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A Retrospective Study of Road Traffic Accidents - Injury Characteristics, Management and Outcome at Raipur Institute of Medical Science,Raipur,Cg

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ABSTRACT

This is a retrospective study carried out in RIMS, RAIPUR,CHHATTISGARH to study the injury characteristics, management and outcome of road traffic accidents and factors responsible for these injuries. Urbanization has led to an increased number of vehicles on the roads. This together with an extreme apathy on the part of authorities to implement traffic rules has led to a phenomenal rise in the number of road traffic accidents. Lack of a proper pre-hospital care system has only added to the woes. Thus, the need for this study. All case records of road traffi c accident victims admitted to the hospital between January and December 2014 were analyzed statistically with respect to their demographic profi le, injury characteristics, management and outcome. The revised trauma score was used to assess the patients and study its reliability in predicting mortality at the time of presentation to the casualty. This study showed that the majority of crash victims were males in the age group 21-40 years accounting for huge economic losses for their families and the country at large. Motorized two-wheeler accounted for 62.5% of the accidents. Musculoskeletal injuries (57.5%) were the most common injuries,followed by those to the face, neck, and head. Local wound treatment (72%) was the most common surgical procedure performed. About 12.5% of the trauma victims did not survive their injury. Road traffi c accidents are preventable. Strict traffi c laws and penalties have to be imposed to curb this ever growing menace. This study was conducted in order to identify the injurycharacteristics of road traffi c accident victims and to provide baseline data to authorities who may wish to undertakeinterventions to improve road safety in the area.

KEYWORDS : Accidents, Wounds and Injuries, Management

Introduction

Road traffi c accidents are both predictable and preventable.In India, there is no central authority to lay down guidelinesfor trauma care. There are no legislations in place to regulatequalifi cation of ambulance personnel and maintenanceof ambulance equipment. Rural India lacks appropriatetrauma care facilities due to fi nancial constraints and anunderdeveloped health infrastructure. The government,medical fraternity and the society at large are yet to

recognize trauma as a growing health hazard.Only a good combination between a mature pre-hospitalsystem and a trauma care center can provide professionalcare and the best possible outcomes in cases of trauma.Lack of local data and information on road traffi c accidents inour region has resulted in an utter disregard to this problem amongst our policy makers.Road traffi c accidents are a human tragedy. Nearly 1.3million people die every year on the world's roads and up to50 million people suffer non-fatal injuries, with many sustaininga disability as a result of their injury.1 These injuries and deathshave an immeasurable impact on the families affected.The United Nations has declared 2011-20 as the decade ofaction on road safety so that the present rising trend of roadaccidents stabilizes and is reversed by the year 2020.In India, road traffi c accidents accounted for 2% of all deathsin 2005 nationally, of which 65% occurred in men between theages of 15 and 59 years taking a heavy toll on those in their most productive years.3 82.2% of road casualities were in theage group 15-65 years in the year 2011. Only 15% of the roadaccident victims were females in the calendar year 2012.1

Materials and Methods

Place of Study: The study was carried out in The Department of Surgery,RIMS,RAIPUR,CG during a period of 2 months from May 1st, 2015 to June 30th, 2015.**Study Design:**This is a retrospective study of all road traffi c accident

patients, who presented in the casualty of RIMS,RAIPUR, during the periodJanuary 2014-December 2014. Only those cases of roadtraffi c accidents, which took place on the road and whichinvolved any kind of moving vehicle and who reported directlyto the casualty department of the hospital were considered.**Ethical Clearance:**Approval from the Institutional Ethics Committee wasobtained before commencement of the study. **Sample Size:**Data of 120 patients were analyzed in this study. **Methodology of Data Collection:**All case records were analyzed with respect to the age andsex of the patient, mechanism of injury, characteristics ofthe injury, management and outcome. The revised traumascore (RTS) was used to score and assess the condition ofthe patient, to see whether it had any reliability in predictingdeath. The score uses three variables namely Glasgow comascale (GCS), systolic blood pressure (SBP), and respiratoryrate (RR). All three indices are calculated based on a codedvalue. The score has values ranging from 0 to 7.8408.**Data Analysis:**All variables from the case study sheet were analyzed

statistically. To study the relationship between RTS andmortality of patients, Chi-square test was used.

Results

The maximum number of victims (22.5%) of RTA wasin the age group of 21-40 years coupled with a male preponderance. Most accidents (47.5%) occurred between16:01 and 00:00 h, followed by 42.5% in the time interval between 08:01 and 16:00 h. In 63 cases (52.5%), the victiminjured was the driver of the colliding vehicle. Most accidents occurred in the city (45%), followed by 37.5%in the village. It was further seen that out of 120 victims, 105 (87.5%) were brought to the hospital by self/relatives/friends, 10 (8.34%) by good Samaritans and 5 (4.16%) by a government agency. Musculoskeletal injuries were themost common (57.5%). The face and neck accounted for (50%) of the injuries. 75% cases had superfi cial injurieslike contusion/abrasion and 57.5% cases had lacerations. Fracture/dislocation was seen in 40% cases .Local wound treatment was required singly or additionally in 60% cases. The RTS was calculated for the victimsretrospectively, it was seen that 33 victims had a score between 4.1 and 6, out of whom 21 patients survived and12 died. 87 patients had a score >6, of whom, 84 patients survived and 3 died. The Chi-square value cameout to be 23.69 ($P < 0.001$).It was seen that 90% of patients (108) required hospitaladmission. 10% patients (12) could be managed on an outpatient basis. Out of

the total number of victims,63 (52.5%) were discharged with no residual disability,42 (35%) sustained some form of disability and 15(12.5%)patients died.

