

A Clinical Study of Ocular Injuries in Road Traffic Accident Patients in a Tertiary Care Hospital

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Abstract

Introduction: Eye injuries are major cause of disabling ocular morbidity in developing countries. Up to 5% of all bilateral blindness occurs due to direct result of trauma.1 Ocular trauma is one of the main causes of severe ocular morbidity. Globally, more than 55 million eye injuries occur per year, while there are approximately 1.6 million people with blindness from ocular trauma, 2.3 million people who are bilaterally visually impaired, and 19 million people with unilateral blindness or visual loss.²⁻⁴

Materials and Methods: This was a prospective study conducted on 160 cases of ocular trauma in Road Traffic Accidents attending tertiary care hospital were studied. Informed consent from selected patients were obtained. The 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 cooperative and terminally ill were excluded.

Results: In 160 cases, a maximum number of RTA cases in 21-30 age group 52 (34.02%) followed by 43 cases 29.84% in 31-40 age group. Out of 160 patients, 140 patients (87.5%) who sustained ocular injury were males and 20 patients (12.5%) were females.

A maximum incidence of ocular injuries was seen among those travelling by two wheelers, 134 patients (83.75%) sustained injuries while travelling in 2 wheelers, 5 patients (3.125%) in 3 wheelers, 18 patients (11.25%) in 4 wheelers and 3 patients (1.875%) were pedestrians (Table 1).

Conclusion: Ocular injuries due to Road Accidents involved the lids which while causing a certain degree of cosmetics disfigurement and do not have any effect on any final visual outcome. Only those injuries which involved the globe had a poor prognosis for the final visual outcome.

Key Words: Injury, Ocular trauma, Road traffic accident, Visual outcome

Date of Submission: 13-02-2019

Date of acceptance:28-02-2019

I. Introduction

Eye injuries are major cause of disabling ocular morbidity in developing countries. Up to 5% of all bilateral blindness occurs due to direct result of trauma.1 Ocular trauma is one of the main causes of severe ocular morbidity. Globally, more than 55 million eye injuries occur per year, while there are approximately 1.6 million people with blindness from ocular trauma, 2.3 million people who are bilaterally visually impaired, and 19 million people with unilateral blindness or visual loss.²⁻⁴

Decrease or loss of vision, either monocular or binocular, may result in significant economic burdens to families and countries due to time lost from work, or school, and family care giving, expensive hospitalization, special visit and treatment, prolonged follow-up, and visual rehabilitation. Because of the severity of visual impairment of ocular trauma, complete ocular trauma statistics and authoritative data should be collected.

According to an estimate under the WHO programme for the prevention of blindness the incidence of open globe injuries in the World are about 2 lakhs cases per year which were largely preventable. Survey of large city-based hospitals shows that a huge number of patients either presents themselves or referred from remote areas to these hospitals causing a constant pressure on those related to eye care delivery system. It is also a major socioeconomic and psychological impact on the patients and their families. Full enquiries about these ocular injury patients are essential to take precautionary measures in future to prevent their occurrences. Nearly 90% of eye injuries can be prevented by relatively simple measures.⁵

There are some natural defensive mechanisms to the eye i.e. strong bony orbital walls, eyeballs remaining in a cushion of fat and movable eyelids covering the eye balls, still ocular injuries are quite common. Children are more commonly injured than adults due to their curiosity and underdeveloped motor skills. Nearly 90% eye injuries can be prevented by relatively simple measures.^{5,6} However, the use of ocular - protective

devices in India is very low.⁷ Various studies on ocular trauma in developed and developing countries have been conducted. There is a lack of data regarding pattern of eye injuries in developing countries.⁶⁻⁸ This necessitated to conduct this study.

II. Materials And Methods

This was a prospective study conducted on 160 cases of ocular trauma in Road Traffic Accidents attending tertiary care hospital were studied. Informed consent from selected patients were obtained. The 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 cooperative and terminally ill were excluded. Patients with ocular injuries other than RTA are excluded from the study. Detailed work up was done of the patients with ocular trauma in RTA, 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. Proforma 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 eyewear and sign and symptom following the injury.

III. Results

In 160 cases, a maximum number of RTA cases in 21-30 age group 34.02% followed by 43 cases 29.84% in 31-40 age group. Out of 160 patients, 140 patients (87.5%) who sustained ocular injury were males and 20 patients (12.5%) were females.

