



EPIDEMIOLOGY AND CLINICAL PATTERN OF OCULAR TRAUMA CASES PRESENTING TO THE OPHTHALMIC EMERGENCY IN A TERTIARY CARE HOSPITAL

Ophthalmology

Dr. Summaiya Irshad

Postgraduate, GMC Jammu

Dr. Avleen Kaur*

Postgraduate, GMC Jammu*Corresponding Author

ABSTRACT

The eye is the third most commonly affected area of the human body by injuries after the hands and feet. The prevalence of ocular trauma has been estimated to be around 2.4% in India. This retrospective observational study was conducted over a period of three months from January 2022 to March 2022 at the Department of Ophthalmology, Government Medical College, Jammu. A total of 1149 patients who presented during the previous one-year period from January 2021 to December 2021 with ocular emergencies were included in this study. Data was organized and interpreted in both descriptive and inferential statistics by using SPSS, version 21. It was observed that the majority of patients were in the age group of 05-20 years (42.5%) with male preponderance. Most study participants were from rural areas (68.32%) and most (35.68%) were laborers by occupation. We found in our study that the majority of the study participants (56%) reported to the hospital for treatment within 24 hours of the injury followed by 35% of patients who reported for treatment within 1-3 days of injury. Our study concluded that periorbital edema and ecchymosis were the most common ocular emergency reported (28.80%), of which the majority (19.75%) were due to Road Traffic Accidents. Our study concluded that the most common ocular injuries were work and school-related which can be prevented by utilizing effective safety programs and by promoting the importance of using protective eyewear. The healthcare workers of Primary and Community healthcare centers (PHC/CHC) need to be trained to provide initial care and timely referral to the tertiary healthcare facilities to prevent any major eye problem that can ultimately lead to blindness.

KEYWORDS

Ocular emergencies, Eye injuries, Emergency and accidental injuries

INTRODUCTION

Ocular trauma has recently been highlighted as a major cause of visual morbidity.¹ Eye is the third most commonly affected area of the human body by injuries after hands and feet.²

Out of all types of ocular emergencies, ocular trauma is by far the commonest, constituting nearly 75% of all ocular emergencies.³ World Health Organization (WHO) suggested that about 55 million eye injuries occur each year. Blindness due to ocular injuries is seen in around 1.6 million people and results in bilateral low vision in 2.3 million people.⁴

The prevalence of ocular trauma has been estimated to be around 2.4% in India.⁵ Of all the blindness cases, 1.2% are contributed by injuries.⁶ Children are commonly affected by trauma. Ocular injuries account for approximately 8%–14% of total injuries in children.⁷

Nearly 90% of eye injuries can be prevented by relatively simple measures.⁸ Preventive methods particularly in children in schools and factory workers may diminish many injuries.^{9,10}

Thus, the present study was undertaken to assess the Epidemiology and Clinical pattern of Ocular trauma Cases Presenting to the Ophthalmic Emergency in Government Medical College, Jammu.

Aims and objectives

The aim and objectives were to determine the prevalence of different ocular emergencies and to study the epidemiological pattern of various ocular emergencies presenting to the eye casualty.

MATERIAL AND METHODS

This retrospective observational study was conducted over a period of three months from January 2022 to March 2022 at the Department of Ophthalmology, Government Medical College, Jammu. A total of 1149 patients who presented during the previous one-year period from January 2021 to December 2021 with ocular emergencies were included in this study.

Our study included patients all patients presenting with ocular trauma to the eye emergency.

The recorded detailed history and examination of the study participants which comprised of visual acuity measurement using Snellen's visual acuity chart, slit lamp evaluation of the anterior segment, and non-contact tonometry for recording the intra-ocular pressure (IOP) was taken into account. The demographic variables age, gender, occupation, and residence of the patient were also

recorded. Fundus examination performed with 90 D slit lamp biomicroscopy and indirect ophthalmoscopy was also recorded. X-ray, Computed Tomography (CT) scans, ultrasound B-scan, and Magnetic resonance imaging (MRI) were also noted.

All the data collected was recorded in a Microsoft excel sheet containing information regarding demographic profile (age, gender, occupation, and residence), type and etiology of ocular emergencies. Data was tabulated, organized, and interpreted in both descriptive and inferential statistics i.e. frequency and percentage distribution, by using statistical package for social science software (SPSS), version 21. Categorical variables were expressed as number and percentage

RESULTS

The present study evaluated a total of 1149 patients presenting with ocular emergencies to the eye casualty.

Table 1: Age distribution of patients (n=1149)

Age (years)	No. of cases (n)	Percentage (%)
05-20	489	42.5
21-40	361	31.4
41-60	176	15.4
>61	123	10.7

In our study majority (42.5%) of the patients were in the age group of 05-20 years (Table 1).

