

A STUDY ON PATTERN OF OCULAR TRAUMA AT A REGIONAL EYE HOSPITALK. S. Rajiv Krishna¹¹Assistant Professor, Department of Ophthalmology, Andhra Medical College/ Government Regional Eye Hospital, Visakhapatnam, Andhra Pradesh, India.**ABSTRACT****BACKGROUND**

Nowadays ocular injuries represent a sizeable number among cases attending Ophthalmic OPD and have been associated with long-term sequelae and reduced quality of life. Ocular trauma is an important public health hazard. Injury to the eye and its surrounding structures remain a leading cause of visual morbidity and blindness. Many ocular injuries are an avoidable cause of blindness and visual impairment.

The objective of the study is to evaluate the pattern of ocular injuries presenting at Regional Eye Hospital, Visakhapatnam, Andhra Pradesh.

MATERIALS AND METHODS

Patients attending routine OPD and Emergency Department of Government Regional Hospital, Visakhapatnam were taken into study. A total of 800 patients were analysed for various patterns of ocular trauma.

RESULTS

Ocular trauma accounted for approximately 0.83% of the total cases (96,143) presenting to OPD and emergency departments at our institute. The period of study being from 01/06/2017 to 31/05/2018. RTA accounted for 28% of cases, 24% were occupation related and 16% of the cases were due to sports injuries. 40% of cases had adnexal injuries, 35% were closed globe injuries and 15% accounted for open globe injuries.

CONCLUSION

Ocular trauma is not only one of the common emergency conditions, but also frequently encountered in routine OPDs. People involved in physically active works like labourers, farmers and athletes are more prone for ocular trauma. Proper safety measures and health awareness can reduce the morbidity associated with ocular trauma.

KEY WORDS

Ocular Injury, Eye Emergency, Trauma, Epidemiology, Retrospective Studies.

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BACKGROUND

One of the main causes of severe ocular morbidity is ocular trauma.¹ 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. Unilateral or binocular loss or decrease of vision may result in significant economic burdens to families and governments due to time lost from work or school, and expensive hospitalisation, special treatment, prolonged follow-up and visual rehabilitation.² It is likely that individuals of varying age, sex and environmental status are at different risks for ocular trauma; furthermore, injury severity may be associated with these and other factors.³ A thorough understanding of the factors contributing to ocular trauma is necessary if appropriate

preventive and system-based policy is to be designed to address the issue of ocular injury. Morbidity related to ocular trauma is more prevalent in developing countries like India when compared with developed countries.⁴ Children, workers and farmers are more prone to ocular trauma for obvious reasons.

Objectives of the Study

The objective of this study is to evaluate the pattern of ocular trauma in the patients attending ophthalmic OPD and emergency section at Regional Eye Hospital, Visakhapatnam. This hospital is one of the main referral centres in north coastal Andhra Pradesh.

MATERIALS AND METHODS

We performed a retrospective descriptive study. A predesigned proforma was used to collect and tabulate the data. Data was analysed using MS Excel Software.

The period of this study is from 01/06/2017 to 31/05/2018; 800 patients were included in the study. A detailed history is taken on the mode of the injury and type of trauma. History is taken directly from the patient and in children and unconscious patient's attendant history is noted. Thorough clinical examination was done with respect to general and ocular condition. Visual acuity, ocular movements, anterior segment, posterior segment, adnexal and orbital examination was done and entered in the proforma. Whenever required CT scan and MRI scan of the

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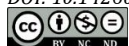
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patients was ordered. Neurosurgery, Plastic Surgery, ENT specialist's opinion was taken wherever needed. Treatment was advised accordingly. Operational definitions were according to World Health Organization (WHO) and Birmingham Eye Trauma Terminology System (BETTS).⁵

Blindness

Visual acuity < 3/60.

Eye Wall

Cornea and Sclera.

Closed Globe Injury

No Full Thickness Wound of the Eye Wall-

- Contusions: No full thickness wound, direct energy delivery (e.g. choroidal rupture) or due to change in shape of the globe (e.g. angle recession).
- Lamellar laceration: Partial thickness wound of the eye wall.

Open Globe Injury

Full Thickness Wound of the Eye Wall-

- Laceration: Full thickness wound at the impact site of a sharp object by outside- in mechanism.
- Penetrating: Entrance wound only.
- Perforating: Entrance plus exit wound.
- Intraocular Foreign Body: Technically, a penetrating injury, but grouped separately because of different clinical implications.
- Rupture: Full thickness wound by blunt object by inside-out mechanism due to increased intraocular pressure.

