ORIGINAL RESEARCH PAPER

Volume-8 | Issue-6 | June-2019 | PRINT ISSN No. 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

A STUDY OF OCULO-TRAUMA PATTERN IN A TERTIARY CARE HOSPITAL IN NORTHERN INDIA – A CROSS SECTIONAL COMPARATIVE STUDY

Ophthalmology

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ABSTRACT

Introduction: Ocular injuries are very common and are of great variety and complexity. The individuals affected from ocular injuries often have to face a loss of career opportunities, lifestyle changes and occasionally permanent physical disfigurement. The direct and indirect cost of eye injuries to society and individuals is not only economical but also physical and psychological.

Aims and objective: To determine the pattern of ocular injury and prevalence of aetiological factor or causative factor.

Material and methods: This was a cross sectional comparative study. In our study 400 samples was collected, after completion of clinical examination patients divided into two groups, group 1 closed globe injury and group 2 open globe injury, find out the pattern of ocular trauma or injuries and prevalence of causative factor followed by hypothetical value and standard clinical case Performa and evaluate ocular injury pattern.

Results: In our study, the most common cause of closed globe ocular trauma was agricultural or farming activity (45%) higher comparatively followed by domestic violence (13.75%) and road side accident (5%) and closed globe injury(331) more common comparatively open globe injury(69). In our result p value obtained 0.000361 that's significant because it is <0.05.

Conclusion: It is recommended to use eye protecting gadgets and an eye over children in the homes while they were playing to prevent the accidental domestic injuries. Referral and hospital services should be strengthen enough to deal with emergency care in case of ocular traumas and aware to patients or individuals.

KEYWORDS

Ocular trauma, Penetrating eye injury, Open globe injury, Closed globe injury.

INTRODUCTION:

Trauma is an important cause of ocular morbidity. The pattern of ocular injuries tends to vary from one location to another and is affected by the activities of residents in a particular location.[1] Worldwide there are approximately 1.6 million people blind from eye injuries, 2.3 million bilaterally visually impaired and 19 million with unilateral visual loss; these facts make ocular trauma the most common cause of unilateral blindness.[2] Trauma to the eye and its surrounding structures remains a leading cause of visual morbidity and blindness. Many ocular traumas are an avoidable cause of blindness and visual impairment, [3] the individuals affected from ocular injuries often have to face a loss of career opportunities, lifestyle changes and occasionally permanent physical disfigurement. The direct and indirect cost of eye injuries to society and individuals is not only economical but also physical and psychological. [4] According to estimates by WHO, about 55 million eye injuries restricting activities for more than one day occur each year, 750,000 cases requiring hospitalization which includes 200,000 open globe injuries.[5,6] Ocular injuries can assume unusual social and economic importance involving a huge cost in human unhappiness, economic inefficiency and monetary loss. In view of public health importance, this study will provide information on magnitude and pattern of ocular injuries. It will serve as the basis for designing and implementing preventive measures.

AIMS AND OBJECTIVE:

Prevalence of ocular trauma pattern on the basis of open and closed globe injury in northern Indian people and find an associated factor that causes ocular trauma among individuals.

MATERIALS AND METHOD:

A cross sectional comparative study conducted in GCRG Institute of medical sciences and hospital. In our study 400 samples was collected from our emergency unit. In this study included age group 18 to 50 years old patient both gender, and all occupational patients, they were meeting an accident. Critical and unconscious cases were excluded. Patient was selected from emergency department recruited to department of ophthalmology, after complete examination. Our study period was two year (2016 to 2018) in this period direct or indirect patient included they were reported in department of ophthalmology or emergency unit, after reporting complete clinical examination was done followed by structured hypothetical format with hypo-value of considered point of examination (Table 1) i.e. filled by examiner. In this study our sample size was divided into mainly two groups on the basis of type of ocular injury, Group 1 (Closed globe injury) and Group 2 (Open globe injury). In this study determine the pattern of ocular trauma or injury and prevalence of accident in Bakshi ka Talab, Lucknow. This study was done by single calibrated examiner.

Table 1(Hypothetical value chart)

		No injury	Mild	Moderate	Severe	Present	Absent
Closed globe injury	Lammelar laceration	0	1	2	3	-	-
	Contusion	0	1	2	3	-	-
Open globe injury	Penetration	-	-	-	-	1	0
	Perforation	-	-	-	-	1	0
	Intra-o cular foreign body	-	-	-	-	1	0
	Ruptured	-	-	-	-	1	0
	Adenexal	-	-	-	-	1	0

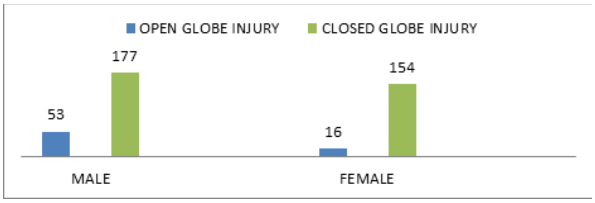
Data Collection:

A total of 400 participants were included in the study, which consisted of 230 male patients and 170 female patients. The study was carried out using a standardized Performa. The Performa consisted of following parts as mentioned in table 1. Questionnaire related to demographic profile, self-perceived questionnaire and third part consisted of clinical and eye examination.

