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ASSESSMENT OF INJURIES IN ROAD TRAFFIC ACCIDENTS ADMITTED TO EMERGENCY DEPARTMENT OF GMCH, BETTIAH, WEST CHAMPARAN, BIHAR

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Abstract
Majority of the world's fatalities on the roads occur in low-income and middle-income countries, even though these countries have approximately half of the world's vehicles. India is no exception and data showed that more than 1.3 lakh people died on Indian roads, giving India the dubious honour of topping the global list of fatalities from road crashes. Road traffic injuries have been neglected from the global health agenda for many years, despite being predictable and largely preventable. Evidence from many countries shows that dramatic successes in preventing road traffic crashes can be achieved through concerted efforts that involve, but are not limited to, the health sector. Hence based on above findings the present study was planned for Assessment of Injuries in Road Traffic Accidents Admitted to Emergency Department of GMCH, Bettiah, West Champaran, Bihar.
The present study was planned in Department of Forensic Medicine, Government Medical College, Bettiah, West Champaran, Bihar, India from jan 2018 to Dec 2018.In the present study 20 cases suffered from the road traffic accidents were evaluated for the pattern of injury. A predesigned and pretested questionnaire especially designed for this purpose was used for interviewing the accident victims, either in the emergency itself or in the wards.
In India, there are ample risk factors for RTAs to occur because of lack of proper infrastructural facilities, poor designs of roads, improper implementation of traffic rules and a high load of variety of vehicles on the roads. Road traffic accidents with head injuries are much more common in young working males as compared to females and that to in those who were pedestrians and motor cyclists. The rate of incidence is higher in India because of bad traffic patterns and possibly the lack of awareness about traffic rules and also lack of good hospital services to our victims of RTAs.
Keywords: Injuries, Road Traffic Accidents, Emergency Department, GMCH, Bettiah, West Champaran, Bihar, etc.

Introduction

A road traffic accident (RTA) is any injury due to crashes originating from, terminating with or involving a vehicle partially or fully on a public road. It is projected that road traffic injuries will move up to the third position by the year 2020 among leading causes of the global disease burden. They are considerable economic losses to victims, their families, and to countries as a whole.

The Global status report on road safety 2013 indicates that worldwide the total number of road traffic deaths remain unacceptably high at 1.24 million per year. Road traffic injuries are the leading cause of death among young people, aged 15–29 years. Children, pedestrians, cyclists and older people are among the most vulnerable of road users constituting half of those dying on the world's roads. Majority of the world's fatalities on the roads occur in low-income and middle-income countries, even though these countries have approximately half of the world's vehicles.

India is no exception and data showed that more than 1.3 lakh people died on Indian roads, giving India the dubious honour of topping the global list of fatalities from road crashes. Rapid urbanization, motorization, lack of appropriate road engineering, poor awareness levels, nonexistent injury prevention programmes, and poor enforcement of traffic laws has exacerbated the situation.

Traffic collisions in India are a major source of deaths, injuries and property damage every year. The National Crime Records Bureau (NCRB) 2016 report states there were 496,762 roads, railways and railway crossing-related traffic collisions in 2015. Of these, road collisions accounted for 464,674 collisions which caused 148,707 traffic-related deaths in India. The three highest total number of fatalities were reported in Uttar Pradesh, Maharashtra and Tamil Nadu, and together they accounted for about 33% of total Indian traffic fatalities in 2015. Adjusted for 182.45 million vehicles and its 1.31 billion population, India reported a traffic collision rate of about 0.8 per 1000 vehicles in 2015 compared to 0.9 per 1000 vehicles in 2012, and an 11.35 fatality rate per 100,000 people in 2015.[2] According to Gururaj, the top three highest traffic fatality rates per 100,000 people in

2005 were reported by Tamil Nadu, Goa and Haryana, with a male:female fatality ratio of about 5:1.[4] The reported total fatality, rates per 100,000 people and the regional variation of traffic collisions per 100,000 people varies by source. For example, Rahul Goel in 2018 reports an India-wide average fatality rate of 11.6 per 100,000 people and Goa to be the state with the highest fatality rate.[5]

