ORIGINAL RESEARCH PAPER

Ophthalomology

KEY WORDS:

EPIDEMIOLOGICAL PATTERNS OF OCCUPATIONAL EYE INJURIES IN A TERTIARY CARE CENTER IN CENTRAL INDIA: AN OBSERVATIONAL STUDY

Dr Trisha Yadu PG Resident, Department of ophthalmology, MGMMC and MYH, Indore

Dr Preeti Rawat Professor, Department of ophthalmology, MGMMC and MYH, Indore

INTRODUCTION

Occupational ocular trauma is one of the significant cause of preventable blindness worldwide which in itself carries a major socioeconomic impact.[1]

Being one of the common cause of emergency ophthalmic visits, more than 65,000 workplace-related eye injuries are reported to have been causing absenteeism from job in the United States annually. High risk occupations include fabricators, equipment operators, labourers and repair workers with increasing trend of thermal and chemical eye injuries.[2]

In India where 17.7% of world's population reside approximately 2000 ocular injuries occur at workplace daily and about 10%–20% of those injuries result in permanent and temporary vision loss.[3] As the incidence of ocular injuries varies by population, it is necessary to carry out epidemiological studies in every region.

This study analyses epidemiological patterns of workplace related ocular trauma presenting to a tertiary eye care centre based in central India, while providing valuable information for further development of effective prevention strategies.

MATERIAL AND METHODS

This was a prospective observational study done in department of ophthalmology in MGMMC and MYH, Indore. This study recruited 446 patients from the period of August 2021 to April 2022.

Inclusion criteria was patients with ocular injury presenting to emergency and outpatient departments in our hospital who gave proper consent for examination and follow up, patients who were travelling during working hours (food/ mail delivery professionals) were also included.

These patients underwent a face-to-face interview, comprehensive ocular examination by trained medical professionals, using a structured questionnaire, demographic characteristics, mode of injuries, details of the injury, clinical findings and treatment received were recorded in Microsoft Excel and data was analysed using descriptive statistics.

RESULTS AND OBSERVATIONS

From January 2021 to August 2021, 446 patients were treated for ocular injury at our tertiary eye care centre. 60 patients were recorded as occupational eye injuries. Amongst the subset of 60 patients, there were 56 men and 4 women. Mean age of 31.16 +/- 10.16 years.

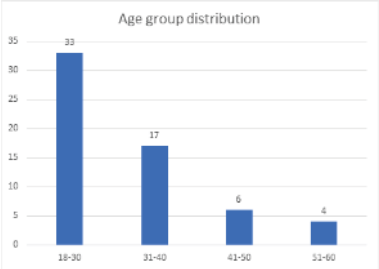
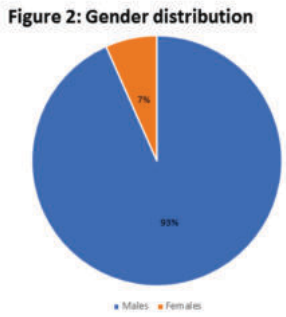


Figure 1: Age Group Distribution In Workplace Ocular Trauma



Majority of these patients fell in younger age group, larger cohort belonging to the age group of 18-30 years of age (Figure 1). Overall work related eye injuries were significantly higher in males as compared to females (Figure 2).

Majority of the work place injuries were mechanical injuries due to "Rubbed and abraded foreign body in the eye" (48.33%) Followed by orbital contusions due to motor vehicle accident while driving. Chemical injuries accounted for 10% of total work place related eye trauma in our study.

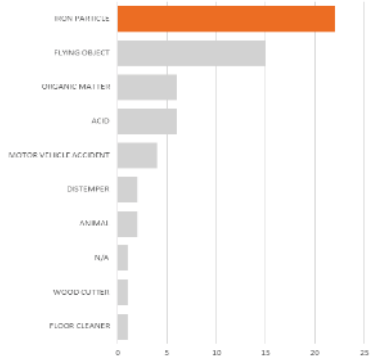


Figure 3- Objects Causing Ocular Injuries At Workplace

Foreign body in the eye was majorly accounted by "chisel-hammer injury" (36.66%) with superficial foreign body (iron-particle). Followed by "flying objects" (16.66) while driving to work place which was commonly seen in food delivery agents. Out of the samples studied 85% were mechanical injuries and 15% accounted as chemical injuries.

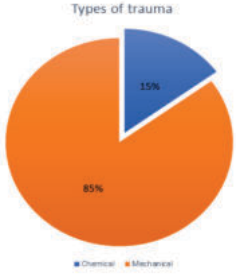


Figure 4: Chemical Vs Mechanical Eye Injuries At Workplace

Anterior segment was the most commonly affected segment in workplace related eye injuries closed globe injuries were most common type.

