

EPIDEMIOLOGY AND OUTCOME OF OCULAR TRAUMA AMONG THE ROAD TRAFFIC ACCIDENT CASES ATTENDING A TERTIARY CARE HOSPITAL IN TRIPURA

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ABSTRACT

Background: Agartala is one of the fastest growing cities in India. With rapid increase in the number of bikes and other motor vehicles, road traffic accidents (RTA) are also increasing sharply. Ocular trauma and resultant ophthalmic morbidities following RTA is common.

Aims & Objective: To study the epidemiology and pattern of ocular trauma among the road traffic accident cases.

Materials and Methods: A hospital based study was conducted during February to July 2013 among 700 road traffic cases attending Ophthalmology and Casualty Department of Agartala Govt. Medical College, Tripura. Descriptive statistics and chi square test were used for presenting data.

Results: Out of 700 RTA patients 82.86% (580) were male and 17.14% (120) were female. Majority i.e. 76% (532) of the RTA cases occurred among the two-wheeler users, 42 (35.29%) were drunk and 17% (119) of the RTA cases sustained ocular injuries. Among the ocular injury cases, 60% (72) suffered from ecchymosis. Out of 119 RTAs with ocular injuries, 22 (18.48%) had no PL at reporting due to due to ocular nerve injury and all of them failed to recover even after treatment.

Conclusion: Two-wheeler accident is common and an important cause for loss of vision following RTA. Victims of RTA reporting with loss of vision due to optic nerve injury had poor visual prognosis. Hence, primary preventive approach through behaviour change communication among the bikers for promoting safe riding practices and strict implementation of traffic rules like riding at safe speed, wearing helmet and avoiding alcohol before driving are needed to prevent RTA associated blindness.

Key Words: Blindness; Road Traffic Accident; Ocular Trauma; Optic Nerve Injury

Introduction

Ocular trauma is a preventable public health problem throughout the world. It is one of the common causes of ophthalmic morbidity and mono-ocular blindness in all parts of the world.^[1] The global annual incidence of ocular trauma is around 55 million, of which 7,50,000 require hospitalization each year.^[2] Road traffic accident is one of the important causes of ocular trauma. RTAs will be counted as one of the top ten public health problems in the coming decade. Agartala, the capital city of Tripura is growing very fast and number of motor vehicles is also increasing rapidly. With this road traffic accidents are also increasing here causing mild to severe bodily injuries including injuries to the eyes. Agartala Government Medical College and GBP Hospital is the largest tertiary care and main referral hospital of Tripura catering to the lion's share of RTAs occurring in this state. Epidemiology of ocular trauma has been clearly studied in developed countries but limited data are available regarding its mode, severity and outcome in the developing countries.^[3] Hence the present study was designed with the objectives to know the profile of patients attending AGMC and GBP hospital, Agartala, Tripura, with the history of road traffic

accident, also the determinants and visual outcomes of ocular trauma in these cases.

Materials and Methods

It was a hospital based study conducted among 700 patients attending ophthalmology and Casualty Department of Agartala Govt. Medical College during 1st February to 31st July 2013 with the history of road traffic accidents. Out of 716 patients reported during the study period with the history of road traffic accidents, 6 refused to participate in this study, 7 left the hospital before interviewing and 3 were brought dead, so these cases were excluded from the study. Informed consent was obtained from all the participants before enrolment. Meticulous history taking and thorough examinations were performed in all the cases and data were recorded in a pretested performa, which included demographic variables, type of vehicle, mode of accident, initial complaints, presenting complaints, time interval between injury to reporting etc. and visual acuity was recorded. Detailed Ophthalmic examination of all the patients including slit lamp examination, 90D examination and indirect ophthalmoscopy were carried out. B-scan ultrasonography

was performed upon cases among whom unclear media prevented fundus examination. Data entry and analysis were performed in computer using SPSS 15.0. Descriptive statistics and chi square test were used for presenting data and p-value <0.05 was considered as significant.

Results

Out of total, 580 (82.86%) were male and 120 (17.14%) were female. Majority, 251 (35.86 %) of the RTAs happened among 21-30 years age group subjects followed by 149 (21.29 %) among 11-20 years age group subjects. Out of 700 RTAs, 119 (17%) cases had ocular involvements. Right eye alone was involved in 62 (52.1%) cases, left eye alone was involved in 35 (29.42%) cases and both eyes were involved in 22 (18.48%) cases. Out of 119 subjects who sustained ocular injuries, 84 (70.59 %) of them were riding two wheelers and the rest were on 3 and 4-wheelers. Surprisingly, 42 (35.29 %) subjects faced RTA while driving under the influence of alcohol and. Ecchymosis of the lids was the commonest type of ocular injury faced by 72 (60 %) of the subjects and optic nerve injury was present in 22 (18 %) of the cases. Even after applying all possible forms of treatment in this hospital no significant recovery of vision could be achieved by the victims, who developed blindness following RTA associated ocular injuries, p > 0.05.