Adnexal Injuries

Eyelid and/ or conjunctival injuries.

RESULTS

In this study, ocular trauma accounted for approximately 0.83% of the total cases (96,143) presenting to OPD and emergency departments at our institute. The patients were grouped into four categories as shown in Fig. 1. Ocular trauma was found more common in 16 – 40 (40%) years' age group, probably related to more outdoor activity and risk-taking jobs in that age group. 65% were males and 60% of the patients had rural background. Most common type is adnexal injuries involving lids or conjunctiva followed by closed globe injuries and open globe injuries. Among the closed globe injuries, extraocular foreign bodies (60%) either on the cornea or in the fornices compelled the patients to consult the ophthalmologist. Penetrating injuries contributed to 50% of open globe injury cases. 30% of the cases presented to the emergency department. 65% of the cases presented immediately after the injury. RTA (28%) and occupation related injuries (24%) were more commonly noted in this study. Farmers and workers together were 50% of the patients by profession in this study. 82% of the cases were due to mechanical injuries. 65% of the patients presented early and 30% of the patients attended the emergency department. 32% of the patients were admitted and 68% of the patients were treated on an OPD basis. Some kind of surgical intervention was done in 26% of the cases. 20% of the cases in this study had associated injuries involving head,

face or multiple organs. Anterior segment was involved in 66% of the cases.

