Results

The commonest age group involved in accidents was 20–30 years (34.62%). 84.6% of patients were males and 61% of patients were married. 67% of patients were driving the vehicle when the accident happened. 14.3% patients were pedestrians. Analysis of the drivers ($n = 122$) met with the accident was done on basis of their driving experience. Maximum drivers (9.8%) were having less than 1-year experience followed by 6.5% drivers who had experience between 1 and 2 years. Table 1 reflects the frequency against driving experience based on a class interval of 5 years (instead of 1 year grouping to avoid the table from becoming lengthy). Maximum drivers had an experience of less than 5 years (27.35%). 22.96% drivers admitted that they were not alert when the accident happened. Amongst users of two-wheelers (drivers and pillion; $n = 143$), 64.33% claimed that they were wearing headgear during the accident. The commonest explanation for not using a headgear was its negligence due to overconfidence on driving abilities.

Table 1 – Distribution of patients according to their driving experience.

Driving since	Frequency (n)	Percentage (%)
Less than 5 years	34[a]	27.35
5–10 years	29	22.31
10–15 years	14	10.79
15–20 years	9	7.19
20–25 years	15	13.61
25–30 years	10	8.19
More than 30 years	11	9.01
Total drivers	122	

[a] A majority (12 drivers) were having less than 1-year experience in this particular group.

Motorised two-wheeler was the commonest vehicle involved (71.9%) in the accident (Fig. 1). Pedestrians included the next commonest category (14.8%). In 42.3% cases, there was no second vehicle involved i.e. the accident happened due to the skidding of the patient's vehicle, losing of its balance, crashing with a divider/tree, etc. In 105 cases, a second vehicle was involved and 64.76% of them were sideways collision. The other vehicles in these 105 cases were mostly four-wheelers. 37.9% patients suffered the accident while travelling at a speed between 40 and 60 km/h (Fig. 2). A total 29.67% cases occurred in Jul–Aug. Maximum cases (46.7%) took place during monsoons (Jul–Oct). Sundays witnessed the maximum cases (19.2%). Majority of cases (43.7%) occurred between 6 pm–10 pm (Fig. 3). 68.1% accidents occurred on smooth roads.

The time taken by majority of patients to receive the first medical aid was found to be between 30 and 60 min (39.6% patients). 32.3% patients received the first aid treatment after more than an hour. Soft tissue injuries were the commonest type of injuries suffered (48.6%). Among the more severe injuries, lower limb fractures were the most common (19.8%). Based on Abbreviated Injury Scale system, 71.9% patients sustained severe injuries.

There was a significant association between the mode of travel and severity of injuries with higher odds of severe

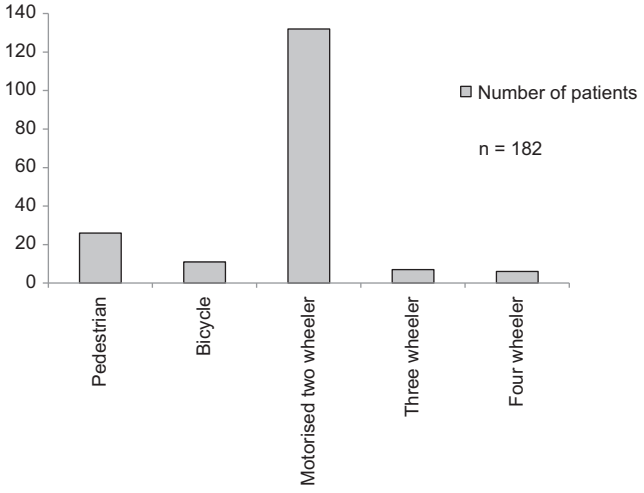

Fig. 1 – Patient's vehicle at the time of accident.