The male-to-female ratio was 2.9:1 with 74.4 % of the patients being male (Figure 1)

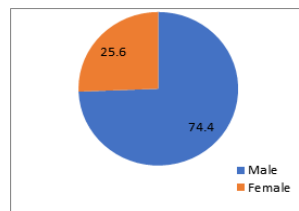


Figure 1: Gender distribution of patients

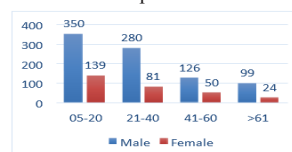


Figure 2: Mean age and gender distribution of patients

The mean age of male patients was 33.3±11.82 years and that of females was 29.6±9.65 years (Figure 2). These results show that there is a significant rise of ocular trauma in males and young age group.

Table 2: Residence of the patients

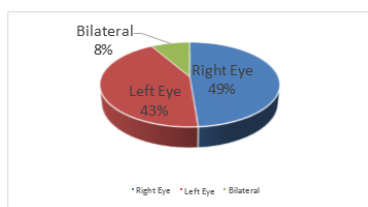
Area	Number (n=1149)	Percentage (%)
Urban	364	31.68
Rural	785	68.32

Majority (68.32%) of the study participants were from rural area (Table 2).

Table 3: Occupation of Patients

Occupation	Number (n=1149)	Percentage (%)
Labourer	410	35.68
Farmers & Industrial workers	349	30.37
Students	240	20.88
Housewives	66	5.74
Shopkeepers/ Businessman	54	4.69
Job (Govt./ Private)	30	2.63

In our study majority (35.68%) of the study participants were labourers (Table 3).

**Figure 3:** Side of Eye involved in patients with ocular trauma.

In our study majority (48.74%) of the study participants had injury in the right eye followed by 42.91% having injury in the left eye and bilateral injury in 8.35% (Figure 3).

Table 4: Time of Treatment after injury

Time of treatment	Number (n=1149)	Percentage (%)
<24 hours	643	56
1-3 days	402	35
4-7 days	70	6
>7 days	34	3

Our study showed that majority of the study participants (56%) reported to the hospital for treatment within 24 hours of the injury (Table 4).

Table 5: Ocular Emergencies due to Ocular Trauma seen in patients

Ocular Emergency	Number (n=1149)	Percentage (%)
Corneal Epithelial Defects	73	6.35
Corneal Ulcers	48	4.17
Corneal Abscess	26	2.26
Corneoscleral Perforation	66	5.74
Conjunctival Tear	20	1.74
Subconjunctival Haemorrhage	48	4.17
Hyphema	29	2.52
Orbital Cellulitis	12	1.04
Preseptal Cellulitis	06	0.52
Chemical Injury		
a) Due to Cement	23	2.0
b) Due to Battery Acid	12	1.04
c) Due to Fire Cracker	38	3.30
Periorbital edema & Ecchymosis		
a) Following RTA	227	19.75
b) Following fall On Ground	58	5.04
c) following fall from height	46	4.0
Lens Induced Glaucoma	9	0.78

Insect Bite Swelling	12	1.0
Orbital Floor Fractures	58	5.04
Photo keratitis	19	1.65
Foreign Body	93	8.09
Laceration		
a) Lid	58	5.04
b) Eyebrow	86	7.48
Burns	5	0.43
Exposure Keratitis	6	0.52
Facial Palsy	9	0.78
Acute Angle Closure Glaucoma	38	3.30
Sudden Loss of Vision	24	2.0

In our study it was seen that periorbital edema and ecchymosis were reported collectively in 331 (28.80%) cases out of which 227 (19.75%) due to RTA, 58 (5.04%) due to fall on ground, 46 (4.0%) due to falling from height (Table 5).

DISCUSSION

In the present study, the mean age of male patients was 33.3±11.82 years and that of females was 29.6±9.65 years with the male: female ratio being 2.9:1 similar to a study done by Bharti A et al¹¹.

The majority of patients were from rural areas (68.32%), and were laborers (35.68%), in accordance with a similar study conducted by Maurya RP et al¹² and Monika et al¹³.

Our study showed that the majority of the study participants had an injury in the right eye (48.74%) followed by injury in the left eye (42.91%) and bilateral injury in 8.35% of patients similar to a previous study by Maurya RP et al¹⁴.

In the present study majority of the study participants (56%) reported at hospital for treatment within 24 hours of the injury similar to previous studies^{15,16}.

