



OCULAR INJURIES AMONG AGRICULTURAL WORKERS ATTENDING A TERTIARY CARE CENTRE IN MANDYA, KARNATAKA - A CROSS-SECTIONAL STUDY

Dr Monisha K*

Post Graduate Student, Department of Community Medicine, Mandya Institute of Medical Sciences, Mandya. * Corresponding Author

Dr Vidhya M Kurup

Post Graduate Student, Department of Ophthalmology, Mandya Institute of Medical Sciences, Mandya.

Dr Keerthana S

Post Graduate Student, Department of Ophthalmology, Mandya Institute of Medical Sciences, Mandya.

Dr Dayana Rose Joseph

Post Graduate Student, Department of Ophthalmology, Mandya Institute of Medical Sciences, Mandya.

ABSTRACT

Background: Occupational injuries, especially those affecting the eyes, which put agricultural workers at high risk. In developing countries like India, where the problem is made worse by a lack of knowledge about eye protection. **Material and Methods:** This facility-based study aimed to assess the incidence, causes, and severity of ocular injuries among agricultural workers visiting a tertiary care hospital in Mandya. **Results:** Among 23 agricultural workers with eye injuries were enrolled, majority (73.9%) were males, with a mean age of 52.91 ± 10.4 years. The leading cause of injury was plant/branch-related trauma (34.8%), with corneal abrasions and foreign body injuries being the most frequent types (30.4% each). Moderate injuries were seen in 78.3% of cases, while 8.7% had blindness. **Conclusion:** This study highlights the necessity for public health advocacy directed at agricultural workers for the use of eyeglasses.

KEYWORDS : Ocular injuries, Agriculture, Eye injuries

INTRODUCTION

Agriculture plays a vital part in India's economy. According to Census 2011, Agriculture and its related industries employ 54.6% of the labour force.¹ Nevertheless, it is also linked to a high rate of occupational injuries, especially those affecting the eyes, which put agricultural workers at high risk. Research shows that eye injuries from agriculture are common, particularly in developing countries like India, where the problem is made worse by a lack of knowledge about eye protection. The use of sharp equipment, exposure to chemicals like pesticides, and environmental hazards like dust and debris are merely some of the risks that come along being employed in agriculture. Crop processing by hand increases these hazards by increasing the possibility of plant material damage. For example, studies have revealed that farmers frequently sustain superficial corneal abrasions, which are frequently caused by contact with vegetative matter. If left untreated, these abrasions can culminate in serious problems including fungal corneal ulcers and microbial keratitis.^{2,3}

The objective of the present study is to assess the incidence of eye injuries among agricultural labourers who visit a tertiary care facility and to get a better understanding of the underlying causes of these injuries. The ultimate goal of this research is to lessen the burden of ocular morbidity among people who are essential to maintaining food production in India and to help raise occupational health standards.

METHODOLOGY

Study Design: Facility-Based Surveillance Study.

Study Period: 1 month

Study Population: Patients attending ophthalmology OPD in Mandya Institute of Medical Sciences, Mandya.

Inclusion Criteria:

- Agricultural workers aged 18 years and above who visit the tertiary care centre in Mandya for any ocular injuries during the study period.
- Individuals willing to provide informed consent to participate in the study.

Exclusion Criteria

- Patients with pre-existing eye diseases unrelated to their agricultural work

Method of Data Collection

Patients presenting with ocular injuries were screened for eligibility using the inclusion and exclusion criteria and eligible participants were recruited after obtaining informed consent. A pre-tested, structured questionnaire was used to collect information on demographics, occupational history, ocular injury. Clinical examination was conducted to assess the type and severity of ocular injuries. Data was recorded in a standardized proforma and entered into a digital database for analysis.

Statistical Analysis

The collected data was entered and organized in Microsoft Excel for preliminary data management, including cleaning and coding. Statistical analysis was performed using Statistical Package for the Social Sciences Software (IBM-SPSS trial version 22). Descriptive statistics, such as frequencies, percentages, means, and standard deviations, was used to summarize demographic characteristics, occupational details.

RESULTS

A total of 23 agricultural workers attended the OPD with history of agriculture related ocular injuries. Of them 17 (73.9%) were males and 6 (26.1%) were females. Majority of the cases were from Mandya taluk (69.6%) followed by Maddur (21.7%) and Srirangapatna (8.6%). The mean age of the patients was 52.91 ± 10.4 years which ranges from (29-70 years).

The most common mode of ocular injury was due to plant/branch injury during the work (34.8%) and the common type of injury was corneal abrasion (30.4%) and foreign body (30.4%) in the eye. (Figure 1&2) Majority had left eye injury (56.5%), followed by right eye (34.8%). Also, 8.7% had injury over both the eyes.

