

STUDY OF ROAD TRAFFIC ACCIDENTS WITH SPECIAL REFERENCE TO THE ACCIDENT VICTIMS ADMITTED IN GAUHATI MEDICAL COLLEGE AND HOSPITAL, ASSAM

Rocket Chandra Brahma¹

¹Associate Professor, Department of Surgery, Assam Medical College & Hospital.

ABSTRACT

BACKGROUND

In the present scenario, road traffic accidents have become a major cause of human mortality and morbidity. Accidents are increasing at alarming rates in India. The objective of our study was to assess the socio-demographic profile of road traffic accident victims admitted in a tertiary care setting, and to assess the pattern of injuries.

METHODOLOGY

The present study is prospective and analytical hospital based study.

RESULTS

The present studies show that more than 70% of the victims are in the age group of below 45 years (n=3196) and with male preponderance. Out of 14364 accident patients visiting the emergency department of Gauhati Medical College and Hospital, 4953 patients were admitted. The majorities of the patients (n=2995) were admitted in surgery department and 1586 in orthopaedic department.

CONCLUSIONS

Several factors are responsible for causing road accidents such as drunk driving, lack of awareness of traffic rules, non-adherence to safety measures. To reduce morbidity and mortality following road accidents, comprehensive policy has to be adopted by the government.

KEYWORDS

Road Traffic Accidents, Head Injuries, Healthcare Setting.

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INTRODUCTION: Deaths and injuries due to road traffic accidents is a matter of grave concern worldwide. In many countries, motor vehicle accidents rank first among all fatal accidents. Every year almost 1.3 million people die from road accidents in the world.¹ Road traffic fatalities rate is higher in younger age groups than others. Children and young people under the age of 25 years account for over 30 per cent of those killed and injured in road accidents. According to the National Crime Records Bureau Report, in India, 51 cases of road accidents took place every one hour wherein 16 persons were killed in 2014.²

WHO has defined road traffic accidents as an event occurring on a street, road or highway, in which at least one motor vehicle in motion is involved by collision or losing control, and which causes physical injury or damage to property.³

Accidents are increasing at alarming rates in India, and it is estimated that about 20% of all emergency related visits are due to trauma. The World Health Organisation (WHO) study has projected that by 2020, road accidents will be a major cause of death in India accounting for about 5.5 lakhs death annually.⁴ With increasing traffic, incidence of road accidents are also increasing in this part of the country. According to the Statistical Handbook Published in 2014, around 7271 road accidents were registered by the traffic police in Assam, out of which 2407 people died. In the Guwahati city, 1196 road accident cases were registered by the traffic police during the same period out of which 1047 persons were injured and 297 died.

With these issues in background, this paper aims to study the incidence, factors responsible for road accidents, pattern of injuries and treatment received at Gauhati Medical College, Guwahati, Assam.

Research Methodology: The research design is prospective and analytical study conducted at Gauhati Medical College and Hospital (GMCH). GMCH was selected as it is situated in the Guwahati, the largest city of the north-east with all the super-specialties department and also caters patients from all parts of the state and also neighbouring states like Meghalaya, Nagaland and

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Corresponding Author:
Dr. Rocket Chandra Brahma,
Pubali Estate, Block A, GMC Road,
Christian Basti PO, Guwahati-781005, Assam.
E-mail: drrcbrahma@yahoo.com
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Arunachal Pradesh. For this research, primary data was collected from Emergency and Medical Record Department of GMCH, using pre-designed proforma, interview of the patients and their attendants by the resident doctors posted in the emergency department who were briefed by the author. For cross checking, patients' case history sheets were also referred. The secondary sources of data include the National Crime Records Bureau 2014, Statistical Handbook, Assam 2012-14, National Health Mission office, books, articles published in national and international journals, newspapers and different internet sources. The collected data was entered in Microsoft and was analysed. The data is expressed as proportion and percentages represented in the form of charts and tables. The association between variables of interest was tested using chi-square

test. The sample size includes all the road accident victims admitted in the department of surgery, orthopaedics and trauma wards (n=4953).

Institutional ethical clearance was taken prior to the conduct of the study.

