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Incidence and Causes for Poor Visual Outcome in Ocular Injuries in Road Traffic Accident

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ABSTRACT

Introduction: Ocular trauma is one of the major cause of visual morbidity.
Aim: To determine risk factors for poor visual outcome in ocular injuries in road traffic accidents
Methods: Prospective study of RTA cases in a tertiary care hospital to find the causes of poor visual outcome. Patients were clinically examined and vision was checked.
Results: Out of 144 patients, 7 patients (4.86%) had corneal injury, 5 patients (3.47%) had Scleral tear, 3 patients (2.08%) had subluxation, 3 patients (2.08%) had traumatic cataract, 15 patients had traumatic optic neuropathy.
Conclusion: Primary preventive approach such as 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 road traffic accidents associated ocular morbidity.

KEYWORDS RTA, ocular trauma, visual outcome, injury

INTRODUCTION

Ocular trauma is a major cause of preventable monocular blindness and visual impairment in the world.[1] 90% of all eye injuries are preventable, ocular trauma is one of the leading cause of preventable blindness in the world today.[2] Early detection and management hold the key to trauma management and prevention of further complications.[3] Prevention is always better than cure: measures to create awareness about ocular trauma and preventive measures would result in great decrease in ocular morbidity and mortality due to trauma. This study will help in estimating the burden of the preventable blindness in the region due to road traffic accidents and also identify the contributing factors responsible. In this study we have profiled ocular trauma secondary to road traffic accidents that came to tertiary care hospital, cause and extent of damage to the ocular tissues and loss of vision associated with it.

AIM

To determine risk factors for poor visual outcome in ocular injuries in road traffic accidents

MATERIALS AND METHODS

This was a prospective study conducted on 144 cases of ocular trauma in road traffic accident attending tertiary care hospital were studied. Institutional Ethics committee and Informed consent from selected patients were obtained. Patients with ocular injury were randomly included in the study. Patients of all ages, both males and females irrespective of economic status, who are co-operative, were included in the study. Patients who were unconscious, not co-operative and terminally ill were excluded. Patients with ocular injuries other than road traffic accidents are excluded from the study. Detailed work up was done of the patients with ocular trauma in road traffic accidents, which included a detailed trauma history, whenever possible from the patient himself and if necessary from the relatives. History of preexisting ocular and medical trauma was also recorded. Paraform was drawn up and following details were recorded for each patient with ocular trauma; age and sex, type of vehicle the patient was travelling in, presence or absence of protective eye wear and sign and symptom following the injury.

RESULTS

In this study of 144 patients, the youngest patient was 16 years old and the oldest patient was 68 years old. Maximum i.e 49 cases were seen in 21 to 30 age group accounting for 34.02% followed by 43 cases (29.84%) in 31 to 40 age group. 25 cases (17.36%) in 41 to 50 age group, 16 cases (11.11%) in 11 to 20 age group, 9 cases (6.25%) in 51 to 60 age group, 2 cases (1.38%) in 61 to 70 age group. Out of 144 patients, 130 patients (90.3%) who sustained ocular injury were males and 14 patients (9.7%) were females with the male; female ratio being .

Table 1 Type of Vehicle involved in ocular injuries

Type of vehicle	No. of Cases	Percentage
2 Wheeler	123	85.4
3 Wheeler	4	2.8
4 Wheeler	13	9.0
Pedestrians	4	2.8

In this study 144 patients, maximum incidence of ocular injuries was seen among those travelling by two wheelers, 123 patients (85.4%) sustained injuries while travelling in 2 wheelers, 4 patients (2.8%) in 3 wheelers, 13 patients (9.0%) in 4 wheelers and 4 patients (2.8%) were pedestrians.

Table 2 Eye Involved

Eye involved	Number of cases	Percentage
Unilateral	130	90.2
Bilateral	14	9.72

Out of 144 patients, 130 patients (90.2%) had unilateral involvement and 14 patients (9.72%) had bilateral involvement.