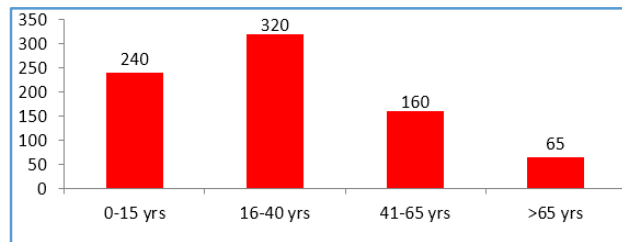


Figure 1. Age Wise Distribution

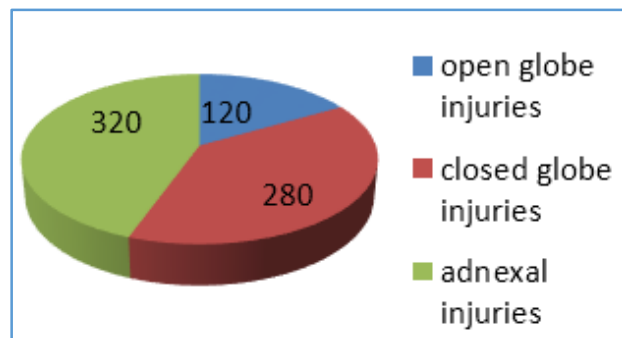


Figure 2. Types of Injuries

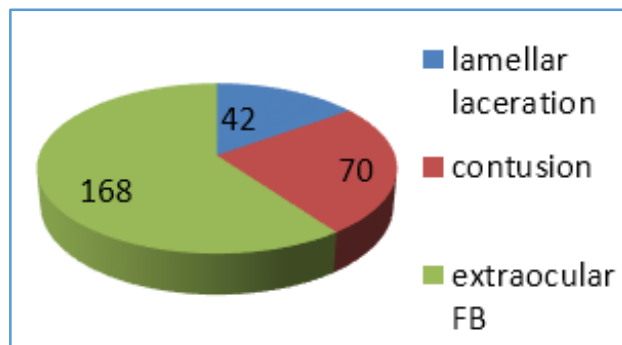


Figure 3. Types of Closed Globe Injuries

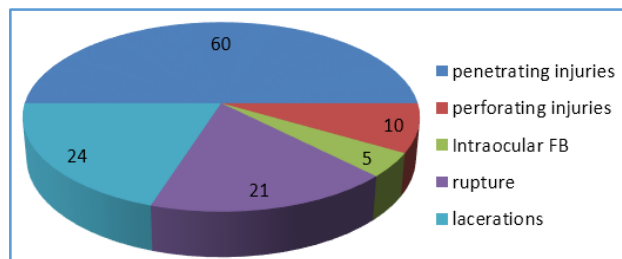


Figure 4. Graph showing types of Open Globe Injuries

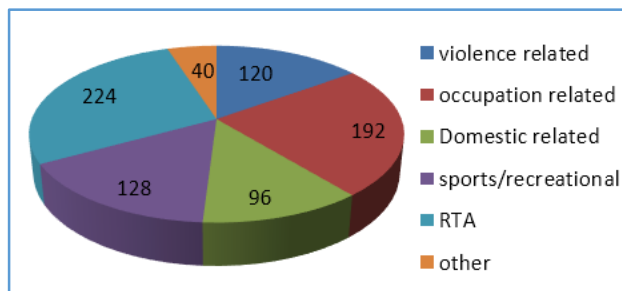


Figure 5. Graph showing various Situations leading to Ocular Trauma

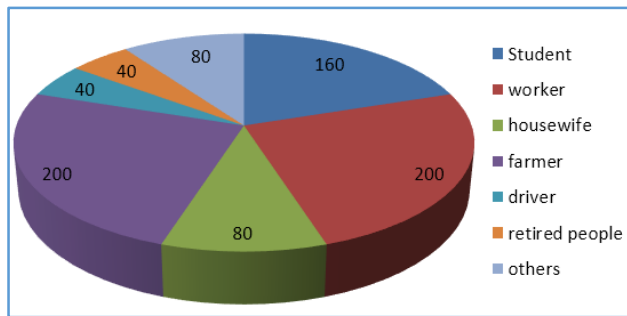


Figure 6. Graph showing Occupation of the subjects in the Study Group

DISCUSSION

Ocular trauma is an important cause of blindness and ocular morbidity. The common age for ocular trauma in this study was found to be 16 - 40 years. Voon et al⁶ and Aligolbandi et al⁷ in their respective studies reported a higher incidence in similar age groups. The magnitude of ocular trauma was found to be 0.83% out of total patients seen in our institute. Tityal et al⁸ reported a prevalence of 1.03% in their study; Vats et al⁹ had a figure of 2.4% in their study in urban slums. Krishnaiah et al¹⁰ reported a prevalence of 10.6% in their study in rural south India. Direct comparison of this study with the data from some of the studies reviewed was difficult in some aspects due to different classification, definition and methods of reporting adapted in those studies.

In our study, male-to-female ratio was 1.85: 1. Tityal et al in their study had high male-to-female ratio of 10: 1 and Aligolbandi et al in their study revealed a male-to-female ratio of 3: 1. The higher incidence in males is most likely due to occupational hazards,¹¹ more travel and violence. 65% of the patients in this study presented early within two days of injury, whereas Tityal et al in their study reported a figure of 74.5%. More than three-fourth of the cases in our study presented with Unilateral involvement and remaining had ocular trauma in both the eyes.

RTA was the major cause of injury in our study (28%). Voon et al and Xi Zhang et al in their studies noted work related trauma as the major cause, which accounted for 70% and 40.6% of cases respectively. 35% of the injuries were closed globe in nature and 15% were of open globe type in this study. Xi Zhang et al had 66% and 34% of open and closed globe injuries respectively in their series. Tityal et al in their study noted 45.4% of open globe injuries and 22.7% of closed globe injuries.

CONCLUSION

Ocular trauma leads to huge number of visits annually to an eye hospital. These injuries are differentially distributed across age and sex. Emergency treatment is required in all the cases in order to save vision and reduce morbidity. Inpatient admission depends on various factors like age, sex, season,¹² mechanism of injury¹³ and medico-legal implications. Observations from this study may help in developing a policy aimed at preventing specific injury mechanisms among appropriate age groups. Health education and safety strategies should consider targeting at home level for the prevention of serious eye injuries in addition to the traditional work, sports and leisure environments and their related activities as domestic injuries are increasing day-by-day.¹⁴ These types of studies emphasise the importance of

wearing helmets and seatbelts while driving. Lot of sports related eye injuries and occupational hazards leading to ocular trauma can be prevented by using appropriate protective gear. Eye care programs should consider ocular trauma as a priority in rural population,¹⁵ because the lifetime prevalence of ocular trauma is higher than that reported for glaucoma, age-related macular degeneration or diabetic retinopathy from this population. Further research is necessary to identify the potential viability and efficacy of interventions aimed at reducing incidence and severity of ocular trauma in our country. It is further recommended that government should design an urgent referral system¹⁶ for emergency care services for ocular trauma patients. Hospitals should improve their documentation system by designing a structured and standardised format to be used when clerking, treating and following up ocular trauma patients which will help in doing more research in the area, which in turn is fundamental in planning emergency eye care services.

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