

Overview of Ocular Injury in Southern Part of Bangladesh: A Hospital Based Study of 406 Cases

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Abstract

Background: Eye injury is a common ophthalmic problem. It is an important and preventable public health problem worldwide.

Purpose: To assess the magnitude, pattern, extent, severity, causes and visual outcome of ocular injury in a tertiary hospital.

Materials and Methods: This cross-sectional study was done at the Eye Department of Sher-E-Bangla Medical College Hospital, Barisal over a period of two years. All patients who admitted with eye injury through the outpatient or emergency routes were included in the study. They were examined to note the areas injured, type and extent of injury and impact on vision.

Results: Ocular injuries were 18.5% of total admitted patient and 16.3% of all operative cases. Out of total 406 cases 74.3% were male and 25.6% were female. The average age was 26.3 years. Paediatric eye trauma constituted 29.8% of total cases which mostly occurred during playing. 71.4% cases arrived to our centre within 24 hour and 28.5% presented after 24 hours. Majority of the cases comprised of monocular trauma 93.8%. Blunt injuries constituted about 59.1% while 19.7% had sharp injuries. Open globe injuries were 23.8%. More than 1/3 of the patients had visual acuity worse than 3/60 at presentation and 5.4% cases were NPL.

Conclusion: Ocular injuries are significant cause of morbidity in terms of visual loss or impairment and diminished quality of life. A preventive and educational strategy among the population is necessary to reduce eye injury burden.

Keyword: Ocular injury

Introduction

Ocular trauma, once described as the 'neglected disorder' has recently been highlighted as major cause of visual morbidity [1]. Worldwide there are approximately 1.6 million blind from injuries, additionally some 2.3 million people with bilateral low vision resulting from ocular trauma and almost 19 million people with unilateral blindness or low vision; these facts make ocular trauma the most common cause of unilateral blindness. According to the data compiled by WHO's Blindness Data Bank, it is estimated that globally approximately 55 million eye injuries restricting activity for more than one day occur each year and 750,000 cases require hospitalization each year, including approximately 200,000 with open-globe injuries [2].

The impact of ocular trauma is not limited to the individual's health only but also has profound socio-economic implications regarding the lost productivity by young men and requirement of caring facilities and rehabilitation for the elderly. The problem in developing countries is compounded by general lack of access to preventive health care at all levels [3]. The objective of this study is to assess the magnitude and pattern of ocular trauma in Sher-E-Bangla Medical College Hospital, Barisal. Thus, this study will provide information on magnitude and patterns of ocular injuries. It serves as the basis for designing and implementing preventive measures to be undertaken by respective bodies.

Materials and Methods

This cross-sectional study was carried out at the Eye Department of Sher-E-Bangla Medical College Hospital, Barisal, over a period of

two years from December 2013 to December 2015. Four hundred six patients presenting themselves with eye injury were included. We employed consecutive sampling. Patients of all ages and both sexes regarding acute injury history affecting one or both eyes were included.

Cases presenting in Eye OPD and emergency department with acute ocular injury of one or both eyes were registered. Their demographic profile was recorded, asking name, age, sex, profession, address etc. The history of injury was obtained to know the time, circumstances leading to injury and development of symptoms. They were examined by standard procedures to note the areas injured, type and extent of injury and impact on vision. The refractive errors if existing before and usage of glasses etc. were enquired. Any investigations indicated for confirming foreign body were conducted. The cases were assessed for identifying the management needs and prediction of damage to the eye. All this information was collected on a specially designed datasheet.

The information collected was analysed. Socio-demographic variables such as categorical (sex) and numerical (age) data were analysed. They were presented in statistical form as frequency distributions (sex), mean and standard deviation (age). History yielded descriptive data of time, place of accident, factors leading to it and types of symptoms. These were presented as proportions. The outcome of examination provided qualitative data on extent, site and type of injury and effect on vision. These were presented as tables of frequencies. The management needs were assessed, classifying types of actions and prognosis. Visual acuity at presentation and after treatment was compared for significance by applying Chi Square test. P value < 0.05 was taken as significant.

Results

It was found that total 2188 patients were admitted in Eye department among them 406 were ocular trauma patients accounting for about 18.5% and out of 1138 operation 186(16.3%) were trauma patients during study period. Out of total 406 cases 302(74.3%) were male and 104(25.6%) were female. Male: female ratio was 2.9:1. The mean age was 26.3 ± 18.8 years. Range of age was from 4 months to 95 years. Ocular injuries are more common in first three decades of life (Table 1). Paediatric eye trauma constituted almost one third of total cases (29.8%). In case of children common age group was 6 to 10 years of age.

