

VISUAL OUTCOME OF OCULAR TRAUMA IN PATIENTS MANAGED AT TERTIARY CARE HOSPITAL

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ABSTRACT:

OBJECTIVES:

To determine the visual outcome of ocular trauma in patients admitted in the ophthalmology unit.

METHODOLOGY:

This descriptive cross sectional study was conducted after approval of ethical committee, from June 2017 till June 2019 at Ophthalmology Department, Medical Teaching Institution, Mardan Medical Complex, Mardan (MTI-MMC). A total of 501 patients of either gender having ocular trauma were enrolled in study. Following informed written consent, detailed history, ocular examination and investigations the surgical procedure was carried out. A pre-designed proforma was used to record the outcome along with demographics and type of trauma, which was analyzed using SPSS V-24.0.

RESULTS:

In a total of 501 patients the mean age of sample was 30.5±2.2. Among 501, males were 408 (81.44%) and female were 93 (18.56%) with ratio of 9:1. Ocular trauma was more common in age of <15 year with 174 (34.73%) patients. Professional injuries were more common and observed in 306 (61%) patients as compared to non-professional injuries in 195 (38%). Penetrating trauma occurred in 276 (55.08%) patients, which was higher than blunt 144 (28.74%) and perforating trauma 81 (16.16%). Good visual outcome was observed in 308 (61.47%), poor in 172 (34.33%) and blindness in 21 (4.1%) patients.

CONCLUSION:

The study concludes a better visual outcome for ocular traumas after surgical procedures. Young males were found to be more prone for traumatic injuries, in which professional and penetrating trauma leads the chart.

KEYWORDS: Trauma, Road Traffic Accidents, Safety Measures, Visual Impairment's

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INTRODUCTION:

The eyes are one of the most delicate organs in the body. Due to its anatomical location the eyes are always exposed to external environment and hence vulnerable to trauma until and unless protected by special goggles. Minor ocular injury can result in extensive damage resulting in visual loss. Worldwide the incidence of ocular injury varies in different countries. Hospital

based data revealed that 9.54% of total ophthalmic admissions are due to ocular trauma in Pakistan¹. Ocular trauma most commonly occurs in males of younger age group who are unskilled and not taking protective measures during work. Use of traditional eye medicine, lack of facility at primary health care level and delayed presentation result in poor visual outcome. Trauma is the most important cause of unilateral loss of vision particularly in developing countries². Ocular trauma is the major cause of visual loss in young population. According to W.H.O, blindness is defined as best corrected visual acuity less than 6/60 in better eye with best medical, optical and surgical treatment, and visual impairment is defined as best corrected visual acuity less than 6/12 in better eye³. Worldwide 55 million eyes suffer from trauma every year, including 200,000 with open globe injuries. About 1.6 million become blind, 2.3 million with bilateral and 19 million with unilateral loss of vision⁴⁻⁶. In USA, more than 2.5 million people suffer annually from eye injuries⁷. The common causative agent responsible for most of eye injuries is wooden stick or stone⁸. Road Traffic Accidents (RTA) and professional injuries also have contribution. The incidence of ocular injury increases with factors, which affect alertness or behavior. Ocular trauma is more common in countries where excess of alcohol is used. Visual prognosis depends on site of entry wound, location of intraocular foreign body and secondary retinal detachment⁹. Results depend on duration of trauma, severity of injury, intraocular infection and timely proper management. Ocular injuries in such cases have unusual presentation and devastating visual results¹⁰. The prevalence of ocular trauma is high in first two decades of life with males affected more than females. Majority of victims are children, resulting in increase of blind years. Eyes represent 0.27% of total body surface area and 4% of facial, while third most common organ sustaining trauma after hands and feet. Worldwide the magnitude of blindness due to ocular trauma is approximately 1.6 million^{11, 12}. Penetrating open globe injury is most common form of ocular insult. The major risk factors observed for ocular trauma were younger age, male gender,

addiction and lack of protective measures. The main purpose of this study was to identify the causes and pattern of ocular injuries, in order to save useful vision with proper management and put forward suggestions to control risk factors leading to eye injuries.