Table 3 Ocular Involvement

Ocular involvement	No. of cases	Percentage
Orbital	33	22.91
Lids	117	81.25
Conjunctiva	92	63.8
Cornea	12	8.33
Sclera	5	3.47
Anterior chamber	8	5.55
Pupil	31	21.52
Lens	6	4.16
Posterior segment	15	10.41
Cranial nerves	25	17.36

Out of 144 patients many patients had multiple ocular structure involvement, orbital lesions were seen in 33 patients (22.91%) , lids were involved in 117 patients (81.25%), conjunctiva in 92 patients (63.8%), cornea in 13 patients (8.33%), sclera in 5 patients (3.47%), pupil was involved in 31 patients , lens in 6 patients, (4.16%) Posterior segment was involved in 15 patients (10.41%) and cranial nerves were involved in 25 patients (17.36%).

Table 4 Type of Injury

Type of Injury	No. of cases	Percentage
Open globe injury	7	4.86%
Closed globe injury	137	95.13%

Out of 144 patients, 7 patients (4.86%) had open globe injury 137 patients (95.13%) had closed globe injury.

Table 5 Causes of Poor Visual Outcome

Causes	Number of Patients	Percentage
Corneal laceration	7	4.86%
Scleral Tear	5	3.47%
Lens Subluxation	3	2.08%
Traumatic cataract	3	2.08%
Vitreous haemorrhage	3	2.08%
Retinal haemorrhage	2	1.38%
Choroidal rupture	2	1.38%
Traumatic Optic Neuropathy	15	10.41%

Out of 144 patients, 7 patients (4.86%) had corneal injury, 5 patients (3.47%) had Scleral tear, 3 patients (2.08%) had subluxation, 3 patients (2.08%) had traumatic cataract, 15 patients had traumatic optic neuropathy.

DISCUSSION

This study of 144 patients with ocular injuries following road traffic accidents, demonstrates a wide spectrum of serious ocular injuries. In our study, 130 patients (90.3%) were males and 14 patients (9.72%) were females while in the study done by Kriedl et al (2003)[4], 289 patients (70.85%) were males and 121patients (29.5%) were females and in the study done by Obuekwe et al (2004)[5], 73% were males and 27% were females, ratio being 2.7:1. In our study most of the patients were men in the age group 21-30 years, which is the same as in the study by Obuekwe et al (2004)[5]. In our study patients less than 30 years accounted 45.13% of the cases while in the study done by Shtewi M El et al (1999)[6], patients less than 33 years accounted for 82%. In our study unilateral injuries were seen in 90.3% and bilateral in 9.7%. In the study done by Kriedl et al (2003)[4], unilateral injuries were seen in 95.1% of patients and bilateral in 4.9%. In our study corneal perforation was seen in 4.86% while in the study by Shtewi M EL et al(1999)[6], it occurred in 46.7%. Traumatic cataract occured in 1.38% in our study and in 31.9% in the study by Shtewi M El et al (1999)[6]. Lens dislocation occurred in our study in 2.08% while it occurred in 7.6% cases in the study by Shtewi M El et al (1999)[6]. Vitreous haemorrhage was seen in 2.08% of our patients while it occurred in 23.6% of the patients in the study by Shtewi M El et al (1999)[6]. In our study 95.13% of patients had closed globe injury and 4.86% had open globe injury while in a study done by Serrano et al (2003)[7], among boys 82.4% had closed globe injuries and 17.6% had open globe injuries and among girls, 83.8% had close globe injuries and 16.2% had open globe injuries. In another study done by Smith et al[9] at Cairns Base Hospital, Queensland (2006), 68.58% of patients had closed globe injury and 31.41% patients had open globe injury. In our study open globe injuries had poorer visual prognosis than closed globe injuries. In a multivariate analysis of prognostic factors in penetrating eye injury Sternberg et al[10] noted that a good initial vision statistically correlated with a good final visual outcome. This is consistent with other studies, and is the most important prognostic factor when counselling patients after injury.

CONCLUSION

Unfavourable outcomes were related to location of injury, the extent of injury, the initial presentation of corneal laceration, traumatic cataract, subluxation of lens, vitreous haemorrhage, retinal haemorrhage, optic neuropathy. The findings indicate that ocular trauma is a significant cause of visual loss. Only those injuries which involved the globe had poor prognosis for the final visual outcome.

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