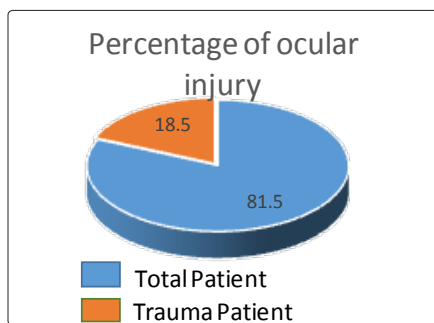


Figure 1: Percentage of Injury Patient

Most of the injuries were accidental 275(67.7%) and 93(22.9%) patients were victim of physical assault. RTA related injury was 38(9.3%). Home and playground were two most common place of injury contributing 163(40.1%) and 151(37.1%) respectively. Others place of injury were road 38(9.3%), working place 46(11.3%) and

school 8(1.95). Urban people (55.6%) came with injury relatively more than rural people (44.3%). Monocular trauma was more common accounting for 381(93.8%) than binocular trauma 25(6.1%). Majority of the patients 290(71.4%) presented 24 hours after injury and 116(28.5%) presented after 24 hours. Range of presenting time after trauma was ½ hour to 30 days.

Blunt injuries constituted about 240(59.1%) while 80(19.7%) had sharp injuries. Burns of chemical and thermal nature accounted for 26(6.4%) and 19(4.6%) respectively. While 26(6.4%) had agriculture related injuries. Superficial and intraocular FB was 13(3.2%) cases. And 2(0.4%) patients had insect impaction.

Table 1: Age Distribution

Age (Years)	Frequency	Percentage
00 – 10	105	25.8
11 – 20	73	17.9
21 – 30	88	21.6
31 – 40	54	13.3
41 – 50	38	9.3
> 50	48	11.8
Total	406	100

Range 4 months to 95 years,
Mean 26.3 ± 18.8

Open globe injury accounted for 97(23.8%) of the cases among them 11(2.7%) patients had both open injury with adnexal injury. The breakdown of these was 51(12.5%) had corneal lacerations, 17(4.1%) had corneo-scleral lacerations, 14(3.4%) had scleral wounds and 15(3.6%) had rupture globe.

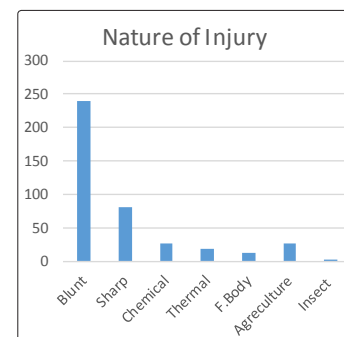


Figure 2: Nature of Injury

Closed globe injury was 161(39.6%) among those 44(10.8%) had adnexal injury along with closed globe injury. Commonest was corneal abrasion in 72 cases (17.7%). Patients presented with hyphema were 44(13.7). Lens damage in form of cataract was present in 29(7.1%) of the injuries while the lens was displaced in 16(3.9%) of the cases. And only adnexal injury was 103(25.3%). Among them eye lid injuries were 44(10.8%), periorbital injuries were 19(4.6%), canalicular injuries were 13(3.2%) and subconjunctival haemorrhage and black eye were 12(2.9%). Cornea was the most 145(35.7%) affected part of the eye. Periorbital skin and eye lid was second most affected part 76(18.7%). Posterior segment involved in 25(6.1%) cases with vitreous haemorrhage, 8(1.9%) cases with RD and 4(0.9%) cases with endophthalmitis.

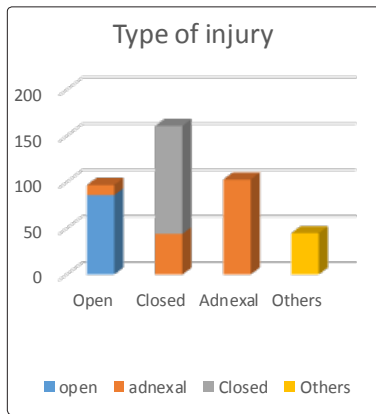


Figure 3: Type of Injury

Regarding the offending agent wooden object was 120(29.5%), metallic object was 58(14.7%), brick or stone 24(6.1%), finger nail was 30(7.3%), fist or blow 21(5.1%), vegetative trauma was 26(6.4%), chemical was 26(6.4%), thermal was 19(4.6%), pen head was 7(1.7%), plastic object was 2(0.9%), glass particle was 6(1.4%), insect was 2(0.9%), bullet was 3(0.7%), pecking of bird or hen was 3(0.7%), cow or goat horn was 6(1.4%), fall from height was 8(1.9%), ball was 6(1.4%) mixed during RTA was 38(9.1%) and others were 3(0.7%).

