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RESEARCH ARTICLE

PROFILE OF OCULAR TRAUMA AMONG PATIENTS IN AND AROUND KOLAR ATTENDING A TERTIARY CARE HOSPITAL

***,[1]Dr. Jyotsna Sharma, [2]Dr. Krishnamurthy, [2]Dr. K. Kanthamani, [1]Dr. Preeti biradar, [1]Dr. Snehalata and [1]Dr. Dilip kumar**

[1]Post Graduate in Ophthalmology, Sri Devaraj Urs Medical College, Kolar
[2]Department of Ophthalmology, Sri Devaraj Urs Medical College, Kolar

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ABSTRACT

Purpose: 1) To analyze the clinical pattern - type of trauma, risk factors, circumstances, time gap between injury and presentation. 2) To assess the final visual outcomes
Methods: A total 250 patients of all age group with ocular trauma were included in the study. All patients fulfilling the inclusion criteria underwent ocular examination after taking informed consent. In all cases a detailed demographic history was taken including address their literacy status, occupation and financial status, cause of injury, and nature of circumstance. The ocular examination including visual acuity, slit lamp examination, a dilated fundus examination with direct ophthalmoscope and indirect examination with 90D lens was carried out. Cases had undergone a B scan to evaluate posterior segment. An Intra ocular tension was measured in all patients.
Results: Age –wise analysis showed that ¼ th (24.4%) of patients were in age group between 21-30 years and males outnumbered females by ratio of 3.6:1. RE was involved (48%), 117 cases LE was involved (46.8%). Both eyes were involved in 13 cases(5.2%).It was observed that highest incidence of blunt injuries was among students 91(36.4%) followed by business 38(15.2%) and manual labour 22 (8.8%) industrialist 16 (6.4%). Eyelid injuries are majority of the times associated with either closed or combined globe injuries hence accounting to 84.8% in present study.
Conclusion: Road traffic accidents under the influence of alcohol was the most common cause of ocular trauma. Most common object causing ocular trauma was foreign body and stone. Visual acuity at time of presentation and final outcome varied significantly. These patients can be educated about safety measures to prevent ocular trauma and its consequences and to undergo treatment at the earliest to prevent permanent blindness.

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INTRODUCTION

Ocular trauma is a major cause of monocular blindness and visual impairment throughout the world. Ocular trauma is an important, preventable public health problem worldwide. Half a million people in the world are blind as a result of ocular injuries. As reported in many studies, nearly 40% of monocular blindness is related to ocular trauma. (Thylefors, 1992; Negrel *et al*., 1990; Dana *et al*., 1990) In India, National Program for Prevention of Visual impairment and Control of Blindness reported 1.2% blindness due to injury. (Ahmed, 1993) These injuries can occur in almost any setting involving recreational and sport related activities, workplace, home, rural, agricultural setting and road traffic accidents. Presentation of ocular trauma may vary from minor injuries like subconjunctival hemorrhage to perforating injuries. According to a study by Gupta *et al.* (1982) it was observed that 1.16% of total blindness was due to ocular trauma while as per Dada *et al* study in 1984, 5.55% people were totally blind due to ocular trauma. (Dada *et al*., 1984)

Corresponding author: Dr. Jyotsna Sharma,
Post graduate in Ophthalmology, Sri Devaraj Urs Medical College, Kolar

MATERIALS AND METHODS

A total 250 patients of all age group with ocular trauma were included in the study. All patients fulfilling the inclusion criteria underwent ocular examination after taking informed consent.

Inclusion Critera

All patients with ocular trauma due to any cause, mode and type of injury

Exclusion Criteria

1. Eyes with pre-existing ocular morbidity like glaucoma
2. History of previous ocular surgery.
3. where clinical findings is of non-traumatic nature
4. Ocular injuries associated with head trauma

All cases a detailed demographic history taken including address, their literacy status, occupation and financial status. A detailed clinical history was also taken which included, cause of injury, and nature of circumstance. The ocular examination including visual acuity, slit lamp examination, a dilated fundus examination with direct ophthalmoscope and indirect examination with 90D lens was carried out. Cases with hazy media have undergone a B scan to evaluate posterior segment. An Intra ocular tension was measured in all patients except people presenting with open globe injuries. A gonioscopy exam was done for patients with closed globe injuries. All the details were recorded. The time gap between injury and surgical intervention noted and type, nature of surgery done and post-op details were documented. The cases were managed according to the nature of injury and severity. Day to day clinical observations were recorded of all admitted patients till discharge. Periodic follow-up was done at 1 week, 1 month, 3 months and 6 months.