Study Period: From January 2014 to December 2014.

RESULTS AND OBSERVATIONS:

Incidence Rate of Road Accidents in India: According to the annual publication on Accidental Deaths and Suicides published in the year 2013-14 by the National Crime Records Bureau, Ministry of Home Affairs, Government of India reveals the trend of road accidents in India which is reflected in Table 1.

Year	Road Accidents (In thousands)	% Variation Over Previous Years	Persons Injured (In thousands)	% Variation Over Previous Years	Persons killed (In nos.)	% Variation Over Previous years	No. of Vehicles (In Thousands)	Rate of Deaths per Thousand Vehicles
2009	421.6	1.4	466.6	-0.5	1,25,896	7.3	89, 618	1.4
2010	430.6	2.1	470.6	0.9	1,33,938	5.5	1,14,953	1.2
2011	440.1	2.2	468.8	-0.4	1,36,834	2.2	1,14,953	1.2
2012	440	-0.02	469.9	0.02	1,39,091	1.6	1,41,867	1.0
2013	443	0.7	469.9	-	1,37,423	-1.2	1,59,490	0.9
2014	450.9	1.8	477.7	1.7	1,41,526	2.9	1,59,490	0.9

Table 1: Number of Road Accidents in India during 2009 to 2014

*Source: National Crime Records Bureau, 2014

From the above Table 1, it is found that the number of accidents shows an increasing trend from the year 2009 with 421000 numbers of accidents reported to 443000 numbers in 2013. Number of persons killed in accident showed a rising trend, 125896 persons died in 2009 increasing to 141526 persons in 2014. The number of persons injured also

showed increasing trends from 466000 persons in 2009 to 4688000 persons to 4777000 in 2014.

Incidence of Road Accidents in the state of Assam:

The state of Assam has also shown an increasing trend in the incidence of road accidents over the years.

Place	No. of cases registered		No. of persons killed		No. of persons injured	
	2013	2014	2013	2014	2013	2014
State of Assam	6562	7271	2252	2407	6472	6734
Guwahati City	1128	1196	255	297	1060	1047
Dibrugarh	262	306	105	112	132	140
Nagaon	648	636	290	137	603	424
Barpeta	645	447	68	124	683	698

Table 2: Incidence Rate of Road Accidents in the State of Assam in 2013-2014

(Source: Statistical Handbook of Assam 2013-14).

From the above (Table 2) it is seen that numbers of road accident cases registered in Assam increased from 6562 in 2013 to 7271 in 2014. Similarly, number of person killed due to accident increased from 2252 in 2013 to 2407 in 2014. Major accident cases were registered in the city of Guwahati (1128) followed by Nagaon (648), Barpeta (645) and Dibrugarh (262) during the same period, together comprising 40.8% of total incidence of registered road traffic accidents in Assam.

The major human factors that contribute to the potency of road accidents include drunken driving, indecisiveness, fatigue, distraction and confusion among the drivers.⁵

It was found that the rate of road accidents in India increase during the festivities like New Year's eve, Holi and the celebration of Bihu in the state of Assam in India. In the past, tragedies due to road mishaps had occurred from 1999 to 2015 when artistes performing late night at the Bihu function were returning at dawn.⁶ Such road mishaps had killed both the artistes and the drivers due to fatigue and

stress of the drivers where the functions continue till the wee hours of night.

Year	No. of persons killed during Bihu festival
1999	06
2002	08
2009	45
2014	11
2015	06

Table 3: No of Persons Killed during Bihu Celebrations in Different Years in the State of Assam

(* Source: The Telegraph, 25 April, 2015).