Discussion

A total of 120 cases of road traffi c accidents were studied.Majority of victims (45%) were in the age group 21-40 yearswith a male preponderance. This is in concordance withother studies. Reckless driving and speeding in this age group isresponsible for most of the accidents.Lack of adequate street lighting, bad conditions of roads,obstacles, unmarked speed-breakers, stray animals,no lights on bicycles and bullock-carts were probablyresponsible for most of the accidents occurring between4:01 pm and 00:00 am (47.5%) as seen in another study.A significant number of accidents (42.5%) did occur in theday hours, 8 am to 4 pm. A hurry to get to work with scantregard for traffi c regulations accounted for most of these cases.Motorized two-wheeler were seen to be involved in themajority of collisions (62.5%), which is similar to those found in other studies. Increasing urbanization, easy availability

of loans, affordability and catchy television advertisementshas resulted in an ever increasing number of these vehicleson roads, which by their inherent instability and overloadingmake them extremely accident prone.In the present study, it was found that the majority ofvictims were drivers of the vehicle involved in collision. This is in concordance with the study carried out in Lucknow by Chauhan *et al*. but it is in contrast to a study carried out in Tanzania by Chalya *et al*., where pedestriansconstituted the majority of victims. In a study by Jha *et al*.in uducherry, occupants of vehicles were mainly involved.Our study shows that the most number of accidents occurred within the city (45%), followed by (37.5%) in thevillage. Chauhan *et al*. showed a similar result in their study carried out in Lucknow whereas Singh *et al*., in their study in Ghaziabad region reported that maximum accidents

occurred on the highway. The location of our hospital well within the city and best equipped to deal with accidents may be the reason for the above.It was seen in this study that majority of victims (87.5%) came to the hospital by themselves or were brought by relatives/friends, 8.33% were brought by good Samaritans and only 4.16% by a government agency. Similar results were obtained by Chalya *et al*. in their study.7 The existing systems for pre-hospital care of trauma patients is still in its infancy in most parts in the country. Apathy toward the trauma victim coupled with complex legal issues deters people coming forward to help trauma victims. Ambulance drivers and other helpers have no formal training in trauma care. Even though the state government runs a free ambulance service, knowledge of its existence is not universally present among the village folk who still use local transport to shift patients.In our study, musculoskeletal injuries to the extremities were the most common (57.5%), followed by face and neck (50%) and head (42.5%). Bhuyan and Ahmed in their study in Assam showed a greater number of head and neck injuries along with extremity injuries. Chalya *et al*. and Chauhan *et al*. in their study found a greater number of musculoskeletal and head injuries but a smaller number of maxillofacial trauma. The increased number of musculoskeletal injuries is obviously due to a fall from a twowheeler.Even though, legislation for the compulsory usage of crash helmets exists, the public at large in this part of the country disregards it accounting for the high numbers of head and maxillofacial injuries.It was seen that superfi cial injuries like contusion and abrasion occurred in 75% and lacerations occurred in 57.5% of victims. Similar results were seen in a study carried out in Ghaziabad. This is due to the obvious effect of blunt trauma and fall on the roads with a rough surface. Fracture/dislocation occurred in 40% of victims. Fractures were the most common injuries in studies carried out elsewhere.There is general lack of awareness among people regarding fi rst aid treatment. This leads to increased manipulation of the injured limb worsening the nature of fracture. Local wound treatment was the most common surgical procedure performed in our study, followed by treatment of fracture/amputation. This is in concordance with the study carried out in Tanzania.In our study, the simple RTS was calculated for each victim retrospectively to study whether it would be useful in predicting death. It was seen that out of the 33 victims with score between 4.1 and 6, 21 patients survived and 12 died and, of the 87 patients with score >6, 84 patients survived and 3 died. The chi square value was 23.69 ($P < 0.001$).Thus, there was signifi cant relationship between the RTS of victims and their fi nal outcome, a lower score implying a poor prognosis. Other studies have also found the RTS as a simple and reliable indicator of prognosis in a trauma patient.In our study, 90% of the patients were managed after admission and only 10% of patients were managed on an outpatient basis. This is probably because local practitioners deal with most of the patients with minor injuries.

Conclusion

Road traffi c accidents are an emerging problem in our nation. The most commonly affected are males in a young age group, which means that lives of many families are irrevocably changed by these mishaps. Motorized two wheelers are the offending vehicles in most cases.Strict laws regarding speed limit, use of safety belts and helmets together with better quality roads and roadside illumination will go a long way in preventing such tragedies. A multi-disciplinary approach consisting of public education, a proper pre-hospital trauma care system and definitive trauma care facilities coupled with rehabilitation is required to be put in place if any impact is envisaged on this evergrowing epidemic on the roads.Still till date RTA are one of the major killer of young adults in India.

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