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An Examination of the Ocular Signs of Blunt Eye Injuries in a Prospective Research

Dr. Muhammad Bilal[1]
MBBS FCPS Assisstant Professor
Ophthalmology

Dr. Shafqat Ali Shah[2*]
MBBS FCPS Ophthalmology Associate Professor
Bkmc MTI MMC

Dr. Muhammad Tariq[3]
MBBS FCPS HOD Opthalmology Bkmc MTI MMC

Dr. Maleeha Safdar Ali[4]
MBBS Ophthalmology Fellowship LRH

Dr. Saad Ali[5]
MBBS FCPS-II Medicine
Bkmc-MMC/MTI

Dr. Irsa Hidayat[6]
MBBS Training Registrar Clinical Hematology
Bmtc-CMH RWL

Dr Ammad Ali[7]
MBBS D-Derm, D-Aesthetic Medicine KMU

Corresponding Author:- Dr. Shafqat Ali Shah

Abstract:-

➢ ***Objective:***

To assess how employment status affects the occurrence of ocular complaints. Study the relationship between the emergence of ocular symptoms and a history of RTA and assault. If any ocular signs of sports injuries are present along with them.

➢ ***Materials and Method:***

The Department of Ophthalmology at Mardan Medical Complex recruited 161 patients with traumatic eye damage between January and December 2023 for this prospective interventional study. Measurements of visual acuity, slit-lamp exams, ophthalmoscopies, and further diagnostic procedures such X-rays, fluorescein staining, and imaging were carried out. Inclusion criteria excluded chemical and sharp-instrument injuries and encompassed all blunt eye injuries in outpatient and casualty departments. Demographic data, injury details, and symptom information were all collected. SPSS version 24 was used for the statistical analysis, and chi-square tests for ocular symptoms were used.

➢ ***Results:***

With 58.4% male and 41.6% female patients, the analysis showed that the gender distribution had a balanced proportion. A higher absence of occupational correlations was seen in terms of occupation (83.2%). In contrast to sports trauma, which was present in only 6.2% of cases, a history of RTA and assault was reported by 55.3% of patients.

➢ ***Conclusion:***

A history of RTA and assault has a strong correlation with ocular manifestations, although gender and employment status do not seem to have a major impact. Ocular symptoms were noticeably more common in patients with this history. However, there was a weaker and non-statistically significant correlation between sports trauma and ocular symptoms. These findings shed light on the variables influencing ocular involvement in this patient. Our comprehension of the complex interactions between societal conditions and ocular manifestations should be furthered by more study with larger sample sizes and more variables.

Keywords:- *Ocular Injury, Morbidity, Blindness, Direct Ophthalmoscopy, Indirect Ophthalmoscopy.*

I. INTRODUCTION

Blunt trauma is one of the main causes of ocular morbidity and blindness, and ocular damage is a serious health issue. Minor and serious blunt injuries are often caused by children playing, young men working in factories and construction sites, roadside falls, high-speed driving and traffic accidents, sports injuries, falls with projecting harsh items, and agriculture-related injuries in rural settings like ours[1]. A recent meta-analysis of data from 20 population-based studies revealed an annual prevalence of eye damage of 7.5 per 100 people and eye injury-related vision impairment of 4.5 per 1000 people[2]. An annual incidence of 1.99 per 100,000 people for primary corneal or sclera closure and 0.39 per 100,000 people for intraocular foreign body (IOFB) removal were recorded in the Korean National Health Insurance claims database[3]. Many open globe injury (OGI) patients eventually have poor eyesight or no vision

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after treatment. These limits affect their quality of life, psychological suffering, and mental health in addition to limiting their ability to do visual tasks[4-6]. To identify factors and/or models for forecasting eye injury-related visual outcomes, research has been conducted[7]. Ocular trauma has higher lifetime prevalence than conditions like glaucoma, age-related macular degeneration, or diabetic retinopathy. Ocular trauma accounts for about 75% of all ocular crises, making it by far the most frequent form. Over 500,000 people worldwide lose some or all of their vision due to ocular trauma every year, and young males are the most common victims[8-9]. The pattern, traits, and visual outcomes of OGI in each geographical place should be updated in light of the shifting trends in everyday behaviors. Knowing the circumstances of an injury, its type, and the harm it has done can help with early management and the recommendation of preventative actions.

II. METHODOLOGY

After receiving ethical approval, the Department of Ophthalmology at the Mardan Medical Complex carried out a prospective interventional study. The study included a total of 161 patients who had treatment at the Ophthalmology Department between January 2022 and December 2022 after suffering blunt trauma. Slit-lamp examinations, indirect ophthalmoscopy, direct ophthalmoscopy, visual acuity measures using the Snellen chart, and other thorough evaluations were performed. An assortment of diagnostic procedures, including X-ray orbit, fluorescein staining, lacrimal probing, syringing, gonioscopy, B-scan ultrasonography, CT scan, and MRI scans, were performed on a group of patients. According to predetermined inclusion criteria, the study included all cases of blunt eye injuries reported to MMC's outpatient and casualty departments. Cases involving chemical injuries were disregarded, and the study's focus did not extend to injuries brought on by sharp objects (penetrating, perforating). Patients with severe wounds needing quick attention from other specialists were also disqualified. The ophthalmology department's outpatient and inpatient populations were used to choose the research participants, who were primarily those with a history of blunt eye injuries to either one or both eyes. When patients with blunt eye injuries sought medical attention, the casualty department sent them. Age, gender, occupation, length of injury, force of impact, and following symptoms were all included in the comprehensive demographic data that was gathered. Following a thorough examination that included the use of torchlight, visual acuity tests were performed using the Snellen chart and, when appropriate, ophthalmoscopy. Slit-lamp examinations were done in all cases, and gonioscopy was carried out in the majority of patients, with the exception of cases where subconjunctival bleeding, severe lid injury, corneal injury, or edema hindered its execution. Using a non-probability sampling method and SPSS version 24, the collected data were examined. Chi-square analysis was used to investigate relationships in the dataset linked to ocular symptoms. The study fosters insights that may help to guide clinical practice and patient treatment methods by building a thorough understanding of the effects of blunt trauma on the eyes.