Clinical Examination The examination was done by a single calibrated examiner. Sets of autoclaved instruments taken for the day-to-day examination. The examination was carried out under the natural light. The clinical examination was carried out to assess the ocular trauma by clinical experience.

STATISTIC ANALYSIS AND RESULTS:

Data was analyzed using the Statistical Package for Social Sciences (SPSS) version 14.0. Statistical significance was considered at $p < 0.05$. Descriptive statistics was done which provided the percentages. The statistical test applied was chi square 2x2 contingency tests. Total 400 patients was participated in this study in which 170 (34.282) female and 230 (39.216) male patients was taken. Age considered in this study 10 -70 years. In our study, considered two groups, Group 1 (closed globe injury) (n=331) and group 2 (open globe injury) (n=69).



Graph 1 division of sample on the basis of gender description and type of injury.

In graph 1, showing 53 and 16 open globe injury in male and female patients and 177 and 154 closed globe injury in male and female patients. So, 17.25 % patients suffered from open globe injury and 82.75 % suffered from closed globe injury.

Table 2- Results of chi square test

	Male	Female	Marginal Row Totals
Group 1(Closed globe injury)	177 (190.32) [0.93]	154 (140.68) [1.26]	331
Group 2 (Open globe injury)	53 (39.67) [4.48]	16 (29.32) [6.05]	69
Marginal Column Totals	230	170	400 (Grand Total)

Table 2 showing descrptive data of our sample in which group 1 has 177 male and 154 female patients consist and total marginal raw value is 331 and group 2 has 53 male and 16 female patients consist and total marinal row value is 69, chi square static calculation is 12.7251 and p value 0.000361 so p value < 0.05, significant result obtained.

Table 3 description of patients or sample on the bases of occupation

s. no.	Etiological factors	Number of patients	%
1.	Rural field or agricultural farming injury	180	45%
2.	Student class room injury	30	7.5%
3.	Domestic violence injury	55	13.75%
4.	Road side accidental	25	6.25%
5.	Other occupational injury	20	5%

As mentioned in table 3, among non-occupational injury (students housewife or home maker) 21.25% in which students 7.5% and housewife 13.75%, rural field or agricultural based injury higher i;e 75%, accidental and other occupational injury are 6.5% and 5%. In our result showing, common cause, rural field or agricultural activity in this area of ocular injury followed by house vialence and accidental injury. Closed globe injury in farmar or agricultural activitist most commom in this area so in which found males commonly affected ocular and closed globe injury occurse in villagers population.

DISCUSSION AND CONCLUSION:

In this study sample group 400 was taken in which male and female both gender inculded and divided into two group on the basis of type of ocular trauma group 1 closed globe injury and group 2 open globe injury, after completion of our study, result obtain i;e male (57.5%) affected more comparatively female (42.5%), on the basis of gender descriptive result simillar to parmar IPS et al 1985, According to their study, males (76.01%) were more frequently affected than females (23.99%) [1] In our study, among non-occupational injury (students, housewife or home maker) 21.25% in which students 7.5% and housewife 13.75%, rural field or agricultural based injury higher i;e 75%, accidental and other occupational injury are 6.5% and 5%. On the basis of our result that's not similar to Parmar et al 1985 because according to their study, among non-occupational injuries (61.74%), those occurring due to playing and sports among children were the main etiological factor (33.67%). In occupational injuries (38.26%), those occurring during agricultural activities (19.9%), were most common followed by industrial accidents (12.24%). Cornea was the most affected part of eyeball (47.6%) followed by iris injury (32.64%).[1] In our study road traffic accident less common cause of ocular injury, in this area agricultural related ocular in jury is most common followed by house violence and accidental causes that's not similar to previous study held by Govind singh tatiyal et al 2013.[6] In this study closed globe injuries were found to be more common accounting for 331 (82.75%) patients than open globe injuries which accounted for 69(17.25%) patients, as according to our study closed globe injury higher than open globe injury, that's similar to Asaminew T et al 2009, showed closed globe injuries (45.4%) were encountered more than open globe injuries (22.7%).[7] Among the causes of injury, road traffic accidents accounted for maximum number of cases followed by sports, playing and recreational activities which accounted patients and occupation related and others like domestic accidents, violence related were other identified causes. Study of JUDO showed commonest causes of injury were violence related of the documented causes,[7] but in our stud most common cause agricultural activity followed by domestic or house violence. In most previous studies work-related injuries were reported to be the commonest cause of eye injuries in adults. This finding is supported by our study which shows that most of the injuries occurred during farming activities.[8,9]

After completion of our study we concluded and summarized male individuals more affected, by farming or agricultural field work due to lack of awareness or education. Most patients sustained blunt eye injury and only few of them required admission. A sizeable proportion of patients presented within 24 hours after injury. Occupation and the anatomical site of injury significantly affected the time of presentation. Awareness programme should be arranging in villages or schools and brief them how to protect your eyes and first aid eye treatment for ocular injury.

ACKNOWLEDGEMENT:

We are grateful to the respondents for accepting to participate in this study. Support by the Management of GCRG Institute of medical sciences, Lucknow hereby acknowledged.

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