Review of Road Traffic Accident Admissions in a Nigerian Tertiary Hospital

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Background: Road traffic accident remains a leading cause of trauma and admissions to the accidents and emergency units of most hospitals. The aim of this study was to determine the pattern and epidemiological characteristics of trauma admissions to the Obafemi Awolowo University Teaching Hospital.
Methods: This was a retrospective review of hospital charts of all patients admitted as a result of RTA injuries between October 2001 and December 2005 and whose records were available and complete,. A special data form was used to collect the required information using admission data from the casualty and various hospital wards .Data was subjected to simple statistical analysis.
Results: There were 379 cases managed during the study period, 355 of these had complete records and therefore formed the basis of this study. A total of 47.3% were in the third and fourth decades of life, with a mean age of 32 years. The male to female ratio was 2.5:1. The months of July, April and September recorded the highest admissions of RTA, (11.5%, 10.7% and 10.7% respectively).Head injuries, femoral fractures, spinal injuries, and tibia and/or fibular fractures were the most common injuries sustained. Isolated injuries were seen in 79.4% while 20.6 % of the patients had multiple injuries. The mortality rate was 6.8%.
Conclusion: Trauma is an established cause of requiring emergency care and hospital admissions and since the cost of trauma care is enormous. Implementation of road safety legislation will be of tremendous help in reducing road traffic injuries.

Introduction

Road traffic accidents continue to be a problem of immense proportions in many places worldwide[1,2,3]. In Nigeria, just like is the case in many other sub-Saharan African countries, injuries and deaths resulting from road traffic accidents are on the rise[4]. It is the leading cause of death from trauma[5, 6,7,8] and one of the most common causes of disability[9]. RTAs are also a leading cause of accidental deaths in most parts of the developing world. Factors that contribute to high occurrences of RTAs are largely preventable and these include bad roads, poor vehicular conditions and recklessness on the part of the drivers. Most accidents have been found to be due to all these 3 factors. Man, however, is the central factor responsible for most RTAs in developing countries, as decisions to either put the roads in good condition will be taken by man, and putting vehicles in good conditions for safety purposes is an action controlled by man. Adherence to traffic rules is still very poor in the developing countries and is rarely a spontaneous choice as most motorists would adhere only when forced to.
The need to admit RTA victims beyond 24 hours is an index of severity of injuries as majority of road accident victims does not require hospital admission[7]. Commonly, injuries sustained are mild and compatible with out patient treatment or observation from few hours to about 24hours.Patients who survive for up to 24 hours are more likely to survive if appropriate medical care is instituted. Admissions for these individuals involved has socioeconomic implications as the cost of managing the injuries has to be borne by the patients and the period spent on admission is of economic value. The need to have relatives look after the admitted victim contributes to loss of man hours. Young adults have been found to be more involved, these are in the most productive class in the society. The purpose of this study therefore was to describe the epidemiological characteristics of road traffic accident admissions, the various types of injuries and outcome of treatment in patients managed at Obafemi Awolowo University Teaching Hospitals complex.

Patients and Methods

We retrospectively reviewed the Hospital records of all road traffic accident patients admitted to the Accident and Emergency Unit of the Obafemi

Awolowo University teaching hospitals complex, on account of road traffic accidents, from October2001 to December 2005. The hospital serves as a referral center to a large area of 6 states. The hospital is situated in southwestern Nigeria and serves a population of about 3million people. The review covered a period between October 2001 and December 2005.The demographic data, as well as month of the year during which accident occurred, the mechanism of road traffic accident as observed by patients or eyewitness accounts, location of the accidents, the nature of injury sustained, total duration of admission, referrals and mortality were retrieved. All age groups were included in the study. Patients with incomplete data or those who were discharged from the accident and emergency, within twenty-four hours, were excluded from the study.

All data were analyzed using the SPSS version 11 software and frequencies tabulations means were determined with a 95% confidence limit at a P value of < 0.05 taken as significant

Results

A total of 379 road traffic accident patients were admitted through the accident and emergency unit of the hospital over the study period. Complete records of three hundred and fifty five patients were available. The patients' ages ranged from 1 to 82 years with a peak incidence (27.3%) in the 21 to 30 years age group, followed by 31 to 40 years (20.0%). The mean age was 32 years; modal age was 40 years and. A total of 253 males (71.3%) and 102 females (28.7%), with a male: female ratio of 2.5: 1. Table 1 shows the age/sex distribution. Students constituted the largest single group of victims totaling 92 (25.9%). This was closely followed by traders 77 (21.7%). Civil servants accounted for 55 (15.5%) of the cases and drivers contributed 41 (11.5%) of the cases (Table 2). The duration of hospital stay varied from 1 to 308 days with a mean duration of 29 days and a mode of 2 days in 10% of cases. Most of the accidents occurred in July, 41 (11.5%) April, 38 (10.7%) and September 38 (10.7%)

The distributions of the mechanism of injuries were as follows: 116 (32.6%) of all cases involved motorcycles, pedestrian accidents occurred in 84 (23.7%). Head on collusion between vehicles or motorcycles occurred in 64 (18%), burst tyres accounted for 48 (13.5%). In 42 (11.8%) cases accidents resulted from loss of control of the vehicle due to over speeding. Collision between cars and motorcycles occurred in 27 (7.6%) of cases, while brake failures accounted for 6(2%).

