

Epidemiology and Spectrum of Occupational Eye Injuries at a Tertiary Hospital in Goa

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ABSTRACT

Introduction: Every year around 5,00,000 individuals lose sight as a result of work related eye injuries. The following study was conducted to study the profile of work related ocular injuries presenting at a tertiary care hospital in Goa.

Material and methods: A longitudinal hospital-based study was conducted at the Department of Ophthalmology at Goa Medical College and Hospital in the one year time period between September 2014- August 2015; whereby 54 consecutive patients who presented with work-related eye injuries were included in the study. Detailed history and clinical examination findings were entered in a pretested proforma. SPSS version 22 and expressed as simple percentages and proportions.

Results: the incidence of work-related eye injuries in our study during a one year period was 10.8%, most common victims were males in the productive age group of 21-40 years. Most patients were industrial workers (50%) followed by agricultural workers (25.92%), construction workers (18.51%), carpenters (3.70%) and fishermen (1.85%). Most common injury that was observed among the study participants was a conjunctival or corneal foreign body (44.44%) followed by open globe injuries (31.48%) and closed globe injuries (14.81%). 9.25% participants sustained chemical injuries. 90.74% participants did not reportedly wear any protective device at the time of injury.

Conclusion: work related eye injuries were most common among males in the productive age group. Majority of the victims were not wearing protective eye-wear at the time of the injury. Hence there is a need to create awareness about the need for protective devices at work place along with proper lighting and training programs for the workers.

Keywords: work-related eye injuries, Goa.

INTRODUCTION

Ocular injuries constitute a very important cause of ocular morbidity especially in developing countries like India.¹ A large proportion of ocular injuries are as a result of injuries sustained at work place and work related eye injuries. It has been estimated that every year around 5,00,000 individuals lose sight as a result of work related eye injuries.² Majority of these injuries are seen affect men in their productive age group,^{3,4} thus causing a large socio-economic burden on our society. It is noteworthy that 90% of work related eye injuries are preventable with basic safety measures.⁵ The following study was conducted to study the profile of work related ocular injuries presenting at a tertiary care hospital in Goa.

MATERIAL AND METHODS

A longitudinal hospital-based study was conducted at the Department of Ophthalmology at Goa Medical College and Hospital in the one year time period between September 2014- August 2015; during which 54 consecutive patients who presented to the Department with work related eye injuries were studied.

Institutional Ethics Committee approval was obtained before the commencement of the study. Informed consent was obtained from all the study participants or from the closest relatives in instances where the patients were not in a condition to give consent themselves. The details obtained were entered into pre-tested structured proformas which included the demographic data, history and findings of clinical examination (visual acuity, slit-lamp examination, intra-ocular pressure and fundoscopy. Wherever indicated, B-scan ultrasonography and CT scan were also requested for). The plan of further action was also noted down for each patient. All patients were followed up at day 1, at the end of 1 week, 3 weeks and 6 weeks. Patients who had associated life threatening injuries were excluded from this study.

RESULTS

A total of 54 patients presented to the Department of Ophthalmology Goa Medical College and Hospital with work related eye injuries during the study period. Majority of the participants i.e. 22 (40.74%) belonged to the productive age group between 21-40 years, 13 (24.07%) were aged 20 years or less, 12 (22.22%) were between 41-60 years and only 7 (12.96%) were aged over 60 years of age [Figure 1]. Majority i.e. 47 (87.03%) patients were males and only 7 (12.96%) were females.

Most patients were industrial workers (50%) followed by agricultural workers (25.92%), construction workers (18.51%), carpenters (3.70%) and fishermen (1.85%) [Table 1].

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Nature of work	Number	Percentage (%)
Industrial workers	27	50
Agricultural workers	14	25.92
Construction workers	10	18.51
Carpenters	2	3.70
Fishermen	1	1.85
Total	54	100