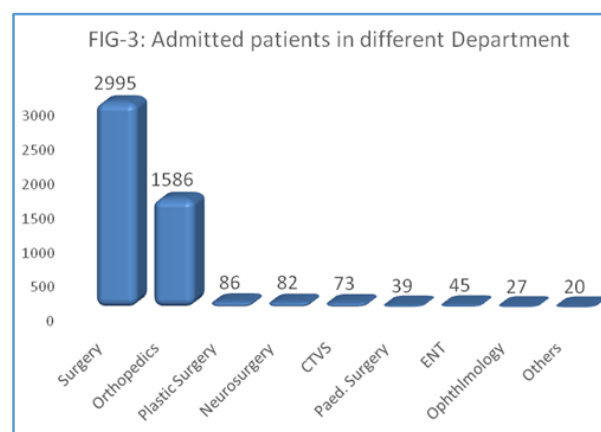
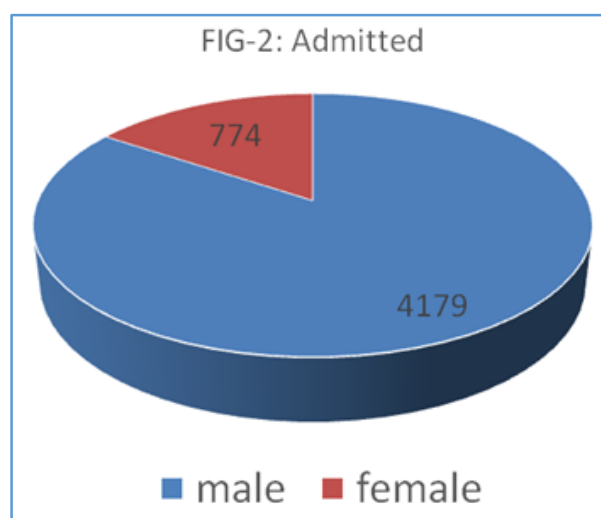
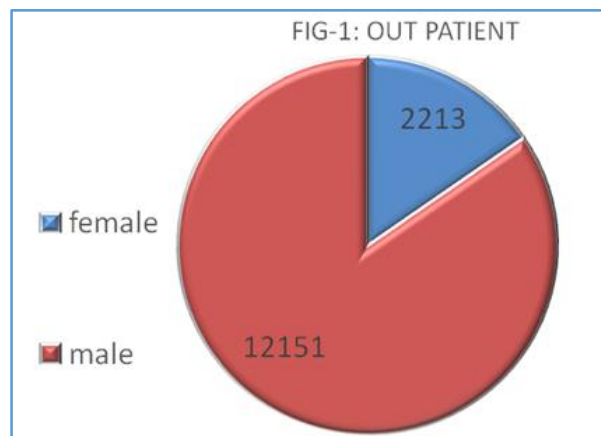
As per the Medical Record Department, Gauhati Medical College Hospital (GMCH), total number of patients treated at GMCH in 2014 following accidents both registered and unregistered by the traffic police is 14364 out of which male=12151 (84.6%), female=2213 (15.4%) (Fig. 1). Total numbers of admitted patients following road accidents in GMCH were 4953, male=4179 (84.4%), female=774 (15.6%) (Fig 2). Out of which maximum numbers of patients, 3196 (63.52%) were in the age group of 15 to 45 years.

In the Department of Surgery, 2995 were admitted in the trauma and surgery wards out of which 2530 (84.5%) were male and 465 (15.5%) were female. Most of the admitted patients in the surgical wards had bruises, abrasions, contusions, blunt trauma abdomen, chest injuries, head injuries. As many as 80 patients were operated (exploratory laparotomy) for repair of jejunal tear, ileal tear, splenic laceration, hepatic laceration, etc.

Patients admitted under the Orthopaedics in the trauma ward were 1586, out of which males were 1335 (84.2%) and females were 251(15.8%). Altogether 648 (25%) patients underwent operative interventions for both bones fracture of lower leg, fracture femur, patellar fractures, supracondylar fractures, fractures of upper limbs. Patients with facio-maxillary injuries were admitted in the Plastic Surgery department =86 (1.8%). Patients with severe head injuries associated with other injuries were admitted in trauma ward under the department of Surgery and Neurosurgery. Operative interventions like craniotomies and evacuation of haematomas, elevation of depressed skull fractures, etc were performed in 382 patients (12.9%). Patients with chest trauma requiring cardiac operative interventions like intercostals chest tube drainage and thoracotomy were admitted under Cardiothoracic Department n=73(1.1%). Rest of the road accidents patients admitted in Paediatric Surgery were 39 (0.8%), in ENT department n=45 (0.9%), in Ophthalmology department n= 27(0.5%) and others were 20 (0.4%) (Fig. 3).