III. RESULTS

- *Total 161 Enrolled Patient's Data was Analyzed. the Following are Results*

Table 1 Gender Frequency and Percentages

Gender	Frequency	Percentage
Male	94	58.4%
Female	67	41.6%
Total	161	100%

Table 2 Variables with their Details

Variables		Frequencies	Percentages
Occuational	Present	27	16.8%
	Absent	134	83.2%
Rta & assualt	Present	89	55.3%
	Absent	72	44.7%
Sports trauma	Present	10	6.2%
	Absent	151	9.38%

Table 3 Variables Versus Ocular Manifestations

Variables		Ocular Manifestations			P-value
		Yes	No	Total	
Age group	Less than 20 yaer	42 56%	33 44%	75 100%	0.641
	Greater than 20 year	45 52.3%	41 47.7%	86 100%	
Gender	Male	52 53.3%	42 44.7%	94 100%	0.69

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	Female	35 52.2%	32 47.8%	67% 100%	
Occupational	Present	12 44.4%	15 55.6%	100%	0.274
	Absent	75 56%	59 44%	134 100%	
Rta & assault	Present	71 79.8%	18 20.2%	89 100%	0.00
	Absent	16 32.3%	56 77.8%	72 100%	
Sports	Present	7 70%	3 30%	10 100%	0.287
	Absent	80 53%	71 47%	151 100%	

IV. DISCUSSION

As per Table 1, there were 94 individuals (58.4%) in the male population and 67 individuals (41.6%) in the female population throughout our inquiry. Table 1 shows the gender distribution of the patients, showing that 41.6% of them were female and 58.4% of them were male. Even while there is a clear male predominance, the difference is not great enough to significantly affect ocular manifestations. Table 2 displays the frequencies and percentages of a number of variables, including occupation, past history of assault and road traffic accidents (RTA), and sports trauma. 55.3% of the cases had a history of assault and/or RTA, while 83.2 percent of the patients had no association with their work. Sports trauma was reported by 6.2% of patients, which is a lower frequency. Of the 151 people (93.8%) who did not have sports trauma, 10 people (6.2%) said they had (see Table 4).[10] Table 3 shows that 89 people (55.3%) had both RTA and assaults. Age and ocular symptoms did not statistically significantly correlate, according to the study (p=0.641). The percentage of visual symptoms was similar in the under-20 and over-20 age groups, suggesting that ocular involvement may not be reliably predicted by age. The presence or absence of visual indicators did not seem to be directly related to a patient's professional affiliation. Numerous articles reported varying variables and circumstances related to injuries. While a study conducted in central India revealed that young workers from industrial jobs had the most injuries, a study conducted in rural West India discovered that young workers injured most frequently were those struck by flying stones or wooden sticks while working in agriculture[11-12]. Sports trauma was stratified in relation to ocular manifestation, and Table 9 shows that there was no statistically significant difference (p=0.287). Twelve (44.4%) of the 27 individuals with profession-related trauma showed ocular manifestations, while fifteen (55.6%) did not, according to a stratification of occupation versus ocular manifestations. Tables 2 and 7 show that this difference was not statistically significant (p=0.274). In a recent multicenter study, differences in mechanisms, settings, and causes of ocular trauma were observed by region. In a similar vein, Beshay et al. found that most cases affected middle-aged adults who were exposed to metallic items moving at a fast speed. Sports trauma and visual symptoms did not statistically significantly correlate (p=0.287)[13-14]. Ocular symptoms were more common in patients with sports-related damage, although there was no meaningful correlation between the two. 71 (79.8%) of the 89 patients with only trauma, according to a classification of the practice against trauma, experienced RTA, while the remaining patients did not. On the other hand, 56 individuals, or 77.8%, did not exhibit any ocular symptoms in the absence of trauma. Table 8 shows that this difference was significant (p = 0.000).

V. CONCLUSION

The findings of the study imply that past RTA and assault may have a major impact on ocular symptoms. Other factors like age, gender, and employment level did not show any particularly substantial correlations with ocular participation. It is crucial to remember that while though statistically significant relationships were occasionally discovered; additional study, larger sample sizes, and multivariate analyses may offer a more thorough understanding of the variables affecting these individuals' ocular symptoms. Early referral, prompt evaluation, and effective treatment will lessen the problems in certain situations that could compromise one's vision. Ocular trauma is a severe eye condition that affects people of all ages. Ocular trauma is more frequently caused by attacks and traffic accidents than by sports or work-related activities. The government should apply the appropriate sops on all elements contributing to trauma by taking the necessary steps.

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