

**PATTERN OF OCULAR TRAUMA IN A TERTIARY REFERRAL HOSPITAL IN
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Article Received on 20/06/2017

Article Revised on 10/07/2017

Article Accepted on 31/07/2017

ABSTRACT

Aim: To analyze the pattern of ocular trauma, their causative agents and to find the correlation between time of intervention & visual outcome in general population referred to the ophthalmology OPD in a tertiary referral hospital in remote group of islands in India. **Method:** Prospective observational study, in which general patients having ocular trauma between April 2015 -April 2016 referred to our hospital were enrolled. These patients underwent detailed ophthalmic examination and intervention as required. Demographic data, mechanism, cause of injury and visual outcome were recorded with details of anterior and posterior segment evaluation. Follow up period: 6 months. Results: 310 patients were enrolled. Age ranged from 5 months to 65 years; Male: female ratio 5.2:1. Out of all, trauma occurred at work place, home, school and Road Traffic Accidents. Most common modes of injury-welding, building construction, wooden-stick, RTA, pencils/pens, cricket ball. Injuries were classified as open globe, adnexal and closed globe. **Conclusion:** From this study it is concluded that delay in presentation has a significant effect on final visual outcome along with presence of complications. This study revealed that the most common cause of ocular trauma is occupation related injuries which is mostly preventable cause of blindness. So it is advised to take preventive measures like, protective goggles during welding, supervising children while playing wearing seat belts while driving, etc. There should be an urgent referral system for ocular trauma patients.

KEYWORDS: ocular trauma, visual outcome, occupational injury.**INTRODUCTION**

Ocular injury is an avoidable cause of blindness and visual impairment. According to the WHO, 55 million eye injuries restricting activities occur for more than 1 day each year. 750,000 cases require hospitalization which includes 200,000 open globe injuries.^[1] Ocular trauma usually occurs in the younger individuals and occupational injuries are more common. Since these islands are cut off from the mainland, this study was designed to determine the pattern of ocular trauma, its causes, and effective management.

MATERIALS AND METHODS

A prospective observational study was done from April 2015 - April 2016 on 310 patients who presented to the ophthalmology OPD and casualty. The patients who already had eye diseases such as glaucoma and operated eyes were excluded from the study. A thorough ophthalmic examination was done which included visual acuity measurement by Snellen's chart, slit lamp examination to evaluate anterior segment and fundus examination by IDO. Intraocular pressure was measured by non contact tonometry except in open globe injuries. The data collected included age, sex, place, date and time

of trauma and cause of injury. The data were finally analyzed statistically.

RESULTS AND DISCUSSION

In our study, out of total 310 patients, 83.87 % were males and 16.12% were females. The majority of patients belonged to the age group of 26-35 years (TABLE I). Our study showed that in the less than 15 year age group, a higher frequency of ocular trauma occurred at home, followed by school, play ground, and finally the street. This agrees with Kaimbo et al³ who stated that street and home-related injuries accounted for 54% of all ocular injuries. Wooden stick was the cause of injury in 15.20% of patients, followed by cricket ball (15.2%). This is in contrast to other studies done in African countries which stated that 25% of ocular injuries in children are from gunshots, 24.2% from tools, and 21.8% from assault which reflect the cultural and socio-economical differences between the countries.^[6] As specified by the previous studies our analysis too showed a male preponderance (Table II).^[2] The most common pattern of injury in the close globe category were Corneal foreign body, followed by subconjunctival hemorrhage and others (lens damage was seen in 16, hyphema in 27, retinal detachment in 5, vitreous

hemorrhage in 16 patients). Adnexal injuries formed 6.77% of the total cases and a few cases belonged to open globe injury (4.38%) (Table III)

Regarding the causes of ocular trauma, occupational injury formed the major cause (54.83%) followed by assault (11.61%). the reason for occupational injury being unprotected eye exposure during work (construction, welding) Table IV.

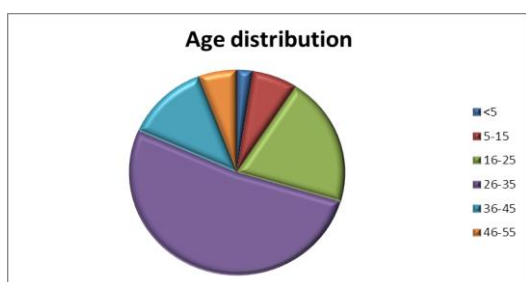
About 22% of the patients were brought to the hospital within 24 h of injury. 20.32% of the patients were brought to the hospital within 24-48 h of injury and 22.58% of the patients were brought within 48 h - 1 week. 17.74% were brought after 1 week of injury (TABLE V).

The patients with corneal foreign bodies underwent foreign body removal with needle and swab stick and were patched for one day with antibiotic drops and ointment and were given a course of topical antibiotic for a week. Those who had adnexal injuries were sutured, those with open globe injuries underwent repair with microsurgical techniques.

The majority of our patients presented with good vision (75%) (Table VI). This might be due to the reason that most of them were closed globe injuries and were brought to the hospital earlier and timely intervention was done. The cause for visual impairment <6/60 was due to retinal detachment, lens dislocation and corneal injury at visual axes. However, according to Omolase *et al.*^[4] 50.8% had a visual acuity ranging from 6/18 to 6/6, 32.6% <3/60. As per the study conducted by Iqbal *et al.*^[5] 81.1% had a visual acuity <3/60 and 12.2% had a visual acuity 6/60-6/18.