METHODOLOGY:

After the approval of ethical committee, this study was conducted from June 2017 to June 2019. We included 501 patients presented to the Outpatient Department (OPD) at Medical Teaching Institute, Mardan Medical Complex (MTI-MMC). Selection method was non-probability convenient sampling. Patients were randomly selected from either gender having age 0-70 years who sustained acute ocular trauma. Results analysis was presented in the form of tables and graphs with 95% confidence interval and 5% standard error of mean. After admission each patient with ocular injury was prospectively interviewed and examined as part of management. History of life style (alcohol, drugs, tobacco), preventive measures and pattern of work was taken. Patients who sustained ocular trauma and presented for the first time within one month of initial impact were included in the study. Ocular trauma associated with severe head injury, old eye injury and those with mild injuries like corneal/conjunctival foreign bodies and abrasions were not included in the study. Informed written consent was taken from all the patients and where children consent was obtained from their parents. Visual acuity was recorded and slit lamp examination with funduscopy where possible was performed. The intra-ocular pressure was also measured in co-operative patients with closed globe injury. In selected cases, B-scan ultrasound and X-ray orbit was also performed. The photographic record of all the patients were maintained both pre and post-operatively. Surgical repair was performed on emergency basis in most of patients and in few patients on elective operation list next day. Eyelid and adnexal injuries were sutured with 6/0 vicryl; scleral lacerations and ruptures were repaired with 8/0 absorbable suture, while corneal lacerations were repaired with 10/0 nylon. Soft bandage contact lens was

applied for one week after repair in severe corneal damage. In cases of traumatic cataract, lens matter aspiration was performed during primary repair and in selected cases after 4-6 weeks of repair. Intra vitreal injections of vancomycin and ceftazidime were given in cases of endophthalmitis. Patients having intra-ocular foreign bodies and retinal detachment were referred to vitreo-retinal surgeon for further management after primary repair. Eyelid sutures were removed after 7-10 days of repair and 10/0 nylon sutures were removed after 6-8 weeks, depending upon the condition of wound. On first post-operative day, visual acuity was recorded and slit lamp examination performed. Follow-ups were planned on day 07, day 15, one month and 02 months and finally at 03 months after surgery. Both the visual acuity and complete ocular examination was performed on each follow-up visit.

RESULTS:

Mean and Standard Deviation for gender is 1.1796/0.38427, with frequency of male 408 (81.44%) and female 93 (18.56%) ratio. Mean and Standard Deviation for age is 2.2096/1.14105. Frequency and percentage for age group 0-15 years were 174 (34.73%), for age group 16-30 years were 133 (26.54%), for age 31-45 years were 134 (26.74%), for age group 46-60 were 36 (7.10%) and for age 61 and above was 24 (4.70%), as shown in Figure 1.

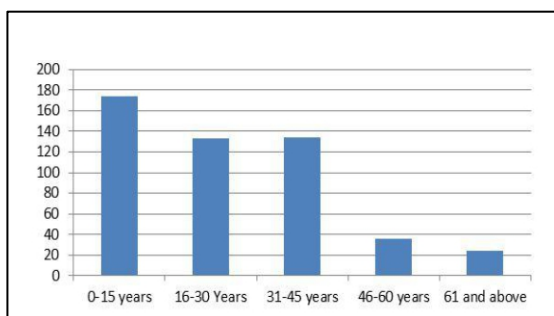


Figure 1: Frequencies for Age Group

Mean and Standard Deviation for professional and non-professional injury is 1.3473/0.47659. Figure 2 shows the frequency and percentage for professional injuries which were 306 (61.07%) and for non-professional were 195 (38.90%).

