



Epidemiological (Sociodemographic and Etiological) Profile of Patients with Orbital and Ocular Trauma in a Tertiary care Hospital in Kerala

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Abstract

Objective- *As ocular trauma is an important cause of blindness and visual morbidity, which can be prevented to some extent, aim of the present study is to determine the epidemiological (socioeconomic and etiological) profile of patients with orbital and ocular trauma attending the casualty in a tertiary care centre in Kerala.*

Methods: *A cross sectional descriptive study was conducted in patients with orbital and ocular trauma who attended the ophthalmology casualty during the study period of three months which included 256 patients. A semi structured proforma was filled by the ophthalmologist attending the patient in casualty. This data was analysed using appropriate software. Various epidemiological parameters like age and sex distribution, type of referral, nature of injury, time interval between the occurrence of injury and presentation at hospital as well as adoption of protective measures like seatbelts or helmets in cases of road traffic accidents were analysed.*

Results: *From this study it was seen that males were mostly affected by the orbital and ocular injuries compared to females, the male to female ratio being 4:1. Young patients in age group 20-40 years were mostly affected. Among the injuries, domestic injuries were the most common. In road traffic accidents mostly drivers were the victims of injury, followed by the pedestrians. Majority of these accidents happened in national and state highways. About 85% victims were not using any protective measures like seat belt or helmet at the time of accident.*

Conclusion: *Present study reveals that majority of orbital and ocular injuries occur at home especially due to domestic fall. Hence health and safety strategies aimed at preventing eye injuries should include home as a high risk environment in addition to work place and roads. Measures should be taken to tackle this issue in future. Another important observation is that even though use of seatbelts and helmets are compulsory, most people are not using them. Educating people to change this attitude is important.*

Keywords: *ocular trauma, road traffic accidents, domestic injury.*

Introduction

Orbital and ocular trauma is an important cause of blindness and visual morbidity in people

especially in the young which can be prevented to a great extent. Ocular injuries were classified as per the Birmingham Eye Trauma Terminology

System (BETTS). Trauma can involve either the orbital bones or soft tissues in the orbit and eye. Orbital bony injuries usually result in fractures. Soft tissue injuries can be either hematoma or lacerations involving eyelids or periorcular area. Trauma to the eyeball can result in either closed globe injury with intact corneoscleral wall or open globe injury with a full thickness wound of the corneoscleral wall. Mechanism of injury can either be a blunt force or with a sharp object. Contusion is a closed globe injury resulting from blunt trauma and rupture globe is a full thickness corneoscleral wound caused by blunt trauma. Laceration is a full thickness corneoscleral wound caused by a sharp object and lamellar laceration is a partial thickness corneoscleral wound caused by a sharp object. Penetrating wound is a laceration with only entry wound without an exit wound which can be associated with retained intraocular foreign body. Perforation consists of two full thickness corneoscleral wounds, one entry and the other exit wound usually caused by a missile. By studying the etiology and types of the orbital and ocular injuries we can understand the sociodemographic and etiological profile of these patients which may help in pointing out some preventive measures and to reduce the burden of preventable blindness due to trauma in our community.

Methods

This descriptive study was conducted among patients attending the ophthalmology casualty of a tertiary care centre in Kerala with orbital and ocular trauma during the study period of three months. A total number of 256 patients were included in the study. All patients with orbital and ocular injuries who were not having any other severe injuries necessitating immediate transportation to the intensive care unit were included in the study. Those patients with serious head injury, abdominal and chest injuries or major long bone fractures were excluded as it was found difficult to elicit a detailed history and information from these patients or their relatives. Proforma

was filled by the ophthalmologist only after ensuring stabilisation and immediate management of the patient. All patients were evaluated for epidemiological parameters like age and sex distribution, time and nature of injury, time interval between injury and presentation in casualty, and also about the adoption of protective measures like seatbelts or helmets in case of road traffic accidents. These details were obtained from the patient itself as far as possible and was entered in the semistructured proforma. In case of assaults probable reason for the assault was recorded. A history of alcohol consumption before the occurrence of trauma was also noted down. Detailed clinical examination including visual acuity with pinhole was checked. Data was entered in MS excel and was analysed using appropriate software and statistical tests.

Results

This study included 256 patents with orbital and ocular trauma who attended ophthalmology casualty of a tertiary care hospital during the study period. Majority of the patients were males (80.1%) and only 19.9% were females. Male:female ratio was 4:1.

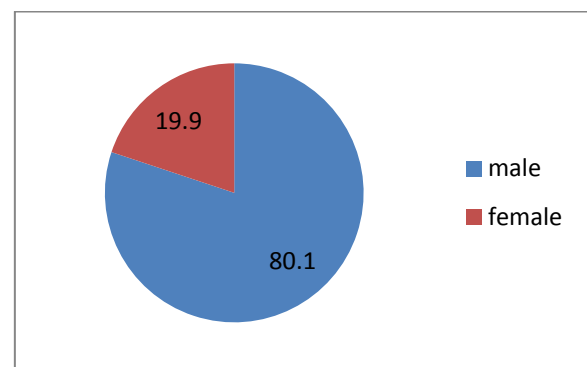


Fig.1: Sex distribution among patients with orbital and ocular trauma.

Considering the age of the patients, 35.54% (91) belonged to 21 to 40 years age group, and 25.39% (65) were of 41 to 60 years. Among the study subjects 14.45% (37) were children below the age of 10 years. Only 1.56% (4) patients belonged to 80 years and above age group.

