



ORIGINAL RESEARCH PAPER

Ophthalmology

"A STUDY OF CLINICAL PROFILE AND VISUAL OUTCOME IN OCULAR TRAUMA"

KEY WORDS: Ocular trauma, clinical profile, visual outcome

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ABSTRACT

INTRODUCTION: This study is undertaken to determine site and severity ocular trauma, contributing factors and visual outcome in ocular trauma.

METHODOLOGY: This prospective study conducted in Department of Ophthalmology, GMC and group of Hospitals Kota from September 2015 to September 2016. In it 50subjects (56 eyes) were enrolled in the study, 6 of these subjects had bilateral ocular trauma. A thorough ocular examination was conducted in all patients. This included recording of initial visual acuity, intraocular pressure for non-perforated eyes, biomicroscopy of anterior segment and ophthalmoscopy description of nature and extent of ocular injury. The visual outcome was taken to be the best corrected vision at 3 months post trauma.

RESULT AND CONCLUSION: Total 50 patients (56 eyes) were enrolled in the study. 6 of these patients had bilateral ocular trauma. During the study period, there were 50 patients with ocular injuries admitted in the eye ward. 38(76%) patients were males and 12(24%) were females. Male: female ratio was 3.16:1. Their ages were in the range of 4yrs to 60yrs and the mean age was 29yrs. In our study 12(21.42%) had very poor vision (<3/60) at the time of presentation. With treatment the number decreased to 2(3.57%). 27(48.21%) patient have VA more than 6/18 at the time of presentation which become 39 patient with VA more than 6/18 (69.64%). 5 cases having No light perception (NLP) which did not improve.

INTRODUCTION

Ocular trauma can be defined as any injury to the eyeball, adnexa, orbital and/or periorbital tissues. It can be classified into closed globe injuries (contusions and lamellar lacerations), open globe injuries (globe rupture, penetrating injury, intraocular foreign bodies and perforations) and adnexal injuries.¹

Ocular trauma was once described as "neglected disorder", but now it is known as a major cause of visual morbidity leading to visual loss or impairment and diminished quality of life. There are approximately 1.6 million people who get blind and 2.3 million people who get bilateral visual impairment due to eye injuries. Globally there are 19 million people who suffer unilateral visual loss due to ocular injuries, thus ocular trauma is the commonest cause of unilateral blindness at present.^{2,3}

According to the WHO's Blindness Data Bank, it is estimated that globally about 55 million eye injuries occur each year which restrict activity for more than one day. 750,000 cases due to eye injury require hospitalization each year, out of which approximately 200,000 are due to open-globe injuries.³

This study is undertaken to determine site and severity ocular trauma, contributing factors and visual outcome in ocular trauma

MATERIALS AND METHODS

The prospective study was conducted in Department of Ophthalmology, GMC and group of Hospitals Kota.

Patients with ocular injuries who were admitted to the Department of Ophthalmology and Emergency ward of GMC and group of Hospital Kota, during the period September 2015 to September 2016.

And patient having intra-ocular surgeries in the recent past and having pre-existing ocular pathologies causing severe visual impairment are excluded.

At the initial visit, identity of each patient was recorded including hospital registration number, name of the patient, address, age, sex, occupation, education of the patient and the parents or guardians (for those still under the care of parents/guardians) and ethnic group. Then a detailed history was taken particular attention being paid to the activity in which patient was engaged at the time of injury, type of the injuring agent, mechanism of

injury, pre existing ocular status, time between injury and first presentation to the eye department in, reason for late presentation and medications (if any) given during the period between injury and presentation.

A thorough ocular examination was conducted in all patients. This included recording of initial visual acuity, intraocular pressure for non-perforated eyes, biomicroscopy of anterior segment and ophthalmoscopy.

OBSERVATION AND DISCUSSION

Table 1: Age and sex distribution

Age(yrs.)	No. of patient	Percentage (%)	Males	Females	M:F
0-10	9	18	5	4	1.25:1
11-20	10	20	8	2	4:1
21-30	10	20	8	2	4:1
31-40	12	24	10	2	5:1
41-50	6	12	5	1	5:1
>50	3	6	2	1	2:1
TOTAL	50	100	38	12	3.16:1

Table 2: Type of ocular injury

Type of injury	Male	Female	No. of eyes	Percentage (%)
Closed globe	36	9	45	80.36
Open globe	7	4	11	19.64
Total	43	13	56	100

Table 3: Distribution of study population by occupation

Activity	No. of patient	percentage
RTA	21	42
Playing	10	20
Agriculture	4	8
Assault	6	12
Sports	1	2
Domestic work	8	16
Total	50	100

Table 4: Activity at the time of injury

Occupation	No. of patient	Percentage (%)
Student	17	34
Farmer	10	20
domestic	5	10

Business/office work	4	8
Labour/ Factory worker	14	28
total	50	100

Table 5: BCVA at presentation and at 3 months

Visual Acuity	No. of eyes at presentation	Percentage	No. of eyes at 3 months follow-up	Percentage (%)
> 6/18	27	48.21	39	69.64
<6/18 to 3/60	12	21.42	10	17.85
<3/60	12	21.42	2	3.57
No light perception (NLP)	5	8.92	5	8.92
Total	56	100	56	100

In the present study majority of the patients 41 (82%) fell in the age of 4-40 years the mean age of ocular trauma is 29 years. Male: female ratio is 3.16:1 [Table 1]. Similar findings were reported by Kuhn et al⁴ in their study of the United States Eye Injury Registry over a seven year period (1982-1989). They found that 61% of cases were between 16-35 yrs and had a mean age of 29 yrs. This was similar to the study done by Singh et al⁵ where they found nearly 67% of patients under the age of 25 years. There were only 5 cases (8.33%) in the age group of more than 50 years.