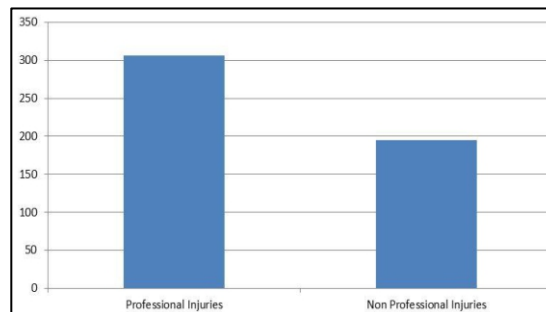


Figure 2: Frequencies for Injuries

Mean and Standard Deviation for type of injury is 1.6108/0.74980. Frequency and percentage for penetrating trauma was 276 (55.08%), for blunt trauma 144 (28.74%) and for perforating trauma 81 (16.16%), as depicted in Figure 3.

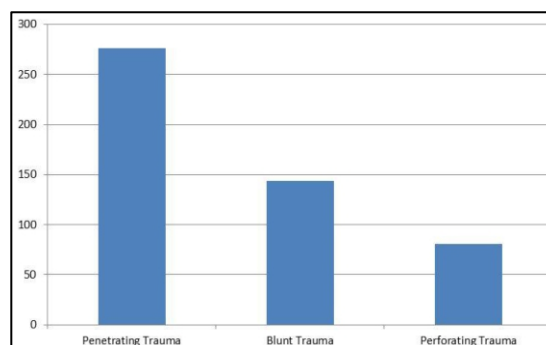


Figure 3: Frequencies for Types of Injuries

Table 1: Visual Outcome with Frequency and Percentage

Visual Outcome	Number of Patients	Percentage
Good Visual Outcome: (V.A 6/12 or Better)	308	61.47 %
Poor Visual Outcome: (Less Than 6/12 to 6/60)	172	34.33%
Blind: (Less Than 6/60)	21	4.1 %
Total	501	100 %

DISCUSSION:

Trauma cause great impact on vision. Cosmetic appearance show more concern to all individuals. Visual impairment and

blindness have important role in socioeconomic implications. If an individual of working age group is affected, it will directly alter his earning for whole life which will make him dependent rather than supporting his family. Geographical variations exist amongst the cause of injury and male to female ratio worldwide. Majority of cases arrived at Outpatient Department were male (408) and female (93) with ratio of 9:1. Supported by other authors around the globe, in Nepal it was 72.3% western Nepal, 3:1 in Ethiopia with male to female ratio^{13, 14}. The reason is because of outdoor activities. In our study, the number of patients at age group 0-15 was 174 (34.73%), for age group 16-30 there was 133 (26.54%) patients, for age group 31-45 patients were 36 (26.74%), for age group 46-60 there were 36 (7.10%) patients and for age group 61 and above the involved patients were 24 (4.70%). In our study out of 501 patients, 308 (61.47%) patients were having Visual Acuity (VA) 6/12 or better, 172 (34.33%) patients were having VA <6/12 to 6/18, while 21 (4.1%) patients were blind having VA less than 6/60. Similarly in India the VA was <3/60 in 56.3% of cases⁶, while in Nepal the visual outcome was good in 83.92% cases with 2.67% under blind category¹⁵. In rural areas, wooden stick was common cause of injury in agricultural workers, while in urban it was due to lack of precautionary measures or unawareness in unskilled persons. Highest ratio was observed for penetrating trauma involving 276 (55.08%) patients, while blunt trauma occurred in 144 (28.74%) cases and perforating trauma occurred in 81 (16.16%). In children, ocular trauma resulted because of playing with artificial weapons rather than toys. Majority of authors have found highest incidence at young age group^{16, 17}. There should be some preventive measures for penetrating trauma at national level. The awareness campaigns will educate people about it and further early interventions will be possible which in return will facilitate the better visual outcome¹⁸.

CONCLUSION:

The incidence of ocular trauma concluded from the study was negligence, unawareness and non-availability of safety

measures. Majority of injuries were professional. Delay in presentation resulted in morbidity. Awareness should be increased in population to reduce incidence. Medical attention and availability of health facilities and resources are essential for better outcome.

CONFLICT OF INTEREST: None

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