Out of total 256 patients 177 (69.1%) patients came directly to our hospital where as 79 (30.9%) patients were seen initially at another hospital and

were referred here. When considered the time of occurrence of the injury 102 ((39.8%) patients had sustained injury in the afternoon (12 noon to 6 pm). 73 (28.5%) people had sustained injury in late evening and night (6pm to 12 midnight).

Table 1 Nature of injury

Nature of injury	Number	Percent
Domestic	122	47.7%
RTA	67	26.2%
Industrial	23	9%
Assault	15	5.8%
Others	29	11.3%
Total	256	100%

When considered the nature of injuries (refer Table 1) 122 patients (47.7%) had orbital and ocular trauma due to domestic accidents in the present study which was the major cause. 67 (26.2%) patients were affected by road traffic accidents which was the second common cause of ocular trauma. Assault as a cause of orbital and ocular trauma was seen in only 15 (5.8%) patients. On analysing the road traffic accidents most of the accidents occurred in the national and state highways (58.21%) compared to city and village roads (41.79 %). On studying the vehicle type causing accidents, two wheelers were responsible for maximum number of accidents (70.14 %). In road traffic accidents, drivers were mostly affected (65.67%), next common group affected being the pedestrians (13.43%). Considering the use of protective measures like seatbelts or helmets among those using motor vehicles, 84.21% were not using any, while only 15.79% were using protective measures.

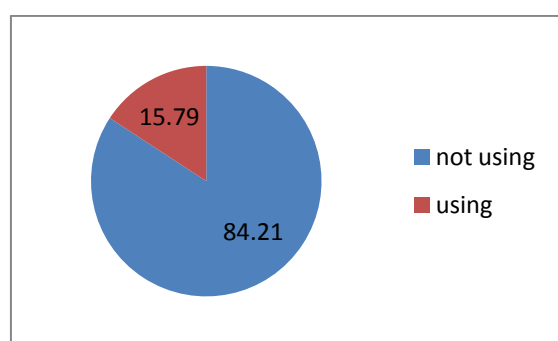


Fig. 2. Use of protective measures among Road Traffic Accident Cases

When injury due to assault was analysed, it was seen that 80% were due to some personal issues. When injuries due to fall were considered it was noticed that 72.5% were domestic falls. Sports contributed to 20% and fall in school were only 2.5%.

When asked about the history of alcohol intake before the accident, 90.6 % people gave a negative history. Only 9.4% patients admitted that they had consumed alcohol prior to the incident causing injury.

Discussion

Orbital and ocular injury is a common cause of visual morbidity especially in the developing countries. A number of studies^{2,6,7} were conducted in various parts of the world to determine the incidence and epidemiological factors leading to ocular trauma. Findings obtained from this study correlate with the findings of many other studies. In this study males constituted the major study subjects compared to females, the ratio being 4:1. In a study conducted in Jammu, India⁸ in march 2018 the male:female ratio was 2.9:1. In the Leicester³ study frequency of eye trauma in males was twice that in females. In another study conducted in Malawi¹ in South East Africa, males were found to be mostly affected in ocular injuries. This may be because of the fact that males are doing more outdoor work compared to females, or that males may not be taking as much care as required to prevent ocular trauma compared to females.

In the present study 47.66% of patients had ocular injury due to domestic accidents, which is the most common cause. In a study conducted in Scotland by Parul Desai et al⁵ home was found to be the most common place for ocular injury. When examined the data of all the patients who sustained ocular injury due to fall other than road traffic accidents, 72.5% had domestic falls. Industrial injuries constituted only 9% of ocular injuries, similar to the findings of Malawi study.¹

In the present study road traffic accidents were the cause of injury in 67 patients (26.17%). Among

these patients, majority were drivers (65.67%). Most of the accidents happened in national and state highways compared to city and village roads. This may be due to the fact that in national and state highways drivers have tendency to take over speed and cause accidents. The vehicles involved were mostly two wheelers which is a fact shown by many studies. Among the patients affected by road traffic accidents only a few were using safety measures like helmet or seatbelt which was the main cause of ocular injury in these patients. When considered the time of occurrence of injury, 39.8% patients had injury in the afternoon or late evening. Domestic injuries also occur mostly in the evening. When considered the source of referral, most patients came directly to the hospital (69.2%). This finding is consistent with the findings of prospective study conducted in Newcastle⁴ where self referral accounted for 58.1% of cases. Another Southampton study⁹ also showed self referral as 89.9%.

Conclusion

The main findings in the present study are:

- 1) Ocular trauma was more common among male young adults.
- 2) Though occupational accidents still account for a number of injuries, domestic accidents constitute the majority in this study.
- 3) Among road traffic accidents, two wheelers were the most common type of vehicles involved, and accidents were more common in national and state highways compared to city and village roads.
- 4) Most of the patients affected by road traffic accidents were not using protective measures like seatbelts or helmets.

The present study thus helped in providing sociodemographic and etiological information regarding the orbital and ocular trauma cases attending casualty in a tertiary care hospital in Kerala. Another fact revealed by the present study is that serious ocular trauma can occur at home,

and young people are also affected by domestic accidents. Health and safety strategies specifically aimed at preventing ocular injuries should now include home as a high risk environment in addition to the workplace and sports. Those who are involved in planning and implementing national accident prevention strategies should take notice of this so that necessary actions can be taken in future.

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