The male: female ratio in the present study was 3.16:1 and according to the study of Dhasmana et al⁶ it was 1.93:1. This fairly matches with world-wide ratio of 4:1.^{7,8}

In our study most eyes 45 (80.36%) sustained closed globe trauma whilst 11 (19.64%) eyes were open globe trauma. [Table 2] This agrees with studies in Nepal where the commonest type of trauma was closed globe injury 784 (73.3%) and open globe 57 (5.3 %).³ In study by Gopinath, et al closed globe injuries were seen in 40 patients (66.6%) while open globe injuries were seen in only 16 patients (26.6%) with a ratio of 2.5:1.¹⁰

In our study students are most commonly affected 17 (34%) followed by laborers/factory workers 14(28%) and agricultural work 10(20%) [Table 3].

This is in keeping with a study in Kenya where children/ students were commonly affected, 63 (55%)¹¹. Ocular injuries are more common in students as they are more active physically and are careless. In study by Gopinath, et al¹⁰ majority of the injuries were found among the industrial workers (33%) The next commonly encountered injuries were students (25%). Agriculturists and other laborers were seen to have almost equal number of injuries (16.66% and 13.33% respectively). This was similar to the study done by Desai et al.¹²

In our study 12(21.42%) eyes had very poor vision (<3/60) at the time of presentation. With treatment the number decreased to 2(3.57%). 27(48.21%) eyes have VA more than 6/18 at the time of presentation which become 39 with VA more than 6/18 (69.64%). 5 eyes having No light perception (NLP) which did not improve [Table 5]. However, according to Singh et al study only 20.2% of the patients had visual acuity better than or equal to 6/12 at follow-up⁵. In study Gopinath, et al¹⁰ 15(25%) had very poor vision at the time of presentation. With treatment the number decreased to 8(13.33%). However, in the study by Titiyal and Prakash¹³ the number of patients with severe visual handicap at follow-up was found to be higher at 30% and according to Judo study⁴ it was 21%.

Ocular injury is frequently a preventable cause of visual impairment. Since 100% prevention is the goal in all cases of eye injuries, attention should be directed to potential causes of injury on the playfield, at home, and the workplace. In our study, a large number of cases were alcohol related. Excess alcohol consumption is well known to be associated with serious and sometimes even

fatal accidents. The community as a whole should be educated about the possible dangerous and sometimes even fatal adverse effects of excessive alcohol consumption. We recommend strict administrative action to be enforced against those found to be indulging excessively and then attempting to drive or getting into uncalled for fights.

Public health education aimed at increasing awareness among parents, guardians, and school teachers regarding the need for supervision of children, and institution of prevention programs, especially for the vulnerable groups, is urgently needed in order to reduce ocular morbidity due to ocular trauma.

Since none of the patients were wearing any kind of eye protection we recommend wearing protective eye gear while engaged in potentially dangerous tasks, not only at work but also during recreational activities. Many of the sports- related eye injuries could have been prevented by wearing the recommended protective equipment.

REFERENCE

1. Kanski J, Bowling B. Clinical Ophthalmology - A Systemic Approach. 7th ed. Elsevier publishers; 2011.
2. Caroline J. Macewen, Ocular injuries. V2020 Regional Resource Centre For West Africa Newsletter March-2006;2(5) Vision2020wa.org /archivednewsletter/newsletter.../OCULARTRAUMA.
3. Tehmina Jahangir, Nadeem Hafeez Butt, Uzma Hamza, Haroon Tayyab, Samina Jahangir. Pattern of Presentation and Factors Leading to Ocular. Trauma Pak J Ophthalmol 2011; 27(2):96-102.
4. Kuhn F, Collins P, Morris R et al. Epidemiology of motor vehicle crash related serious eye injuries. Accid Anal Prev 1994;26(3):385-390.
5. Singh DV, Sharma YR, Azad RV, Talwar D, Rajpal. Profile of ocular trauma at tertiary eye centre. JK Sci 2005;7:1.
6. Dhasmana R, Bahadur H, Jain K. Profile of ocular trauma in Uttarakhand, A hospital based study. Indian J Community Health 2012;24:4.
7. Casson RJ, Walker JC, Newland HS. Four-year review of open eye injuries at the Royal Adelaide Hospital. Clin Experiment Ophthalmol 2002;30:15-8.
8. Framme C, Roeder J. Epidemiology of open globe injuries. Klin Monbl Augenheilkd 1999;215:287-93.
9. Kinderan Y, Shrestha E, Maharjan I, Karmacharya S. Pattern of ocular trauma in the Western Region of Nepal. Nepal J Ophthalmol. 2012;4(7):5-9. 21.
10. Gopinath GS, Hegde S, Vijaylaxmi P, Acharya AA, Sudharani BK. A Study of Clinical Profile and Visual Outcome in Ocular Trauma. 2015;(May):57-60. doi:10.17354/ijss/2015/213.
11. Momanyi C. Pattern and outcomes of Ocular trauma in patients seen at Moi Teaching and Referral Hospital. 2011;306:306. Available at: <http://erepository.uonbi.ac.ke/handle/11295/4514>. Accessed January 1, 2015.
12. Desai P, MacEwen CJ, Baines P, Minaission DC. Epidemiology and implications of ocular trauma admitted to hospital in Scotland. J Epidemiol Community Health 1996; 50(4): 436-41.
13. Titiyal GS, Prakash C, Gupta S, Joshi V. Pattern of Ocular Trauma in Tertiary Care Hospital of Kumaon Region, Uttarakhand. 2013;35(2):116-119.
14. Asaminew T, Gelaw Y. A 2-year review of ocular trauma in Jimma University specialized hospital. Ethiop J Health Sci 2009;19:2.