Table-1: Occupation-wise distribution of patients

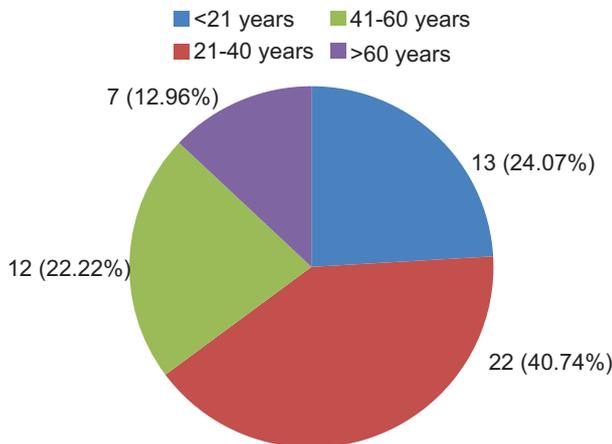


Figure-1: Age-wise distribution of study participants

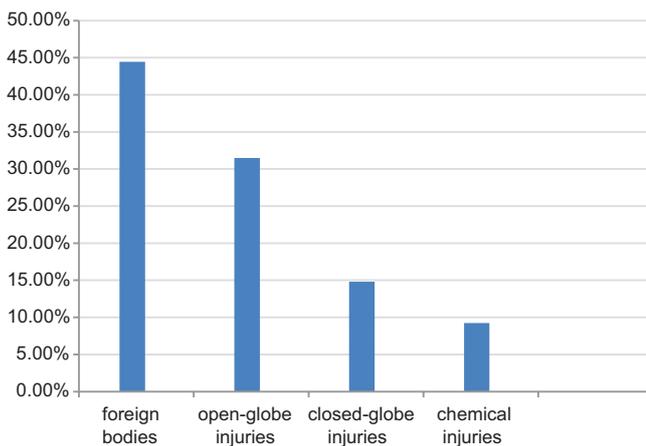


Figure-2: Distribution of ocular structures involved

Most common injury that was observed among the study participants was a conjunctival or corneal foreign body (44.44%) followed by open globe injuries (31.48%) and closed globe injuries (14.81%). 9.25% participants sustained chemical injuries [Figure 2]. 90.74% participants did not reportedly wear any protective device at the time of injury.

DISCUSSION

Work related eye injuries are a very important cause of avoidable blindness in India. It is also the most common cause of acquired monocular blindness in industrialized countries.⁶ These injuries could be easily avoided by simple protective measures and care on the part of the workers.

The incidence of occupational eye injuries in our study was 10.8% (54 out of total 500 ocular injuries that presented to the tertiary hospital during the one year study period). We noted that most i.e. 47 (87.03%) injuries were among males. India is a male dominated society and majority of

the workers in industries, agriculture and construction are males. Our findings correlate with the findings of Kundu et al⁷ in a similar study in Eastern India where majority of the participants were males. Similar studies in other countries by Kanoff et al⁸ and Bauza et al⁹ revealed comparable findings. Most i.e. 22 (40.74%) patients were aged between 21-40 years of age. This finding was consistent with those reported by Kundu et al.⁷ The lesser number of patients older than 40 years could be due to the fact that they had more work experience, are better trained and over the years had learnt the importance of protective measures, besides being mature adults.

It is seen that males in the productive age group of 21-40 years were the most common victims of work related eye injuries. This not only results in loss of work days and earnings for the victims and their families, but is also affects productivity, thus placing a burden on our Nation’s economy. Among 57 patients with work related eye injuries, half i.e. 27 (50%) worked in manufacturing industries, followed by agricultural workers 14 (25.92%), construction workers 10 (18.51%), carpenters 2 (3.70%) and fishermen 1 (1.85%). Similar findings were noted by Kundu et al⁷ in their study. An important reason for this could be the proximity of the tertiary care hospital to many industrial estates as well as agricultural areas, due to which most patients from these areas seek medical assistance directly at the tertiary Hospital. A study conducted in Delhi by Vats S et al¹⁰ showed that there is no sector whose employees are immune to the risk of eye injuries.

Out of these injuries 24 (44.44%) patients had conjunctival or corneal foreign bodies while 17 (31.48%) patients had open globe injuries, 8 (14.81%) had closed globe injuries and 5 (9.25%) had chemical injuries. These findings are similar to those reported by Kanoff et al⁸ where intraocular foreign bodies and penetrating injuries were the most commonly encountered forms of work-related eye injuries.

More than half the patients i.e. 30 (55.55%) were managed conservatively with medical management, 20 (37.03%) underwent surgical management and only a small number i.e 4 (7.40%) had to be referred to a higher center for further management. Among the patients who needed referral were three patients who had developed traumatic retinal detachments and one patient with optic nerve avulsion.

A large majority of 49 (90.74%) patients were not reportedly using protective eye-wear at the time of injury. It has been suggested by many similar studies in the past that 90% of work related eye injuries could be prevented by simple protective measures and good training programmes.^{10,11} The high prevalence as well as the preventable nature of these ocular injuries makes them a very important public health issue which is often neglected by the workers as well as the employers. Hence it is important to identify the factors which are associated with these injuries so that necessary corrective measures can be undertaken. There is a need for proper training programs for the workers in using a particular tool or machinery. At the same time they have to be made aware of the importance of using safety measures such as

protective eye-wear and head gear. Proper lighting should be ensured at the workplace.

CONCLUSION

There also has to be a compulsory annual eye examination for all the workers so that low vision can be identified at the earliest and necessary treatment given. All these measures will prevent and reduce the number of work related eye injuries and will also reduce then number of loss of work days and enhance productivity of the Nation.

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