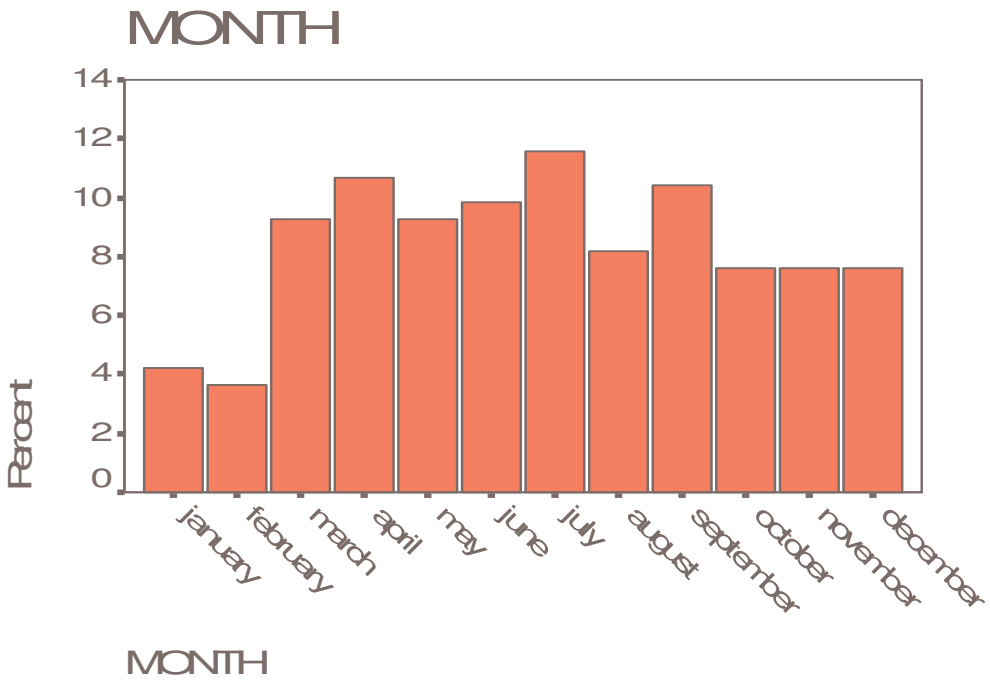
Head injuries occurred in 132 (37.3%) patients, femoral fractures in 47 (14.1%), Spinal injuries in 33 (9.3%), leg fractures in 33 (9.3%). Isolated injuries occurred in 79.4% while 20.6% had multiple injuries.

Eighty victims (22.5%) had accidents in the town while 275 (77%) occurred during inter state journeys. Motorcycle accidents accounted for 71.6% of all injuries occurring within the town. There were 24 deaths (6.8% Mortality rate). Two patients (0.6%) were referred to other centers on request for further treatment. Eleven (3.1%) of the patients were discharged against medical advice; 9 had fractures and 2 had severe head injury.

Table 1. Age and Gender Distribution of Patients**.**

Age in years	Sex		Total (%)
	Male (%)	Female (%)	
1 - 10	30 (8.5)	16 (4.5)	**46 (13)**
11 - 20	25 (7.0)	17 (4.8)	**42 (11.8)**
21 - 30	74 (20.8)	23 (6.5)	**97 (27.3)**
31 - 40	61 (17.2)	10 (2.8)	**71 (20.0)**
41 - 50	35 (9.9)	17 (4.8)	**52 (14.6)**
51 - 60	15 (4.2)	11 (3.1)	**26 (7.3)**
61 - 70	9 (2.5)	7 (2.0)	**16 (4.5)**
>70	4 (1.1)	1 (0.3)	**5 (1.4)**
Total	253 (71.3)	102 (28.7)	355 (100)

Figure 1. Percentage distribution of victims of RTA in each month of the year



Discussion

Three hundred and fifty-five patients were reviewed in this series; this record is lower than the figure presented in a similar review conducted at the same center 10 years earlier[7]. This would suggest a reduction in the cases of road traffic accidents. However, it may mean that patients are been seen elsewhere as there is another teaching hospital established after the review in the same state. Two thirds of the victims in this review were below forty years of age. This compares well with the findings of Balogun and Abereoje[7] working in the same center 10 years earlier. A similar study done in the middle belt of Nigeria reported in 2003, found a mean age of 36.8 years. This corroborates findings by other workers[10,11].High occurrences of RTAs among young adults has been thought to be due to wide range of activities engaged in by this class of people. They are more likely to have reasons to move from one place to another. Males are 2 and a half more prone in this review, similar to the findings of Balogun and Abereoje[7]. Same findings have been documented by other workers[5, 12].