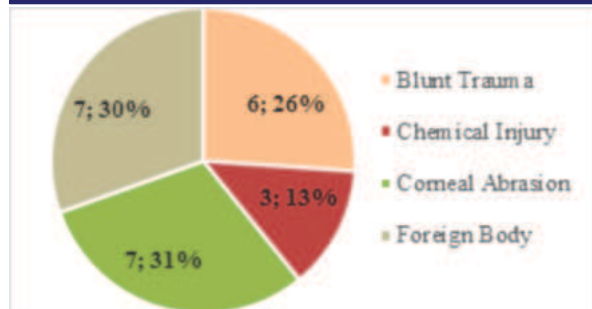


Figure 1: Type Of Injury Among The Participants

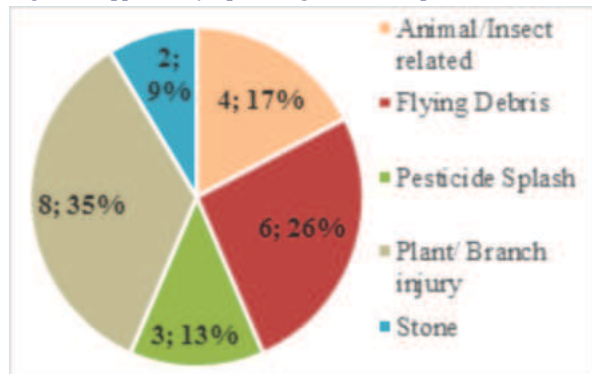


Figure 2: Mode Of Injury Among The Participants

Of 23 participants majority (78.3%) had moderate injury which requires medical attention with no permanent damage, followed by 13% had severe form of injury with risk of vision loss and requiring surgical intervention. Mild injury with temporary discomfort was among 8.7% of participants. Among 46 eyes of the study participant majority had mild visual impairment (71.7%). Table 1 shows the Best Correct Visual Acuity of the participants.

Table 1 Showing The Best Correct Visual Acuity (BCVA) Of The Participants.

BCVA	Frequency	Percentage %
Mild	33	71.1
Moderate	8	17.4
Severe	1	2.2
Blindness	4	8.7
Total	46	100

DISCUSSION

A retrospective hospital based clinical audit of 124 patient records conducted in Burdwan Medical College and Hospital, West Bengal showed unilateral 95.97% (119) and closed globe 89.5% (111) ocular injury as the common findings. Rice grain injury was the commonest mode of ocular injury, which was 32.26% (40), followed by vegetative material 24.2% (30). Corneal ulcer 38.71% (48), traumatic hyphema 11.29% (14) and ruptured globe 10.48% (13) were most common cause of hospital admission. The Mean age of study patients was 37.23 ± 8.16 in years.²

The overall incidence of agricultural accidents in Northeast India was reported to be 589 per 100,000 workers annually. In a multicentric study across Tamil Nadu and Karnataka, it was found that ocular injuries were frequently associated with manual tasks involving farming tools and exposure to environmental factors like dust and debris.³

In a west Bengal based study, rice grain damage accounted for 53.57% (105) of all ocular injuries followed by paddy leaves, cattle tail, cow horn. Corneal ulcers accounted for 42.35% (83) of hospital admissions, with traumatic hyphema coming in second 20.92% (41).⁴

A prospective comparative study between two groups (Group A - goggles wear and Group B - no goggles wear) in three villages of Chhattisgarh showed that ocular injuries occurred significantly less in Group A (0.7%) compared to Group B (11.3%) ($P=0.0001$), with a relative risk of 0.06 (95% CI: 0.02–0.2), indicating a 94% reduced risk of ocular trauma in Group A. Notably, all injuries in Group A occurred when goggles were not worn. The most common barriers to wearing goggles were impaired vision due to fogging and slippage, while female workers also cited self-consciousness due to their appearance.⁵

CONCLUSION

The results suggest that trauma associated with plants and branches yields the most eye injuries, as well as abrasions to the cornea and foreign body incidents. Even though most of these cases were deemed to have sustained moderate injuries, there was a considerable number that required some form of medical attention, with a few leading to severe vision loss and even blindness.

There is a greater necessity for public health advocacy directed at agricultural workers for the use of eyeglasses. Eye trauma can be reduced significantly with the aid of educational programs, workplace safety protocols, and better provision of protective tools. Further research should be done on how to best implement and monitor ocular injury reducing strategies over a longer time period.

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