According to the 2013 global survey of traffic collisions by the UN World Health Organization, India suffered a road fatality rate of 16.6 per 100,000 people in 2013.[6] India's average traffic collision fatality rate was similar to the world average rate of 17.4 deaths per 100,000 people, less than the low-income countries which averaged 24.1 deaths per 100,000, and higher than the high-income countries which reported the lowest average rate of 9.2 deaths per 100,000 in 2013.[7]

Multiple vehicle collision occurred on a busy road crossing at office time in Kolkata. Tamil Nadu records the highest road collisions for a decade and its capital Chennai has more collisions than any other city in India. The city has had the dubious distinction of having one of the highest rates of death from road accidents globally from as far back as the 1960s at a time when the number of vehicles in the city was a minuscule fraction of that in larger metropolises of the world such as New York and Tokyo.[9]

In New Delhi, the capital of India, the frequency of traffic collisions is 40 times higher than the rate in London, the capital of the United Kingdom.[10] Traffic collision-related deaths increased from 13 per hour in 2008 to 14 per hour in 2009. More than 40 per cent of these casualties are associated with motorcycles and trucks. The most collision-prone time on Indian roads is during the peak hour at afternoon and evening.[11]

According to road traffic safety experts, the actual number of casualties may be higher than what is documented, as many traffic collisions go unreported. Moreover, victims who die some time after the collision, a span of time which may vary from a few hours to several days, are not counted as car crash victims.[11] In 2015, one person dies every 4 minutes in roads collisions in India, according to NGO 'Indians for Road Safety'.[1]

The Planning Commission in its 2001–2003 research estimated that traffic collision resulted in an annual monetary loss of $10 billion (INR 550 billion) during the years 1999–2000. In 2012, the International Road Federation (IRF) estimated that traffic collision results in an annual monetary loss of $20 billion (INR 1 trillion (short scale)) in India. This figure includes expenses associated with the collision victim, property damage and administration expenses.[12]

The "GlobStatus Report on Road Safety" published by the World Health Organization (WHO) identified the major causes of traffic collisions as driving over the speed limit, driving under the influence, and not using helmets and seat belts.[11] Failure to maintain lane or yield to oncoming traffic when turning are prime causes of collisions on four lane, non-access controlled National Highways. The report noted users of motorcycles and motor-powered three-wheelers constitute the second largest group of traffic collision deaths.[13]

Road safety is emerging as a major social concern in the country and the Indian government has been attempting to tackle this crucial issue for several years. The Road Transport and Safety Bill 2014 was to provide a framework for safer, faster, cost-effective and inclusive movement of passengers and freight in India. In July 2015, Indian Prime Minister Narendra Modi said his government will soon introduce laws to enhance road safety as traffic fatalities and injuries mount.[14] A new Road Transport and Safety Bill is under preparation and a group of experts underlined the "urgent" need of a comprehensive national road safety legislation.[15]

Embarq India, an initiative from the World Resources Institute (WRI),[16] has developed significant expertise in conducting road safety audits on a number of bus rapid transit systems in India. Arrive SAFE is a NGO who works as a pressure group to give a wake-up call to authorities concerned and shake the bad driving habits of Indian people.[17] Indian driving schools focus on youth to enhance the art and skill of efficient driving.[18]

Michelin, co-founder of the Global Road Safety Initiatives (GRSI), has established, in India, an innovative partnership with the foundation of PVR Cinemas, PVR Nest as part of its CineArt "Steer to Safety" program to educate and empower children about road safety. Through this platform, children learn how to prevent and/or manage in emergency situations on Indian roads. Henkel has launched a road safety initiative in an effort to address the topical issue of safety standards on the road in India.