Table I: Age distribution.

	Number of patients	Percentage (%)
<5	7	2.258
5-15	20	6.451
16-25	60	19.354
26-35	153	49.354
36-45	37	11.935
46-55	17	5.483
56-65	16	5.161
>65	nil	
total	310	100



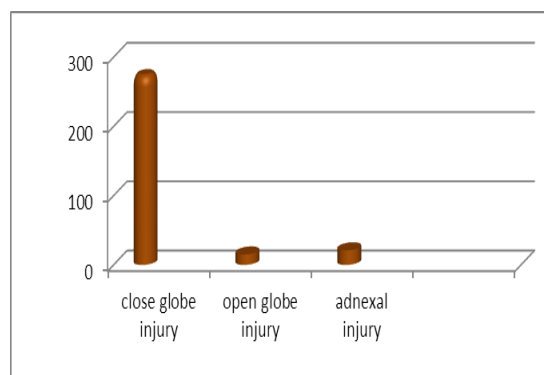
Graph I: Age Distribution.

Table II: Gender distribution.

AGE GROUP	Male	Female
<5	3 (0.96)	4(1.29)
5-15	12 ((3.87)	8(2.58)
16-25	42 (13.54)	18(5.80)
26-35	140 (45.161)	13(4.19)
36-45	33(10.64)	4(1.29)
46-55	15 (4.83)	2 (0.64)
56-65	15(4.83)	1(0.32)
>65	nil	Nil
Total	260 (83.87)	50(16.129)

Table III: Pattern of ocular trauma.

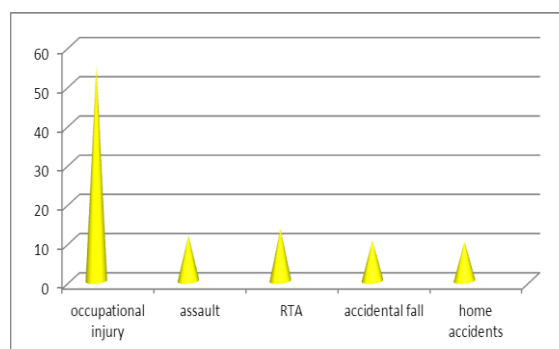
PATTERN OF TRAUMA	Number	percentage
Corneal foreign body (close globe)	143	46.12
Subconjunctival hemorrhage (close globe)	67	21.61
Others (close globe)	64	20.64
Lid lacerations (adnexal)	21	6.77
Open globe injury	15	4.38
Total	310	100



Graph Iii: Pattern of Ocular Trauma.

Table IV: Cause of ocular trauma.

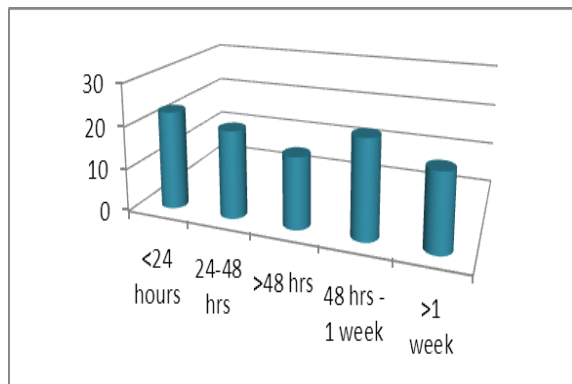
Cause	Number	Percentage
Occupational injury	170	54.83
Assault	36	11.61
RTA	41	13.22
Accidental fall	32	10.32
Home accidents	31	10
Total	310	100



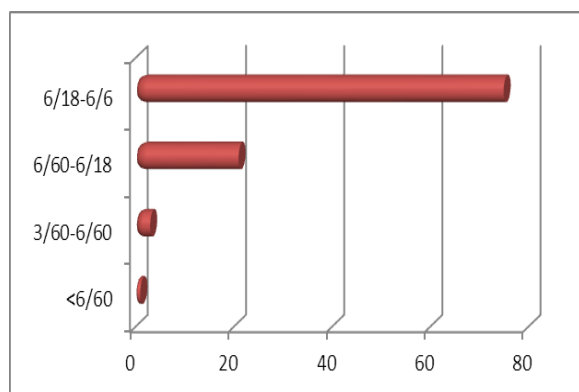
Graph IV: Cause of Ocular Trauma.

Table V: Duration of presentation.

	Number of patients	Percentage
<24 hours	71	22.90
24-48 h	63	20.32
>48 h	51	16.45
48 hrs to 1 week	70	22.58
>1 week	55	17.74
Total	310	100

**Graph V: Duration of Presentation.****Table VI: Visual acuity at presentation.**

VISUAL ACUITY	PERCENTAGE OF PATIENTS (%)
<6/60	1
3/60-6/60	3
6/60-6/18	21
6/18-6/6	75

**Graph Vi: Visual Acuity At Presentation.****CONCLUSION**

Our study shows a male preponderance and the most common age group being 26-35 years. The most common cause of ocular trauma is occupational injury followed by an assault which signifies that proper health awareness should be made among the workers employed and safety first aid kits must be made available at construction sites and factories. It is further concluded that injuries due to road traffic accidents may be averted by strict traffic rules. The urgent need for more ambulance services to bring the patients to the nearby hospital as soon as possible with health awareness

among the general public will also help mitigate the vision threatening injuries. Our data support the need for improving island health services by providing them with facilities and equipment which is necessary for urgent management of ocular trauma.

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