Men are more often exposed to traffic as drivers; they travel longer distances to work and are more often involved use of automobile as leisure activities. Motorcycle riding in this area is almost exclusively men, most of whom do it for commercial purposes. Bradbury and Robertson working in Edinburgh, UK found the average person involved in RTAs in their series to be a young male, intoxicated and not wearing their seat belts[11]. Females and children have been previously documented to be involved as pedestrians and passenger[13]. Other studies corroborate this fact and attribute this to the fact males are more exposed to traffic as commercial drivers.

Students constituted the largest group of the victims of road traffic accidents in this review. Our hospital is located in a state that has many institutions of high learning with students from different parts of the country. The need to move around from place to place is high amongst students. Students behind the wheels are often reckless and sometimes intoxicated. This is most likely due to the high number of institutions of higher learning situated close to our teaching hospital and in neighboring towns. These students often need to travel in and out of the state for various reasons. About 21% of the cases we reviewed were traders. Traders were found to be one of the classes of people commonly involved in RTA deaths by Solagberu et al[5]. These groups

of people are often involved in buying and selling which necessitates movement from one place to another. This often involves traveling with good purchased hence overloading of vehicles are commonly observed in vehicles occupied by traders. Maximizing profits could also make traders to compromise on the suitability of the vehicles and opt for the cheapest transport available when traveling with their goods.

Various causes have been studied as contributory to road traffic accidents but a combination of two or more factors may often be responsible. Mechanical factors such as brake failure do occur rarely but human factors are by far the most important in the causation of road traffic accidents. In this study over 80% of the cases sustained accidents due to human factors while less than 20% (brake failures and burst tyres) Alcohol abuse is an important cause of road traffic accidents [3, 14] as it impairs judgment, which is critical to safe driving. Testing is not routinely available in this area to detect drivers who may have more than the legal limit of alcohol in their blood, though peddlers of local gin often hawk around motor parks where they are most often patronized. Environmental factors such as bad weather with poor visibility as occurs during the harmattan period is believed to be a very important one but this is not the finding in our study as most cases occurred in July, April and September around which time we experience heavy rains. This may also be a cause of poor visibility.

Head injuries were the most common type of injury sustained and the most important cause of mortality. Limb fractures occurred next in frequency and this not surprising either as pedestrians and the relatively unprotected motorcyclists are the most commonly affected. Spinal injuries constitute nearly 10 % of cases and RTA continues to be the most common cause of spinal cord injury with its attendant mortality and morbidity.[15, 16]

Patient discharge against medical advice is often seen in our practice. The cost of hospital care is high and unaffordable to most patients. Payment before service is the policy in most government hospitals and as such poor patients' relations are left with the choices of taking their patients home, or seeking cheaper sources of alternative medical treatment. This may have accounted for the eleven patients who discharged against medical advice, two had head injury and remained unconscious while the others had limb fractures for which alternate medical practitioners are often resorted to. These traditional bonesetters, as they are called, are believed to be cheaper, but various sinister complications have been reported from their practice [17] even though they are not licensed by law to practice medicine in Nigeria.

Pedestrian road traffic accidents occur commonly in this environment as child labor in form of hawking of goods occurs commonly and pediatric accidental deaths accounted for 84.3% of mortality in this age group in previous studies[13, 18]. It is therefore not unexpected that pedestrians constitute the second largest group of victims of RTA in this review making up 24 % and second only to motorcycle accidents. Previous authors have showed the emergence of motorcycle accidents as a group of road traffic accident victims with increasing importance in this environment[19, 20]. Many now resort to this means of transportation, as it is readily available in many areas with poor road network and where there is no reliable mass transit program besides it provides a ready source of employment for many young males. Many of the motorcycle riders do not use head helmets in spite of appropriate legislation.

Conclusion

Road traffic accidents continue to be of public health significance. It is a major reason for hospital admission via the A and E. Enforcement of safety rules will help in reducing the occurrence of RTAs. Awareness campaigns concerning safety rules targeted at the high risk groups (young adult male, students, traders) will also be of help in reducing the occurrence of road traffic accidents as well as improvement of the roads

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Table 2. Occupational distribution of RTA victims.	
Occupation of victims	Number (%)
students	92 (25.9)
Traders	77(21.7)
Civil servants	55 (15.5)
Drivers	41 (11.5)
None	15 (4.2)
Farmers	12 (3.4)
Clergy	11 (3.1)
Retiree	8 (2.3)
Tailor	6 (1.7)
Technicians	6 (1.7)
Others	32 (9.0)
Total	355 (100)