The Campaign Against Drunken Driving (CADD) is an organization founded by Prince Singhal which is campaigning against driving under the influence. But this campaign has been ineffective.[11] The IRF asserts that people in India's political sphere do not have the will to curb traffic collisions. Harman Singh Siddhu of ArriveSafe, an organization working for improvement in road traffic safety, asserted that a general lack of respect for traffic rules in India is a contributing factor for road collisions.[19] He also has pointed out that although the 2010s was declared by the United Nations as "Decade of Action for Road Safety", no celebration was held in India.[12] CSIR - Central Road Research Institute has developed an online accident recording portal. The main purpose of this portal is to encourage people to report the collisions they see. A group of Indian Researchers have developed a low-cost

device which prevents automobile drivers from receiving or making cellphone calls when at wheel, but allows calls to other passengers in the vehicle.[20]

Majority of the world's fatalities on the roads occur in low-income and middle-income countries, even though these countries have approximately half of the world's vehicles. India is no exception and data showed that more than 1.3 lakh people died on Indian roads, giving India the dubious honour of topping the global list of fatalities from road crashes. Road traffic injuries have been neglected from the global health agenda for many years, despite being predictable and largely preventable. Evidence from many countries shows that dramatic successes in preventing road traffic crashes can be achieved through concerted efforts that involve, but are not limited to, the health sector. Hence based on above findings the present study was planned for Assessment of Injuries in Road Traffic Accidents Admitted to Emergency Department of GMCH, Bettiah, West Champaran, Bihar.

Methodology:

The present study was planned in Department of Forensic Medicine, Government Medical College, Bettiah, West Champaran, Bihar, India from jan 2018 to Dec 2018. In the present study 20 cases suffered from the road traffic accidents were evaluated for the pattern of injury. A predesigned and pretested questionnaire especially designed for this purpose was used for interviewing the accident victims, either in the emergency itself or in the wards.

A pretested proforma specially designed for this purpose was used to extract information's by interrogating police personnel accompanying the victims, as well as friends, relatives, neighbours and others who accompanied victim or where the victim was alive by interrogating him, if the condition permitted. The history as regards the circumstances of the accidents and other relevant data about injuries to the victims, the site of impact etc were also collected. Data concerning the vehicles involved in the accident, their types etc were noted. Besides, paper sent by the police eg. inquest reports and FIR were also studied.

Results & Discussion:

Road traffic accidents (RTAs) is an issue of national concern, considering its magnitude and gravity and the consequent negative impacts on the economy, public health and the general welfare of the people. Road traffic injury (RTI) is major but neglected public health problem in both developing and developed countries. World Health Statistics 2008 cited in Global Status Report on Road Safety states that RTIs in 2004 were the 9 th leading cause of death and at current rates by 2030 are expected to be the 5 th leading cause of death, overtaking diabetes and Human immunodeficiency virus infection/acquired immunodeficiency syndrome.

In India, over 80000 persons die in the traffic crashes annually, over 1.2 million injured seriously and about 3,00,000 disabled permanently. In India, for individuals more than 4 years of age, more life years are lost due to traffic crashes than due to cardiovascular diseases or neoplasm. [21-22] The problem appears to be increasing rapidly in developing countries. [23] Injuries due to RTA depend upon a number of factors-human, vehicle and environmental factors play vital roles before, during and after a serious RTA. The important factors are human errors, driver fatigue, poor traffic sense, mechanical fault of vehicle, speeding and overtaking violation of traffic rules, poor road conditions, traffic congestion, road encroachment etc.

In India, the motor vehicle population is growing at a faster rate than the economic and population growth. The surge in motorization coupled with expansion of the road network has brought with it the challenge of addressing adverse factors such as the increase in road accidents. According to the World Health Organization (WHO), road traffic injuries are the sixth leading cause of death in India with a greater share of hospitalization, deaths, disabilities and socio-economic losses in the young and middle-aged population. [24] Road traffic injuries also place a huge burden on the health sector in terms of pre-hospital and acute care and rehabilitation. [25]

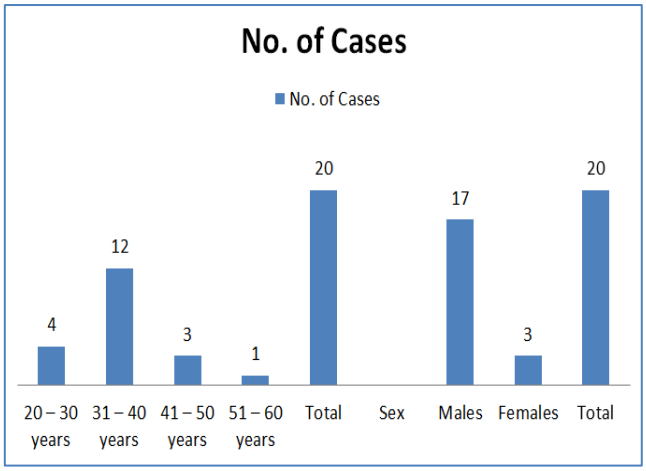

Figure 1: Age & No. of Cases

Table 1: Type of injury

Type of injury	No. of cases
Head injury	3
Head, neck, face injuries	6
Head + other body injuries	11
Total	**20**