Regarding the treatment 220(54.1%) cases were treated conservatively. Rest of 186(45.7%) patients required surgery. Evisceration or enucleation was done in 6(2.7%) cases. Fifty (12.3%) patients were referred to NIOH for better management. Numbers of absconded patients were 4(0.9%).

The visual acuity at presentation was less than 3/60 in 130(32.0%) cases. Twenty two (5.4%) patients had no light perception at presentation (Table 2). After treatment visual acuity was improved even though 79(19.4%) of patients had less than 3/60 vision.

Table 2: Visual Acuity Before and After Treatment

	Frequency – (%)	
	On admission	On discharge
6/6	87 (21.4)	142 (34.9)
6/9 – 6/60	127(31.2)	123 (30.3)
CF- PLPR	130 (32.0)	79 (19.4)
NPL	22 (5.4)	22 (5.4)
Below 4 years of age V/A not done – 39 (9.61%), 1 patient was with empty socket		

Discussion

Although ocular trauma is an important worldwide cause of preventable monocular blindness, relatively little epidemiological information is available outside the United States and developed countries. Such studies can play an important role not only in defining the target groups for prevention and education on ocular trauma but also in prognosticating ocular injuries at the time of presentation, and also help ophthalmologists dealing with ocular trauma in making clinical decisions.

In our study ocular trauma predominantly affected males (74.3%) with male: female ratio of 2.9:1. One-third patients were in paediatric age group (up to 12 years). Ocular injuries are more common in first three decades of life (65.3%) and about 80% patients below 40 years. This is comparable to the demographic profile of ocular trauma patients found by a study from south India where males (86.8%) outnumbered the females (13.2%) and children (<16 years) constituted 46.8% of the total affected population [4]. The children and young males due to their outdoor and high-risk activities are at more risk than other groups.

Only 25 of the 406 cases in our study were bilateral. These results correlate with those computed by Babar, et al. in 2007 [5]. In another study conducted by the same author on 1551 patients, the frequency of bilaterality was 2.9% [6].

Approximately one fourth of the patients had open globe injury (23.2%). These results are consistent with the findings of Tsedeke, et al. who reported open globe injuries in 22.7% of their cases [7]. But this finding was contradicted with Iqbal and associates also determined open globe injuries to be leading the list of traumatic ocular emergencies (71.9%) [8].

In our study the most common place of injury was home (40.1%), followed by the playground (37.1%). These results are consistent with those of Khatry, et al [9]. Desai, et al. also reported similar results: home was the most common place for eye injury to occur (30.2%) followed by the workplace (19.6%) [10]. Occupational ocular trauma in our study accounted for 46(11.3%) of the cases, of these a half had farming related injuries 26(6.4%).

Industrial injury was less in our study as Barisal is not an industrial zone.

The most common nature of injury was a blunt object in 59.1% of the cases followed by trauma with a sharp object 19.7%. Thus penetrating and blunt were more common as compared to chemical, electrical and thermal injuries. These findings were consistent with those of Kushwaha and associates [11]. Motor vehicle collisions were responsible for 9.3% of the cases; this is in contrast to 64.3% of Kushwaha, Gupta and Gupta [11].

Regarding the impact of vision, the visual acuity at presentation was worse than 3/60 in 32.0% of the cases and twenty two eyes (5.4%) had no light perception at presentation. The improvement of visual acuity after treatment was statistically significant. But finally about one fourth (24.8%) of eyes were blind. This finding was correlated with Omolase, et al [12].

The chief weakness of this study is that it is not population based study and hence does not give a true scenario of the incidence and prevalence of ocular injury in our population.

Conclusion

Ocular injuries are very common in developing countries like Bangladesh. Not only health care provider but also common people should be made aware of preventive measure early referral to trauma unit to help in early treatment, lesser financial loss, early rehabilitation and better visual outcome.

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