A maximum incidence of ocular injuries was seen among those travelling by two wheelers, 134 patients (83.75%) sustained injuries while travelling in 2 wheelers, 5 patients (3.125%) in 3 wheelers, 18 patients (11.25%) in 4 wheelers and 3 patients (1.875%) were pedestrians (Table 1).

A total of 142 patients (88.75%) had unilateral involvement and 18 patients (11.25%) had bilateral involvement. In present study, unilateral injuries were seen in 88.8% and bilateral in 11.3%. In the study done by Kriedl *et al.* (2003), 3 unilateral injuries were seen in 95.1% of patients and bilateral in 4.9% (Table 2).

Out of 160 patients many patients had multiple ocular structure involvement, orbital lesions were seen in 30 patients (18.75%), lids were involved in 119 patients (74.375%), conjunctiva in 98 patients (61.25%), cornea in 14 patients (8.75%), sclera in 6 patients (3.75%), pupil was involved in 30 patients, lens in 7 patients, (4.375%) posterior segment was involved in 16 patients (10%), and cranial nerves were involved in 26 patients (16.25%) (Tables 3).

S.No	Type of Vehicle	Number of cases (%)
1	2 Wheeler	134 (83.75%)
2	3 Wheeler	5 (3.125%)
3	4 Wheeler	18(11.25%)
4	Pedestrians	3(1.875%)

Table 1: Type of vehicles involved in Ocular injuries

S.No	Eye Involved	Number of cases (%)
1	Unilateral	142 (88.75%)
2	Bilateral	18 (11.25%)

Table 2: Eye involved

S.No	Ocular Involvement	Number of cases (%)
1	Orbital	30 (18.75%)
2	Lids	119 (74.375%)
3	Conjunctiva	98(61.25%)
4	Cornea	14(8.75%)
5	Sclera	6(3.75%)
6	Anterior Chamber	8(5%)
7	pupil	30 (18.75%)
8	lens	7 (4.375%)
9	Posterior Segment	16 (10%)

Table 3: Ocular Involvement

IV. Discussion

This study of 160 patients with ocular injuries following RTA, demonstrates a wide spectrum of serious ocular injuries. In present study, patients <30 years accounted 45.13% of the cases while in the study done by Shtewi *et al.*,⁴ patients <33 years accounted for 82%. In the study done by Kriedl *et al.*,³ unilateral injuries were seen in 95.1% of patients and bilateral in 4.9%. In present study ecchymosis was seen in 64.58% of patients, in comparison to the study by Shtewi *et al.*,⁴ in which it was seen in 37.7%. In present study, lid edema was seen in 65.88% patients while in the study by Shtewi *et al.*⁴ and it was seen in 35.5%. 14.58% of patients in present study had lid laceration, while in the study by Shtewi *et al.*⁴ and it was seen in 17.8%. Orbital fractures in present study were seen in 22.22% of patients while these accounted to 1.1% in the study by Shtewi *et al.*⁴ In a study done by Cruz *et al.*,⁵ cause of orbital fracture was attributed to RTA in 54% of cases. In present study, 58.33% patients had subconjunctival hemorrhage while in the study by Shtewi *et al.*⁴ and 42.4% were found to have the same. Corneal abrasion was seen in 2.77% of patients in present study while in the study by Shtewi *et al.*,⁴ it was seen in 30.4%. In present study, corneal perforation was seen in 4.86% while in the study by Shtewi *et al.*⁴ and it occurred in 46.7%. Hyphema was seen in 4.16% patients in present study while it occurred in 50% cases in the study by Shtewi *et al.*⁴ Traumatic cataract occurred in 1.38% in present study and in 31.9% in the study by Shtewi *et al.*⁴ Lens dislocation occurred in present study in 2.08% while it occurred in 7.6% cases in the study by Shtewi *et al.*⁴ Vitreous hemorrhage was seen in 0.69% of our patients while it occurred in 23.6% of the patients in the study by Shtewi *et al.*⁴ In present study, only one patient (0.69%) had IOFB while in the study by Shtewi *et al.*,⁴ it was seen in This study of 144 patients with ocular injuries following RTA, demonstrates a wide spectrum of serious ocular injuries. In present study, patients <30 years accounted 45.13% of the cases while in the study done by Shtewi *et al.*,⁴ patients <33 years accounted for 82%. In the study done by Kriedl *et al.*,³ unilateral injuries were seen in 95.1% of patients and bilateral in 4.9%. In present study ecchymosis was seen in 64.58% of patients, in comparison to the study by Shtewi *et al.*,⁴ in which it was seen in 37.7%. In present study, lid edema was seen in 65.88% patients while in the study by Shtewi *et al.*⁴ and it was seen in 35.5%. 14.58% of patients in present study had lid laceration, while in the study by Shtewi *et al.*⁴ and it was seen in 17.8%. Orbital fractures in present study were seen in 22.22% of patients while these accounted to 1.1% in the study by Shtewi *et al.*⁴ In a study done by Cruz *et al.*,⁵ cause of orbital fracture was attributed to RTA in 54% of cases. In present study, 58.33% patients had subconjunctival hemorrhage while in the study by Shtewi *et al.*⁴ and 42.4% were found to have the same. Corneal abrasion was seen in 2.77% of patients in present study while in the study by Shtewi *et al.*,⁴ it was seen in 30.4%. In present study, corneal perforation was seen in 4.86% while in the study by Shtewi *et al.*⁴ and it occurred in 46.7%. Hyphema was seen in 4.16% patients in present study while it occurred in 50% cases in the study by Shtewi *et al.*⁴ Traumatic cataract occurred in 1.38% in present study and in 31.9% in the study by Shtewi *et al.*⁴ Lens dislocation occurred in present study in 2.08% while it occurred in 7.6% cases in the study by Shtewi *et al.*⁴ Vitreous hemorrhage was seen in 0.69% of our patients while it occurred in 23.6% of the patients in the study by Shtewi *et al.*⁴