Table-1: Type of ocular injuries faced by the RTA cases

Type of ocular trauma	Number	Percentage
Ecchymosis only	45	37.82
Ecchymosis with lid tears	15	12.60
Hyphaema with ecchymosis	04	3.36
Iris trauma	03	2.53
Injury to the lens	04	3.36
Fracture orbit with ecchymosis	08	6.73
Optic nerve injury (RAPID)	22	18.48
Associated facial injury	09	7.56
Corneal perforation	06	5.04
Scleral perforation	03	2.52
Total	119	

Table-2: Visual acuity of the RTA cases with ocular injuries at presentation

Visual acuity	Number	Percentage
6/6 to 6/18	76	63.86
<6/6 to 6/60	8	6.72
<6/60 to 3/60	6	5.04
<3/60 to 1/60	3	2.54
<1/60 to PR +Ve	4	3.36
No PL	22	18.48

Table-3: Management of the RTA cases having ocular injuries

Type of management	Number	Percentage	
Conservative	78	65.55	
Surgical interventions	Lid repair	15	12.60
	Hyphaema aspiration	04	3.36
	Lens removal and IOL	04	3.36
	Others	18	15.13

Table-4: Final visual acuity of the RTA cases with ocular injuries after 4 months following treatment

Visual acuity	Number of subjects	Percentage
6/6 to 6/18	81	68.06
<6/18 to 6/60	08	6.72
<6/60 to 3/60	04	3.36
<3/60 to 1/60	02	1.68
<1/60 to PL positive	02	1.68
PL- negative	22	18.50

Table-5: Visual prognosis following RTA with ocular injuries

Acuity of Vision	Normal to Severe Impairment	Blind	Significance
	N (%)	N (%)	
At reporting of RTA with ocular injury	90 (75.63)	29 (24.37)	$\chi^2 = 0.095$ P = 0.7584
After treatment of RTA with ocular injury	93 (78.15)	26 (21.85)	

Table 1 shows that out of 119 RTAs with ocular injuries, ecchymosis of eyelid was the commonest type of ocular injury experienced by 45 (37.82%), followed by optic nerve injury (RAPID) faced by 22 (18.48%) cases and 15 (12.6%) had ecchymosis with associated lid tears. Table 2 shows that out of 119 RTAs with ocular injuries, 76 (63.86 %) subjects had vision of 6/6 - 6/18 and 22 (18.48 %) subjects sustained optic nerve injury and were PL negative. Table 3 shows that majority of the RTAs with ocular injuries could have been managed conservatively, while 15 (12.6%) cases required surgical repair of the eye lid, hyphaema aspiration and lens removal followed by IOL was performed in 4 (3.36%) each and 18 (15.13%) cases were managed by combination of various procedures. Table 4 shows that 81 (68.06%) RTA cases with ocular injuries had good visual acuity (6/6 to 6/18) at 4 months following treatment, 22 (18.50%) cases did not have PL and the rest had variable degree of visual acuity ranging from <6/18 to just PL positive. Table 5 shows that current modalities of treatment could not make any significant reduction in the number of blindness (as per WHO criteria) among the RTA associated ocular injuries, P = 0.7584.

Discussion

Eyes are highly developed and delicate special end organ and a trivial injury can lead to severe damage and loss of vision. This study has revealed the profile of ocular trauma among road traffic accident patients attending Agartala Govt. Medical College, Agartala, Tripura. In this study the peak age of RTA was found to be 21-30 years and I R Ezegwui (2004)^[4] also had similar finding among RTA associated ocular injuries in Nigeria. Present study observed sizable number of ocular injuries while driving under the influence of alcohol. Same thing was also observed by Millo T et al (2008)^[5] in their study on incidence of alcohol use in road traffic accidents in south Delhi among fatal cases. Right eye was found to be more involved in this study which was similar with M N Shishko

et al (1999)^[6] and Ron Koval et al (2008)^[7]. The frequency of different type of ocular injuries found in the present study was also similar with the findings of M E Enock et al (2008)^[8], Boo Sup Oum (2004)^[9] and Aman Sumeet Arora et al (2011)^[10].

Conclusion

Two-wheeler accident is common and an important cause for loss of vision following RTA. Victims of RTA reporting with loss of vision due to optic nerve injury had poor visual prognosis even after treatment. Hence, primary preventive approach through behaviour change communication among the bikers for promoting safe riding practices and strict implementation of traffic rules like riding at safe speed, wearing helmet and avoiding alcohol before driving are needed to prevent RTA associated blindness.

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