Statistical analysis

data collected was tabulated and analysed using descriptive statistics like mean, standard deviation and proportion and confidence interval

RESULTS

Table 1. Frequency distribution of gender

Gender	Frequency	Percentage	Cumulative Percent
MALE	196	78.4	78.4
FEMALE	54	21.6	100.0
Total	250	100.0	

Table 2. Frequency table showing age distribution of patients with respect to gender

Age_Category * Sex Cross Tabulation			
	SEX		
Age group	No of Male (%)	No of Female (%)	Total
LESS THAN 20	42(21.4)	14(25.9)	56
21 to 30	50(25.5)	11(20.4)	61
31 to 40	47(24.0)	10(18.5)	57
41 to 50	24(12.2)	8(14.8)	32
51 to 60	25(12.8)	9(16.7)	34
61 to 70	7(3.6)	2(3.7)	9
MORE THAN 70	1(0.5)	0	1
Total	196	54	250

Table 3. Tabulation showing various causes of ocular injury

Cause of injury	Frequency	Percent	Cumulative Percent
Rta	100	40.0	40.0
Fb	17	6.8	46.8
Stone	17	6.8	53.6
Stick	14	5.6	59.2
Chemical	13	5.2	64.4
Fall	13	5.2	69.6
Thermal	7	2.8	72.4
Leaf	6	2.4	74.8
Ball	5	2.0	76.8
Mischellaneous	58	23.2	100.0
Total	250	100.0	

Table 4. Frequency distribution of nature of injury

Nature of injury	Frequency	Percent
Eyelid injury	214	85.6
Closed gobe injury	183	73.2
Open globe injury	58	23.2
Chemcial injury	13	5.2
Orbital injury	75	30.0

Calculation showing presenting visual acuity and final visual acuity after intervention

Vision impairment due to ocular trauma				
	Mean	N	Std. Deviation	Std. Error Mean
Presenting visual acuity	0.7139	228	.53007	.03510
Final visual acuity	0.2932	228	.31497	.02086

Table 6. Final Visual acuity

Visual acuity range	Frequency	Percent(%)	
6/6 to 6/18	191	76.4	Normal
<6/18 to 6/60	41	16.4	Visually impaired
<6/60 to 3/60	4	1.6	Severely visual impaired
<3/60 to 1/60	8	3.2	Blind
<1/60 to PL	1	0.4	Blind
NPL	5	2.0	Bilnd

DISCUSSION

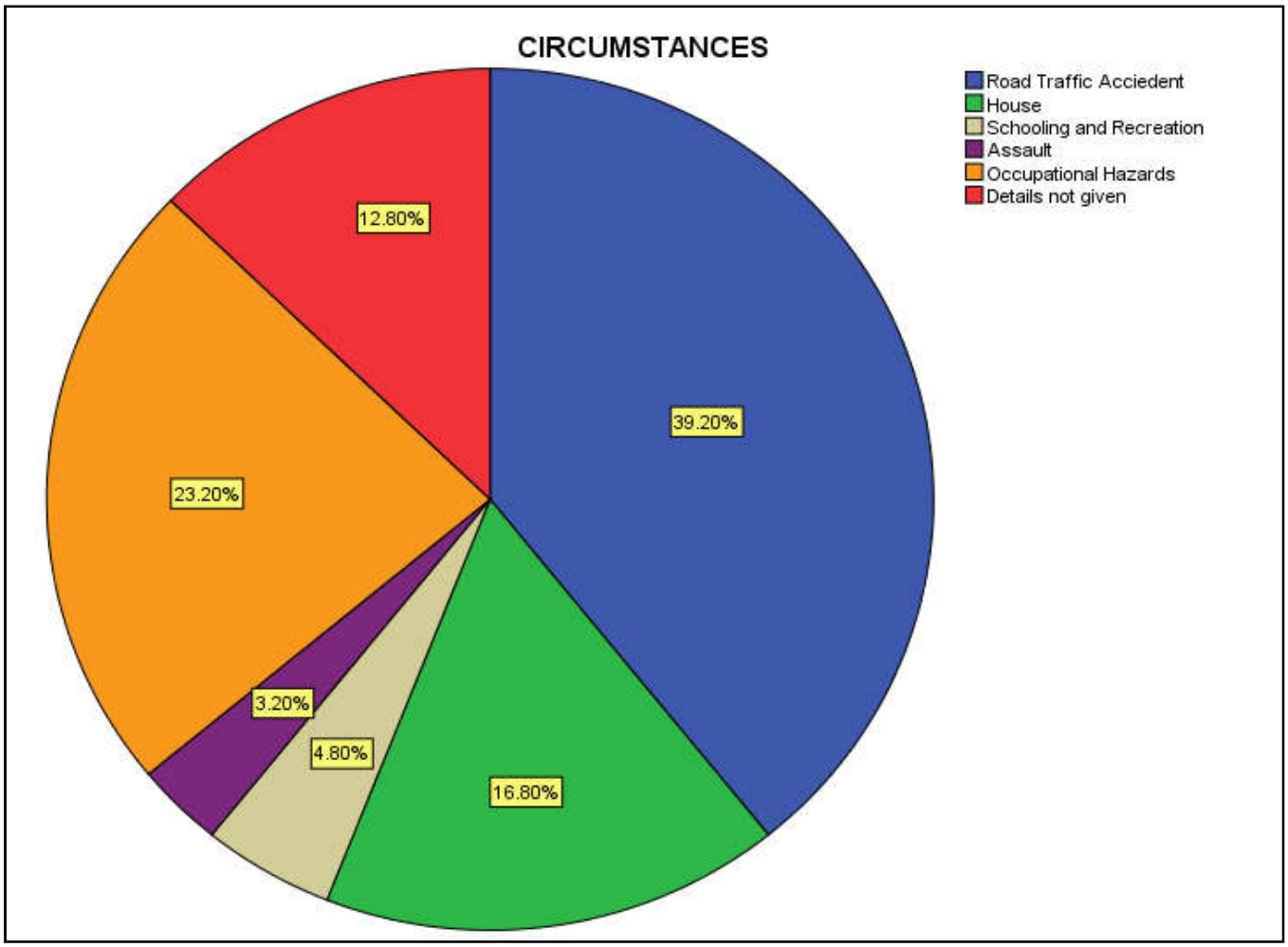
Study of ocular trauma and its management is paramount at current situation where it is said to be one of the most common cause for mono ocular blindness which is very easily amenable to prevent. But there is wide variation in clinical spectrum of ocular trauma between different regions, different countries and so the preventive measures.

