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Research Article

Manifestations of Ocular Injuries in Road Traffic Accidents

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Abstract

Aim: To study the effects of ocular injuries due to road traffic accidents (RTA) and factors associated with it.

Materials and Methods: 50 cases that came as outpatients were included. Time, location, type and mechanism of injury were noted. Vision via Snellen chart, eye examination under slit lamp was done. Any other diagnostic tests, medical and surgical treatment were recorded. X-rays, ultrasonography, CT-scan were done when necessary. The 50 patients were followed for 6 months.

Inclusion Criteria: 1. Patients who suffered road traffic accidents with ocular injuries presenting within a week of injuries. 2. Age group between 10 to 60 yrs. 3. Minimum follow-up is for 6 months.

Exclusion Criteria: 1. Ocular trauma not due to RTA. 2. Age < 10yrs and > 60 yrs. 3. Previous history of head injuries. 4. Poor follow up < than 6 months.

Results: About 88% patients were males. Mostly 2 wheelers were involved in the accidents and 77% of them were not wearing helmets. 54% of patients were under the influence of alcohol. Lateral wall fractures were more in 2 wheelers riders not wearing helmets. Various anterior segment findings and posterior segment findings were noted in them. About 12% had vision less than 6/18.

Conclusion: Ocular injuries due to RTA have increased with increase in vehicular traffic. Young males, driving at night, alcohol abuse and not following safety precautions are certain risk factors that are associated with RTA and ocular injury. 2 wheeler riders were prone to orbital fractures in RTA.

Keywords: Ocular Injury; Road Traffic Accidents

Introduction

RTA's account for major part of human suffering all over the world and according to world health organization it is the sixth leading cause of death.

Though eyeball is anatomically well protected, it is vulnerable to injuries. About 38 - 52% of all cases presenting to ophthalmic emergency rooms are ocular trauma.

Ocular injuries in RTA is regarded as one of the common causes of ocular morbidity and unilateral blindness. RTA is a preventable cause of ocular morbidity and protective steps must be taken to decrease its incidence.

So, it is important to obtain data regarding ocular injuries in RTA and its effects in a hospital like Sri Venkata Sai medical college a hospital located in Mahabubnagar [1-15].

Objectives of the Study

- To determine ocular manifestations of RTA.
- To determine no of patients ending up with vision less than 6/18, 6 months post RTA.

Materials and Methods

Patients who suffered ocular injuries due to RTA and treated in SVS medical college and hospital during a period of 1 year from June 2018 to May 2019 were taken up for study and followed for 6 months. It is a randomly conducted study with details of ocular injuries.

50 cases that came with ocular injuries due to RTA were included in random fashion.

Time, location, type and mechanism of injury were noted. Use of protective wear like spectacles, car seat belts and helmets were obtained.

Vision via Snellen's chart, ocular examination via slit lamp was done. Any other diagnostic tests, medical and surgical treatment were recorded.

X-rays, ultrasonography, CT-scan were orders when necessary.

Inclusion criteria:

- Patients who suffered road traffic accidents with ocular injuries presenting within a week of injuries.
- Age group between 10 to 60 yrs.
- Minimum follow-up is for 6 months.

Exclusion criteria:

- Ocular trauma not due to RTA.
- Age < 10 yrs and > 60 yrs.
- Previous history of head injuries.
- Poor follow up < than 6 months.

Statistical study

Observational study.

Results and Analysis

The observations made are as follows in 50 patients.

Of 50 patients 44 (88%) were males and 6 (12%) were females. More RTA's were found in 20 - 40 years age group contributing to about 72%; 12% belonged to 10 - 20 year age group and 16% in 40 - 60 years age group.

Of the 50 patients 11% were students, 30% drivers, 26% office workers and 14% agriculture workers.

Right eye was involved in 52%, left eye in 22% and both the eyes in 26% patients.

About 70% were using 2 wheelers of which only 22.9% were using helmets. 20% were pedestrians, 6% autos and 4% were using 4 wheelers. About 54% were under the influence of alcohol while driving or pedestrians.