Table 2: Fracture of vault

Fracture of vault	No. of Cases
None	2
Fissured of vault	1
Fissure of base	1
Depressed	1
Comminuted	1
Fissured + depressed	2
Fissured # of vault and base	3
Fissured + depressed + comminuted	1
Depressed + comminuted	1
Crush	5
Craniotomy/ burr holes/ drain/other surgical procedures	2
Total	20

The spectrum of injuries from road crashes varies from instant death to those requiring only first aid. The most common sources of RTI data are from police and hospitals. The majority of deaths are reported to the police due to their medicolegal nature, prosecution concerns, and compensation needs. A few deaths and a majority of injuries are not reported to the police due to several reasons. A study in Bangalore compared police and hospital deaths and found underreporting of 5% for deaths and more than 50% for serious injuries. [26]

Another study from rural Haryana estimated the ratio of serious:moderate:minor injuries to be 1: 29:69. [27] Even though every healthcare institution provides care for RTI patients, details of RTIs are not clearly available, due to the poor information system. Hence, the real problem is likely to be much higher than the reported figures. The limited studies in India reveal that 2050% of the Emergency Room registration and 1030% of admissions are due to RTIs. Information on this aspect is lacking from district and rural areas. [28]

Road traffic accidents (RTAs) are increasing with rapid pace and presently these are one of the leading causes of death in developing countries. Vander sluis et.al [29] has reported that traffic is the most important cause of severe injuries and three quarters of severely injured cases who died during hospitalization are victims of traffic accidents.

Mohan D4 has noted that in India, pedestrians, cyclists and motorcyclists are the most vulnerable road users constituting over 70-80% of all road traffic deaths, and car occupants only about 5%. The author has also recorded that the patterns of traffic and crashes in India are very different from those in high-income countries. Eke Net.al.,[30] have observed that females constituted 41% of pedestrians and 21% of pedestrians are under 15 years of age and that female pedestrians below 15 years of age are more susceptible to death in RTA. Studies from developed countries have reported lesser involvement of pedestrians probably due to the fact that in developed countries motorization is to that extent that pedestrians are scarce on the road.

To be effective, policies on injury prevention and safety in developing countries must be based on local evidence and research, and designed to suit the social, political, and economic circumstances found in developing countries. As a result, strategies to increase research itself must develop alongside steps to stimulate policymakers and practitioners to demand and use research evidence. [31]

Conclusion:

In India, there are ample risk factors for RTAs to occur because of lack of proper infrastructural facilities, poor designs of roads, improper implementation of traffic rules and a high load of variety of vehicles on the roads. Road traffic accidents with head injuries are much more common in young working males as compared to females and that to in those who were pedestrians and motor cyclists. The rate of incidence is higher in India because of bad traffic patterns and possibly the lack of awareness about traffic rules and also lack of good hospital services to our victims of RTAs.

References:

1. Global status report on road safety 2013: https://www.who.int/violence_injury_prevention/road_safety_status/2013/en/
2. Traffic accidents, NCRB 2016 Report, Chapter 1A: Traffic Accidents, Government of India
3. Registered Motor Vehicles in India as on 31.03. 2015 Government of India
4. G. GURURAJ (2008), Road traffic deaths, injuries and disabilities in India: Current scenario, The National Medical Journal of India, volume 21, no 1, page 116
5. Goel, Rahul (2018). "Modelling of road traffic fatalities in India". Accident Analysis & Prevention. Elsevier BV. 112: 105–115. doi:10.1016/j.aap.2017.12.019. PMC 5792624. PMID 29329015.
6. ROAD TRAFFIC DEATHS AND PROPORTION OF ROAD USERS BY COUNTRY/AREA, WHO (2015 Report)
7. WHO, ed. (2015). Global Status Report on Road Safety 2015 (PDF) (official report). Geneva: World Health Organisation (WHO). pp. vii, 1–14, 75ff (countries), 264–271 (table A2), 316–332 (table A10). ISBN 978-92-4-156506-6. Retrieved 27 January 2016. Tables A2 & A10, data from 2013
8. "Accident details for Tamil Nadu in certain years" (PDF). State transport authority, Government of Tamil Nadu. 2013. Retrieved 22 March 2014.
9. "From the Archives (September 18, 1969): Safety on roads(From an Editorial)". The Hindu. 18 September 2019. ISSN 0971-751X. Retrieved 13 October 2019.
10. TR Jain; Mukesh Trehan; Ranju Trehan. Indian Economy. FK Publications. p. 457. ISBN 978-81-87140-37-5. Retrieved 3 May 2012.
11. Murali Krishnan (29 April 2010). "India has the highest number of road accidents in the world". Deutsche Welle. Retrieved 3 May 2012.
12. "Road accidents cost India $20 bn every year". The Times of India. 19 February 2012. Retrieved 3 May 2012.
13. Global Status Report on Road Safety: Country profiles: India (PDF) (Report). World Health Organization. Retrieved 3 May 2012.
14. Philip, Siddharth. "India to Introduce Road Safety Law Reform, Modi Says". Bloomberg.com. Retrieved 11 December 2015.

15. "Experts highlight need of comprehensive road safety law". timesofindia-economictimes. Retrieved 11 December 2015.
16. "EMBARQ India | Helping cities make sustainable transport a reality". embarqindia.org. Retrieved 11 December 2015.
17. "ArriveSAFE, Road Safety India". www.arrivesafe.org. Retrieved 11 December 2015.
18. "Indian Traffic Rules Road Safety - Road Rage - Driving License in India". www.indiandrivingschools.com. Retrieved 11 December 2015.
19. "No U-Turn on Indian Road Safety". Harman Singh Siddhu. Retrieved 27 May 2012.
20. "Indian Engineers develop device which jams Cellphones of Car Drivers". IANS. news.biharprabha.com. Retrieved 17 June 2014.
21. Mohan D. Road Traffic deaths and injuries in India : Time for action. Nat Med J India 2004; 17 : 63-66.
22. Mohan D and Varghese M. Injuries in SouthEast Asia Region. Priorties for policy and action. Delhi : SEARO. WHO 2002. p. 1-19.
23. Jacobs G., Aeron - Thomas A and Astrop A . Estimating Global Road Fatalities, London England. Transport Research Laboratory, 2000, Report 445.
24. Ministry of Health and Family Welfare. Integrated Disease Surveillance Project- Project Implementation Plan 2004-2009. New Delhi: Government of India; 2004:1-18.
25. Gururaj G. Road traffic injury prevention in India. Bangalore: National Institute of Mental Health and Neuro Sciences, 2006; Publication No 56.
26. Gururaj G, Thomas A, Reddi MN. Underreporting of road traffic injuries in Banglore: Implications for road safety policies and programmes. In: Proceedings of the 5 th World conference on injury prevention and control. New Delhi: Macmillan India; 2000.
27. Varghese M, Mohan D. Transportation injuries in rural Haryana, North India. In: Proceedings of the International Conference on Traffic Safety. New Delhi: Macmillan India 2003; p. 326-9.
28. Gururaj G. Road traffic deaths, injuries and disabilities in India: Current scenario. Natl Med J India 2008;21:14-20.
29. Van der Sluis CK, Geertzen JHB, Werkcman HA and Duis HJT : Epidemiological data from severely injured patients : a retrospective study over the period 1985-1989. Nederlands Tijdschrift voor Geneeskunde 1994; 138 : 2285.
30. EKe N, Etebu En and Nwosu SO. Road traffic accident mortalities in Port Harcourt. Nigeria. Anil Agarwal's Internet J Foren Med Toxicol 2000; 1 : 1-5.
31. Borse NN, Hyder AA. Call for more research on injury from the developing world: Results of a bibliometric analysis. Indian J Med Res 2009;129:321-6.