

Epidemiology of Ocular Emergencies in a Tertiary Care Center in North India

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Abstract: Introduction: Any trauma to the eyes could be perilous as the mere thought of any disturbance in the vision makes the patient panic. Ninety percent of ocular injuries can be prevented using appropriate protective wear. Aims and objectives: To study the various types of traumatic and non traumatic ocular emergencies and their demographic details. Materials and methods: This is a cross sectional study on all the ocular emergency patients who presented to the Emergency department of the Lala Lajpat Rai Hospital (Hallet hospital), Kanpur, India during the 6 months period. Various epidemiological parameters like age, sex, duration of presentation, mode of injuries and types of ocular emergencies were analysed. Detailed ocular examination was done in all the patients. Results: Out of 500 patients, 411 (83.2%) were male and 89 (16.8%) were female. Male to female ratio was 4.62: 1. The mean age of the patients in traumatic group was 30.85 years with maximum patients in the age group 21 - 30 years. The mean age of the patients in non traumatic group was 47.4 years with maximum patients in the age group 51 - 60 years. Out of 446 patients in traumatic group, 370 patients (83%) presented to hospital within 24 hrs of trauma, the most common cause was Road traffic accidents with 177 patients (39.7%) and most common type of injury was contusion with 391 patients (87.6%). While in non traumatic group of 54 patients, maximum patients presenting to hospital were in the 48 - 1 week group, the number being 27 patients (50%) and the most common type of ocular emergency was conjunctivitis with 21 patients (38.8%).

Keywords: Ocular emergencies, traumatic injuries, protective wear, demographic details, conjunctivitis

1. Introduction

Eye is the most delicate organ of the body. It represents only 0.1% of the total body surface area (BSA) but its function makes it one of the most important organs of the body. Any trauma to the eyes could be perilous as the mere thought of any disturbance in the vision makes the patient panic.

The distribution of ocular emergencies is bimodal with increased incidence in young adults and a later peak in elderly [1, 2]. The typical male to female ratio is about 4: 1 worldwide [3, 4, 5].

The annual incidence rate of hospitalization for eye injuries per lakh population/year is 5–16% worldwide. Blindness resulting from trauma has prevalence rates of 0.6%–0.8%.

Ocular emergencies are associated with great amount of emotional stress as well as frequent hospital visits. In addition to physical and psychological cost of eye injuries to the individual, there is a direct and indirect financial loss to the society and the nation because even minor eye injuries can cause considerable morbidity and time loss from work. Ninety percent of ocular injuries can be prevented using appropriate protective wear.

Seeing the enormous significance of ocular injuries, this study is conducted to know the various types of traumatic and non traumatic ocular emergencies and their demographic details.

2. Materials and Methods

This is a cross sectional study on all the ocular emergency patients who presented to the Emergency department of the Lala Lajpat Rai Hospital (Hallet hospital), Kanpur, India during the 6 months period.

The inclusion criteria were all emergency cases which included any trauma or non traumatic emergencies related to the eyeball, upper and lower lids, orbit extending upto the eyebrows.

After the patients were selected, their details like name, age, sex, address were noted. Detailed history of trauma was obtained, which included place of the injury, time of the injury, mechanism of the injury and type of ocular injury was noted. Detailed examination was done in all the patients which included visual acuity using Snellen's chart, IOP measure using Schiottz indentation tonometer, slit lamp examination, funduscopy using indirect ophthalmoscope. Fluorescein staining of cornea was done in corneal abrasion cases. B - scan of the orbit was performed in penetrating trauma cases, intraocular foreign body cases, and cases where posterior segment details were not clear due to opaque media. CT scan orbit was done in ocular trauma cases with head trauma also.

3. Results

Our study included a total of 500 patients of ocular emergencies attending the emergency in the time period from

July 2022 to December 2022. Out of total 500 patients, 446 (89.2%) cases were due to any trauma and 54 (10.8%) were non traumatic cases.

Out of 500 patients, 411 (83.2%) were male and 89 (16.8%) were female. Male to female ratio was 4.62: 1. The mean age of the patients in traumatic group was 30.85 years with maximum patients (164) in the age group 21 - 30 years. The mean age of the patients in non traumatic group was 47.4 years with maximum patients (25) in the age group 51 - 60 years.

In our study, out of 446 patients in traumatic group, 370 patients (83%) presented to hospital within 24 hrs of trauma, while in non traumatic group of 54 patients, maximum patients presenting to hospital were in the 48 hrs - 1 week group, the number being 27 patients (50%) (p value <0.0005).

Among 446 traumatic ocular emergencies, the most common cause was Road traffic accidents with 177 patients (39.7%) followed by Occupation related injuries, with 111 patients (24.9%).