Characteristics of Demographics and diagnosis

Age –wise analysis showed that ¼ th (24.4%) of patients were in age group between 21-30 years and males out numbered females by ratio of 3.6:1. Predominant male dominance is because of greater involvement in occupational outdoor activities, increased exposure to risk of road traffic accidents, recreational activities of youngsters.

Gender	Mohan *et al*.	Singh *et al*.	Khatry *et al*.	Our study
Males	71%	88.55%	65 %	78.4%
Females	29%	11.5%	35%	21.6%

Pie chart showing circumstances of injury



Both Age and gender were found to correlate with the susceptibility to ocular trauma. the mean age for ocular injury in this study was 33.2 years, which corresponds to most other studies in which a mean age of approximately 30 years has been reported. This is likely due to the work-related injuries. (Smith *et al*., 2006) Our referral institute is closely located to national highways and on other side poorly infrastructured transport in this rural dominated district is one of the cause for increased referral of RTA cases and hence the bulk number. Eyelid injuries are majority of the times associated with either closed or combined globe injuries hence accounting to 84.8% in present study. Injuries by chemical and isolated orbital injuries are relatively rare but serious injuries especially chemical injuries which usually presents with both eye involvement. Among 250 patients in 139 cases had eyelid contusion (14.4%) followed by laceration 75 cases (30%). According to Titiyal govind singh *et al.* adnexal injuries were present in 21.8% of cases. In our study eyelid and adnexal injuries accounted for 84.8% of cases and orbital injuries for 30% of cases, chemical injury for 5.2% of cases. According to Mohan Amit *et al*. chemical injuries were present in 5.4% of cases Closed globe injuries were accounted for 73.2% only after eyelid injuries. The injuries ranged from subconjunctival hemorrhage, conjunctival laceration to vitreous hemorrhage and retinal detachment. 54.4% had corneal injury with or without periobital soft tissue injury and 8.8% had lens damage in the form of traumatic cataract, subluxation and dislocation. Among 23.2% open globe injuries, scleral and corneal full thickness lacerations were more common. Posterior segment damage including vitreous hemorrhaage and retinal detachment were minor accounting for 0.8% & 3.6 % respectively. 5.2% of patients had succumbed chemical injuries and majority of them had both eye involvement. The road traffic accidents related injuries are very high grade and had mostly poor visual potentials irrespective of age and gender. Occupation related injuries constituted 2nd major cause of ocular trauma and they had poor visual acuity to begin with compare to domestic related injuries. In retrospective study by Salvatore Cillino *et al*. (2008) concluded that cause of injury differed significantly by gender and urban vs. rural location. Initial visual acuity was found to be correlated with final visual acuity. Sternberg P Jr, de Juan, studied factors predicting visual

outcome in 281 eyes that underwent primary repair of penetrating ocular injury, and found that in patients with initial visual acuities worse than 20/800, a laceration limited to the cornea was the best predictor of good visual outcome.

Conclusion

Majority of the cases were seen in the age group 21 to 30 years (43%) with a male (78.4%) and 21.6% were females. RTA accounted for majority of cases in our study 39.2%, followed by occupational hazard 23.2% motor vehicle accidents were the commonest cause for RTA. Most common object was foreign body and stone 6.8% in assault cases, stick 5.6%, chemical injuries and fall accounted for 5.2% of cases and injury at work places was mostly due to improper safety measures. These injuries can be prevented by use of safety goggles and helmets to avoid RTA and head and face Protectors can be particularly given to workers doing welding and sandblasting. Comparison of visual acuity at the time of presentation and after management showed statistically improved visual acuity in majority of cases. Adequate follow-up and awareness about need for timely surgical intervention is a must for better visual outcome. With meticulous management and prevention measures, the cause for monocular blindness can be limited

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