Anterior segment manifestations

Ocular Manifestation	No of Injuries	Percentage
Periorbital and lid edema	40	80
Periorbital ecchymosis	23	46
Orbital Fractures	5	10
Eyelid Laceration	8	16
Conjunctival Chemosis	14	28
Subconjunctival Haemorrhage	21	42
Conjunctival Laceration	2	4
Corneal Oedema	3	6
Corneal Abrasion	4	8
Corneal Tears	2	4
Traumatic Iridocyclitis	5	10
Iris Prolapse	1	2
Traumatic Mydriasis	3	6
Traumatic Miosis	1	2
Hyphema	1	2
Traumatic Cataract	2	4
Subluxated Lens	3	6

Table 1

The most common ocular manifestations are periorbital and lid edema, periorbital ecchymosis, subconjunctival haemorrhage and conjunctival chemosis.

Of orbital fractures, lateral wall fractures were more associated in RTA, especially in 2 wheelers followed by inferior wall fracture.

Posterior segment manifestations

Ocular Manifestation	No of Injuries	Percentage
Vitreous Haemorrhage	2	4
Retinal Oedema	1	2
Retinal Detachment	1	2
Traumatic Optic Neuropathy	2	4

Table 2

Of the posterior segment manifestations vitreous haemorrhage and traumatic optic neuropathy were found to be most common followed by retinal oedema and detachment.

Causes of vision < 6/18 due to RTA

Ocular Manifestation	No of injuries	Percentage
Corneal oedema	1	2
Traumatic Cataract	2	4
Retinal Detachment	1	2
Traumatic Optic Neuropathy	2	4

Table 3

Out of 50 patients 6 were found to have a vision of less than 6/18, which accounts to about 12%. Of this traumatic cataract is treatable and can result in better vision after cataract surgery. Early intervention in retinal detachment and traumatic optic neuropathy might have improved the vision.

Discussion

In our study males (88%) were more affected than females (12%) a ratio of about 9:1 similar to other studies Kamath SJ in 2007 [7] in which it was 10:1. This may be due to more usage of vehicles and more exposure to high way traffic in men than in women.

In our study it was found that age group of 20 - 40 were affected more and 2 wheelers who did not wear helmet were more prone to injuries. Drivers and office workers were more affected and right eye was more commonly involved than left eye.

Drunk people were more prone to road traffic accidents.

Most common anterior segment manifestation is periorbital ecchymosis (80.5%) followed by sub conjunctival haemorrhage (42%) similar to Study of Ocular Injuries in Road Traffic Accident patients, *Journal of Evolution of Medical and Dental Sciences* [15] 2017 where periorbital ecchymosis was 81% and sub conjunctival haemorrhage was 41%.

Most common posterior segment manifestation are vitreous haemorrhage (4%) and traumatic optic neuropathy (4%). The Ocular trauma in rural population in Southern India Study, 2006 [17] showed that vitreous haemorrhage is only 2.06% while in a Study of Ocular Injuries in Road Traffic Accident patients, *Journal of Evolution of Medical and Dental Sciences* 2017 [15] showed traumatic optic neuropathy in 4.7% similar to this study.

A visual acuity of < 6/18 was found in 12% of the cases after 6 months follow up similar to a study -Clinical pattern and visual outcome in ocular injuries at 6 months following road traffic accidents- A prospective follow up study [16] where it was found to be 13%.

The anterior segment manifestations were more common than posterior segment manifestations but effect on vision is more with posterior segment involvement.

Conclusion

According to this study -ocular manifestations in RTA, the conclusions are as follows:

- The higher incidence of trauma is observed in men. Majority of people are between 20 - 40 yrs age. Right eye was more involved than the left eye.
- People are not wearing helmet and under the influence of alcohol were more prone for ocular injuries.
- The most common anterior segment signs are periocular edema and ecchymosis, followed by subconjunctival haemorrhage.
- The most common posterior segment findings include vitreous hemorrhage, retinal edema, retinal hemorrhages and retinal detachment. Vitreous haemorrhage and traumatic optic neuropathy were found more common.
- In orbital fractures, lateral wall fractures were more common followed by inferior wall fractures.

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