Among the pattern/ type of ocular injuries, the most common type in the traumatic group was contusion with 391 patients (87.6%) followed by lamellar laceration with 162 patients (36.3%). In the non traumatic group, the most common type of ocular injury was conjunctivitis with 21 patients (38.88%) followed by abrasion (24%).

Table 1: Age frequency of patients with traumatic and non traumatic ocular emergencies

Age	Traumatic	Non - Traumatic
<10	20	0
11 - 20	68	1
21 - 30	164	7
31 - 40	87	7
41 - 50	62	8
51 - 60	22	25
>60	23	6

Mean age – 30.85 years Mean age – 47.41 years

Table 2: Time of presentation of ocular emergencies

Time of present	Traumatic	Non - Traumatic
<24 hrs	370 (83%)	4 (7.4%)
24 - 48 hrs	50 (11.2%)	10 (18.5%)
48 hrs - 1 week	25 (5.6%)	27 (50%)
>1 week	1 (0.2%)	12 (24.07)

Table 3: Mode of ocular emergencies

Mode of Injury	Traumatic	Percentage (%)
RTA	177	39.7
Occupation Related	111	24.9
Sports	45	10.1
Assault	67	15
Domestic Violence	46	10.3

Table 4: Type of non traumatic ocular emergencies

Type of Injury	Non - Traumatic	Percentage (%)
Conjunctivitis	21	38.88
Abrasion	13	24.1
Uveitis	5	9.24
ACG	7	12.9
Preseptal Cellulitis	4	7.4

Orbital Cellulitis	2	3.7
Endophthalmitis	2	3.7

Table 5: Type of traumatic ocular emergencies

Type Of Injury	Traumatic	Percentage (%)
Closed globe:		
Contusion	391	87.6
SCH	83	18.6
Hyphema	3	0.67
Vitreous Haemorrhage	4	0.9
Open globe:		
Penetrating	0	0
Perforating	16	3.6
Adnexal	34	7.6

4. Discussion

In our study of 500 patients, males constituted 83.2% of ocular emergencies and females 16.8%. This is consistent with other studies like Kamran Maqbool Hassan et al (2017) (6) in which males were 82.44% and females were 17.56%. In the study by Sharmila N et al (2016) (7), 71 % were males and 29% were females. In the study by Gothwal (8) in Hyderabad, males constituted 86.8 % and females 13.2%.

In our study, the mean age in the traumatic ocular emergency group was 30.85 years, similar to Emem A et al study (2012) (9), in which it was 29.9 years and J C Nelson Imoru et al study (2014) (10), in which it was 31.7 years.

Further in our study, 83% people in the traumatic group and 7.4% in non traumatic group presented to the hospital within 24 hours. We however observed a statistically earlier presentation among the traumatic ocular injuries when compared with the non traumatic ocular emergencies. In Kamran Maqbool Hassan et al (2017) (6), 45.54 % reported within 24 hour’s of trauma. Jafri et al (2012) (11) reported 36.7% of the study within 24 hour’s, Omalase et al (2011) (12) reported 37.9% in 24 hours.

The most common cause of ocular injury in our study was Road traffic accidents constituting 39.7%, followed by occupational injury which was 24.9%. This is consistent with the study of Ajiboye et al (2009) (13) in which the most common cause was Road traffic accidents with 31.3 % of ocular injuries. In Sharmila et al (2016) (7) Road traffic accidents constituted 60% of Cases. In Kamran Maqbool Hassan (2017) (6) the most common cause was Occupation related ocular injuries with 38.41% followed by Road traffic accidents with 26.34%.

In our study, the most common type of ocular injury in traumatic group was contusion with 87.6% followed by lamellar lid laceration of 36.3%. In Ajiboye et al study (2009) (13) the lid/conjunctiva (38.6%) was the most affected part of the eye. In Sharmila N et al (2016) (7) Sub conjunctival hemorrhage was the most common type in constituting 65% followed by lid trauma which was 20%. The most common type of non traumatic ocular injuries was conjunctivitis with 38.88%. In study conducted by Omotoye Olusola Joseph et al (2016) (14) similar findings were seen with conjunctivitis constituting 27.7% whereas in study by Kabindra Bajracharya et al (2021) (15), conjunctivitis constituted 10.4%.

5. Conclusion

From our study, it is concluded that trauma constitutes majority of the ocular emergencies in a tertiary health center. The most common cause of ocular trauma being Road traffic accidents followed by Occupation related injuries. The most common age group being 21 - 30 years. This revises an alarm in the society to preserve the future of our country. The young population should be advised to take preventive measures like wearing seat belts while driving, follow safe driving rules like not consuming intoxicants/ using headphones etc.

Among non traumatic ocular emergencies, conjunctivitis were the most common type. General awareness should be spread on how to protect eyes while working in fields, maintain eye hygiene so that these diseases can be prevented. Reduction in ocular emergencies will further reduce visual impairment, so that more and more people can contribute to the development of the nation.

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