V. Conclusion

Ocular injuries due to Road Accidents involved the lids which while causing a certain degree of cosmetics disfigurement and do not have any effect on any final visual outcome. Only those injuries which involved the globe had a poor prognosis for the final visual outcome.

Increasing public awareness of safety precautions is crucial to prevention of Road Accidents. Meticulous observation of traffic rules, maintain speed limits, wearing helmets when driving two-wheelers and not driving under the influence of alcohol are some of the measures to minimize Road Accidents in our country.

References

- [1]. Negrel AD, Thylefors B. The global impact of eye injuries. *Ophthalmic Epidemiology* 1998; 5:143-169.
- [2]. Desai P, Mac Ewen CJ, Baines P, Minaissian DC. Epidemiology and implications of ocular trauma admitted to hospital in Scotland. *J. Epidemiology Comm. Health* 1996; 50: 436-441.
- [3]. Kuhn F. Epidemiology of ocular trauma. In: Kuhn F, Morris R, Mester V, Witherspoon D. *Ocular Traumatology*. Springer-Verlag Berlin Heidelberg. 2005: 47-77.
- [4]. Kuhn F, Maisiak R, Mann L. The ocular trauma score (OTS). *Ophthalmol Clin North Am* 2002; 15: 163-165.
- [5]. De Juan EJ, Sternberg PJ, Michels RG. Penetrating ocular injuries: Types of injuries and visual results. *Ophthalmology*. 1983;90:1318-22.
- [6]. Barr CC. Prognostic factors in corneoscleral laceration. *Arch Ophthalmol*. 1983;101:919-24.
- [7]. Issac DL, Ghanem VC, Nascimento MA. Prognostic factors in open globe injuries. *Ophthalmologica*. 2003;217:431-5.
- [8]. Esmaeli B, Elner SG, Schork A, Elner VM. Visual outcome and ocular survival after penetrating trauma: A clinicopathologic study. *Ophthalmology*. 1995;102:393-400.

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- [9]. Gilber CM, Soong HK, Hirst LW. A two-year prospective study of penetrating ocular trauma at the Wilmer Ophthalmological Institute. *Ann Ophthalmol.* 1987;19:104-6.
- [10]. Pieramici DJ, Mathew W, Mac C, Humayun MU. Open globe injury: Update on types of injuries and visual results. *Ophthalmology.* 1996;103:1798-803.
- [11]. Asaminew T, Gelaw Y, Alemseged F. A 2-year review of ocular trauma in JIMMA University Specialized Hospital. *Ethiop JHealth Sciences* 2009; 19:67-76.
- [12]. Gyasi ME, Amoaku WMK, AdjuikMA. Hospitalized Ocular Injuries. *Ghana Medical Journal* 2007;41(4):171-75.
- [13]. Serrano J, Chalela P, Arias J. Epidemiology of childhood ocular trauma in Northeastern Colombian region. *ArchOphthalmol,* 2003;121:1439-1445.

Dr.K.Vijaya Sree " A Clinical Study of Ocular Injuries in Road Traffic Accident Patients in a Tertiary Care Hospital" *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, vol. 18, no. 2, 2019, pp 24-27.