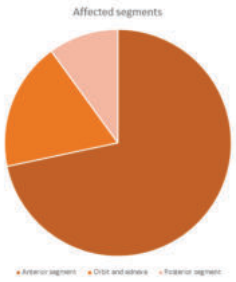


Figure 5 : Segments Affected In Eye Injuries At Workplace

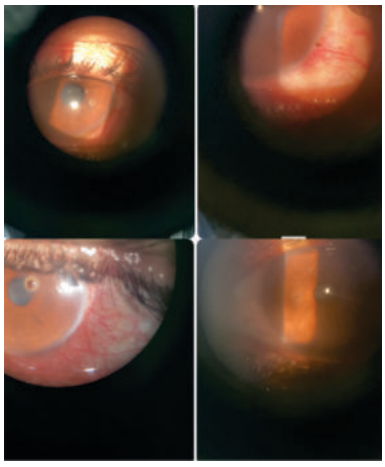
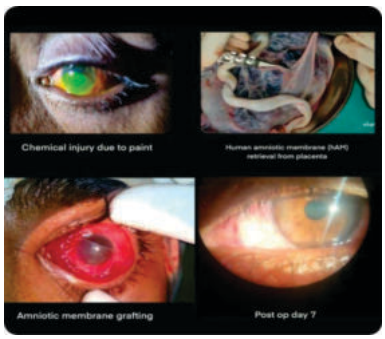


Image 1: Different Types Of Flying Particles/ Metallic Foreign Bodies Causing Superficial Epithelial Defects



Imgae 2 : Chemical Injury Due To Paint, Treated Using Amniotic Mebrane Grafting

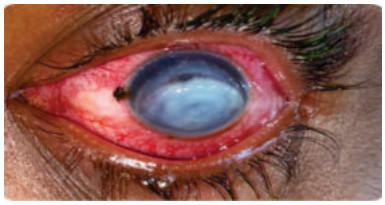


Image 3 : Adherent Leucoma Due To Corneal Perforation Via Iron Nail While Working At Mechanic Shop

DISSCUSSION

Occupational eye trauma results in economic losses for industry as it affects a considerable amount of workers along with their families. Despite availability of multiple pharmacological and surgical options, results for visual function rehabilitation remains unsatisfactory. [4] Although majority of occupational eye injuries were considered minor, ocular trauma still remains an important cause to loss of vision, ranking after cataract, glaucoma, and trachoma. Unlike blindness due to any other cause, majority of loss of vision caused due to ocular trauma is preventable by using simple eye protective measures.[5]

In our study, younger age group with male gender identified as risk factors for occupational eye trauma which required immediate medical attention. This furthermore points towards a focus on young workers and to educate them regarding use of protective eye wears, for example, while driving a 2 wheeler and while doing grinding/welding work. Majority of these injuries affected the anterior segment of the eye which with the proper management and follow up provided with better visual rehabilitation in most of the patients.

CONCLUSION

Our demographic study identifies the high risk age group and the factors causing preventable decrease in visual acuity in Central India amongst cohort of occupational workers while providing preventive steps towards it.

REFERENCES

1. Cai, Mingming, and Jie Zhang. "Epidemiological Characteristics of Work-Related Ocular Trauma in Southwest Region of China." International Journal of Environmental Research and Public Health 12, no. 8 (August 19, 2015): 9864–75.
2. Brophy, Megan, Sara A. Sinclair, Sarah Grim Hostetler, and Huiyun Xiang. "Pediatric Eye Injury–Related Hospitalizations in the United States." Pediatrics 117, no. 6 (June 1, 2006): e1263–71.
3. Hoskin, Annette K., Swetha S. Philip, Anne-Marie E. Yardley, and David A. Mackey. "Eye Injury Prevention for the Pediatric Population:" Asia-Pacific Journal of Ophthalmology 5, no. 3 (May 2016): 202–11.
4. Kuckelkorn, Ralf, Alexander Kottek, Norbert Schrage, and Martin Reim. "Poor Prognosis of Severe Chemical and Thermal Eye Burns: The Need for Adequate Emergency Care and Primary Prevention." International Archives of Occupational and Environmental Health 67, no. 4 (August 1995): 281–84.
5. Saari, K. M., and V. Parvi. "OCCUPATIONAL EYE INJURIES IN FINLAND." Acta Ophthalmologica 62, no. S161 (May 28, 2009): 17–28.
6. Xiang, Huiyun, Lorann Stallones, Guanmin Chen, and Gary A Smith. "Work-Related Eye Injuries Treated in Hospital Emergency Departments in the US," n.d., 6.