Referred Patients: Of the 4953 RTA admitted cases, 3118(62.95 %) were referred, of which 1091(34.99%) were referred from primary healthcare center, 1612(51.69%) from secondary healthcare center and 415(13.3%) were

from tertiary care, probably due to non-availability of certain specialised care in the referring Centre's and also due to financial problems.



DISCUSSIONS: The present studies revealed that the most of the accident victims were male and 70 percent of them were below 45 years of age. The implications of injury to this particular demographic are significant and societal costs not only include the cost of healthcare but also the cost of lost wages, medical expenses and employer costs etc.⁷ Road crashes represent a major social cost to most societies and their management has thus been a high priority. The fact that males are at higher risk of sustaining vehicular accidents

than women can be attributed to their greater exposure to traffic and riskier behaviour than females, running to catch a bus, carelessness, not following traffic rules, driving under the influence of alcohol.⁸

In India, 70 per cent of all road crash fatalities are due to drunken driving with the figures running between 44 per cent to 67 per cent in small cities.⁹ As per the National Crime Records Bureau on Accidental Deaths & Suicides in India in 2014, 26.4% victims of road accidents were riders of 'two wheelers' and trucks/lorries, cars and buses have accounted for 20.1%, 12.1% and 8.8% respectively of road accidental deaths. The maximum number of road accidents occurred in Tamil Nadu (67,250) followed by Maharashtra (44,382 cases), Karnataka (43,694 cases), Madhya Pradesh (39,698 cases) and Kerala (35,972 cases) have reported the maximum number of road accidents in the country, simultaneously maximum fatalities were reported in Uttar Pradesh at 11.5% followed by Tamil Nadu 10.7% and Maharashtra 9.6%. Study also reported that most of road accidents were due to over speeding accounting for 36.8% of total accidents which caused 48,654 deaths and 181,582 persons injured, dangerous/careless or overtaking caused 1,37,808 road accidents which rendered 42,127 deaths and 1,38,533 persons injured during 2014. Besides 3.2% of road accidents were due to poor weather condition.¹⁰

Management of accident victims starts at the site of incidence usually attended to by the first responders like bystanders, policemen, fire tenders followed by the technician of the ambulances who are trained to give pre-hospital care presently rendered by Emergency and Medical Research Institute (EMRI) 108 in the state of Assam. Depending upon the severity of the injuries, patients are either shifted to the nearby hospitals or to the Gauhati Medical College and Hospitals where patients are triaged and resuscitated at the emergency department using Advance Trauma Life Support (ATLS) guidelines and then given definitive care in the trauma ward. Although India has undertaken many initiatives and are implementing various road safety programs the overall situation as revealed by data is far from satisfactory.¹¹ It has been observed that to sustain trauma centre and render service to the accident victims is very costly affair. Even in United States of America, about 100 trauma centres had to be closed by the mid 1990s due to financial losses suffered following treatment offered to the uninsured accident victims.¹² Government must find ways and guarantee for quick re-imburement for the health care institution offering free medical costs to the accident victims for the first 24 hours as per Supreme Court guidelines so that the hospitals provide emergency care to the accident victims during the golden hours without bothering for financial implications.

CONCLUSIONS: The World Health Organisation has projected that road accidents will be a major killer in the young age groups of people in India by 2020. So if effective measures are not taken to tackle this menace, it may cripple the nation's economy. There should be a mechanism for stringent punishment to be meted to the law breakers for

over speeding, drunken driving, using mobile while driving and not following appropriate occupant safety measures like wearing helmets, seat belts, etc. Hence to reduce incidence of road traffic accidents, comprehensive measures pertaining to multidimensional approach must be adopted where in executive, legislative, judiciary, traffic police, public and NGOs, automobile manufacturer and healthcare settings work in close coordination. There is need for improving and setting up of more hospitals equipped with trauma care facilities along the highways. Moreover, the paramedical staff and doctors posted in such hospitals should be trained in trauma and emergency care so that the accident victims can be taken care of within the golden hours to reduce the morbidities and mortalities following road accidents.

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