According to our study the most common reported ocular injury was periorbital edema and ecchymosis reported in 331 (28.80%) cases out of which 227 (19.75%) were due to RTA, 58 (5.04%) due to fall on ground and 46 (4.0%) due to falling from height similar to a study done by Das S et al¹⁷. Similar findings have been reported in other studies as well.^{18,19}

This study has limitations as it was conducted on a small sample size of subjects presenting to eye casualty. We need more such studies on a larger scale with varied populations to determine the Epidemiology and study clinical pattern of Ocular trauma Cases.

CONCLUSION

Our study concludes that ocular trauma is the most common cause of ocular emergencies. The periorbital edema and ecchymosis due to RTA (road traffic accidents) are the most common causes of ocular trauma. The most common types of ocular trauma in our study were work-related and school-related which can be prevented by utilizing effective safety programs and by promoting the importance of using protective eyewear. There should be workshops organized from time to time in schools for the children to understand about eye injuries and their consequences and also, they should be taught about basic preventive measures. The Health Care Workers of Primary and Community health care centers (PHC/CHC) need to be trained to provide initial care and timely referral to the tertiary health care facilities to prevent any major eye problem that can ultimately lead to blindness.

REFERENCES

1. Parver LM. Eye trauma. The neglected disorder. Arch Ophthalmol. 1986;104(10):1452-1453.
2. Nordberg E. Injuries as a public health problem in sub-Saharan Africa: epidemiology and prospects for control. East Afr Med J. 2000;77(12 Suppl): S1-S43.
3. Mishra A, Parihar J, Verma A, et al. The pattern and visual outcomes of ocular trauma in a large zonal hospital in a non-operational role. J Clin Ophthalmol Res. 2014;2(3):141.
4. A.D. Nggrel, B. Thylefors. The global impact of eye injuries. Ophthalmic Epidemiol. 1998;5(3):143-169.
5. Vats S, Murthy GV, Chandra M et al. Epidemiological study of ocular trauma in an urban slum population in Delhi, India. Indian J of Ophthalmol. 2008;56:313-316.
6. Park K. Park's Textbook of preventive and social medicine. 17th edition Jabalpur: Banarsidas Bhanot Publisher. 2002; 295-300.
7. Brophy M, Sinclair SA, Hostettler SG, Xiang H. Pediatric eye injury related hospitalizations in the United States. Pediatrics. 2006;117(6): e1263-1271.
8. Jethani J, Vijayalakshmi P. Child: Eye Injuries/causes/prevention and control, Public Health, Health Education, India. Community Eye Health J Indian Supplement.

- 2005;18(53):58-60.
9. McGwin G Jr, Owsley C. Incidence of emergency department-treated eye injury in the United States. *Arch Ophthalmol*. 2005;123(5):662-6.
10. Rao SK, Greenberg PB, Filippopoulos T et al. Potential impact of seatbelt use on the spectrum of ocular injuries and visual acuity outcomes after motor vehicle accidents with airbag deployment. *Ophthalmol*. 2008; 115:573-5.
11. Bharti A, Sharma Pallavi, Mahajan Sachit et al. A Prospective Study of Clinical Profile and Morbidity of Ocular Trauma in a Tertiary Care Hospital. *WIMJ*. 2020;7(2):73-80.
12. Maurya RP, Srivastav T, Singh VP, et al. The epidemiology of ocular trauma in Northern India: A teaching hospital study. *Oman J Ophthalmol*. 2019;12(2):78-83.
13. Dua Mohit, Dahiya Monika. Epidemiology and Pattern of Ocular Trauma in Tertiary Care Hospital of North India. *IJMSIR*. 2019; 4(1):165-173.
14. Maurya RP, Singh VP, Yadav I. Profile of pediatric ocular trauma at a tertiary eye care centre in northern India. *Indian J of Clin and experimental Ophthalmol*. 2015;1(2):73-6.
15. Karve S, Kolte A, Alfia A et al. Study of clinical profile of ocular trauma at a tertiary Eye Care centre. *International J of Contemporary Med Res*. 2017;4(12):2-41.
16. Adamu MD, Muhammad N. Pattern of ocular trauma in Gusau, north west Nigeria. *Niger J of Ophthalmol*. 2017; 25:11-13.
17. Das S, Rana M. Pattern of Ocular Trauma Presenting to the Tertiary Eye Care Centre in the Islands of Andaman and Nicobar. *Digital J of Ophthalmol*. 2020; 30:20-26.
18. Syal E, Dhawan M, Singh SP. To study the epidemiological and clinical profile of ocular trauma at a tertiary health-care facility. *Delta J of Ophthalmol*. 2018; 19:259-267.
19. Mishra A, Verma AK, Baranwal VK, et al. The pattern and visual outcomes of ocular trauma in a large zonal hospital in a non-operational role: A 36 months retrospective analysis. *J of Clin Ophthalmol and Res*. 2014; 2:141-144.