|| Print ISSN: 2589-7837 || Online ISSN: 2581-3935 ||
International Journal of Medical Science and Diagnosis Research (IJMSDR)
Available Online at www.ijmsdr.com
PubMed (National Library of Medicine ID: 101738825)
Volume 3, Issue 7; July: 2019; Page No. 94-97
Original Research Article
crossref DOI: https://dx.doi.org/10.32553/IJMSDR/v3i7.22

RISK FACTORS FOR DEVELOPMENT OF RETINAL DETACHMENT AND ENDOPHTHALMITIS

Dr. Ashay Rameshwar Dangare[1], Dr Amit Ashok Surana[2]
[1]M.S. Ophthalmology, Assistant Professor, Dr PDMMC Medical College, Amrawati, Maharashtra
[2]Consultant Orthopedic and Spine surgeon, Sahyadri Hospitals, Vedanta Institute of Medical Sciences.
Conflicts of Interest: Nil
Corresponding author: Dr. Ashay Rameshwar Dangare

Abstract:

Background: Retinal detachment is a complication generating because of endophthalmitis as well as surgical methods used to treat ocular trauma. It has been reported that the rate of retinal detachment is observed in 16% of the cases after endophthalmitis

Aim: To analyze the risk factors for the development of retinal detachment and endophthalmitis.

Methods: The study was carried out at the Department Of Ophthalmology, Burdwan Medical College and Hospital, a tertiary health care unit of West Bengal for duration of one year (01/03/2010 to 28/02/2011). The entire study was conducted after proper consultation and recommendations from the ethical committee. The study population constituted of 120 patients of the aforesaid catchment area represented the population at risk of injury.

Results: As per the study, it was observed that most ocular injuries 80.83% occurred within the age group 0-50. Study shows that the incidence of ocular injuries between age group 70-80 was 7.5%. In the course of the study, it was found that 75.83% were male, and 24.17% were females. Risk factors associated with retinal detachment were lower economic status, associated endophthalmitis with hypopyon, lens injury and final visual acuity.

Conclusion: The vast majority of eye injuries are preventable with existing, relatively inexpensive devices. Polycarbonate lenses, sport eye protectors, industrial safety goggles and glasses with side shields, face masks can be used.

Introduction:

Retinal detachment is a complication generating because of endophthalmitis as well as surgical methods used to treat ocular trauma. It has been reported that the rate of retinal detachment is observed in 16% of the cases after endophthalmitis[1]. The individuals affected from ocular injuries have to face the loss of carrier opportunities, lifestyle changes and occasionally permanent physical disfigurement. The direct and indirect costs of eye injuries to society and individual are not only economical but also physical and psychological[2]. Now trauma is one of the leading causes of extended hospitalization of ophthalmic patients in industrialized nations[3] Approximately half of all patients presenting to an eye causality department present with trauma[4,5].

Maximum incidence is found in young adults and elderly and is much more common in males[6] Ocular trauma follows a bimodal age pattern which peaks between 15 to 29 years and other peak occurs after 60 years[7] It has been observed that illiterate and poor people have more chances of ocular trauma[8] Race and gender also play an important role[9]. In certain scenario, occupational ocular injuries are leading causes[10] Road traffic accidents are leading causes of ocular injuries[11] Blunt objects like cricket balls, footballs, fists, rocks, stones are the most common source of ocular trauma[12]. Chemical burns, firearm and cracker burn injuries are serious causes of ocular trauma[13] Approximately 15% of ocular trauma cases are related to violence[14]. Closed globe injuries in comparison to open globe injuries are less severe and have a better prognosis, which was proved in an epidemiological study of adult eye injuries in split Dalmatian County[15]. Majority of eye injuries are preventable with protective devices like safety glasses and goggles, helmet, eye shields and face masks etc[16]

Aim

To analyze the risk factors for the development of retinal detachment and endophthalmitis.

Material and Methods

The study was carried out at the Department Of Ophthalmology, Burdwan Medical College and Hospital, a tertiary health care unit of West Bengal for the duration of one year (01/03/2010 to 28/02/2011). The entire study was conducted after

proper consultation and recommendations from the ethical committee. Patients admitted to Burdwan Medical College and Hospital for ocular trauma under the care of a consultant ophthalmologist was included after taking their informed consent. The study population constituted of 120 patients of the foresaid catchment area represented the population at risk of injury.

***PHASE 1*:-** Reporting an event by documenting patient particulars, relevant history taking and performing general and ocular examination.

***PHASE 2*:-** Providing institutional management, including emergency management and medical and surgical ophthalmic management.

***PHASE 3*:-** Outcome assessment after final discharge and at follow up followed by detailed result analysis of the profile of ocular trauma patients requiring tertiary care.

A three-phased pre-designed, and pre-tested proforma containing both closed and open questionnaire was constructed and tested before its inclusion as a study tool. To extract critical information, the history of events leading to injury, exact time and place of injury and mechanism of injury (blunt objects as opposed to sharp), was taken. This was of importance in the classification of injury, assessing the risk of infection and planning further management.

Results

Table 1:

		OPEN PENETRATING INJURIES			p-value
		PRESENT	ABSENT	Total	
ENDOPHTHALMITIS	YES	5	2	7	<0.05
	NO	39	74	113	
Total		44	76	120	
		CORNEAL TEAR		Total	
		ABSENT	PRESENT		
ENDOPHTHALMITIS	NO	54	59	113	<0.05
	YES	0	7	7	
Total		54	66	120	
		LENS INJURY		Total	
		ABSENT	PRESENT		
RETINALDETACHMENT	ABSENT	72	42	114	<0.05
	PRESENT	1	5	6	
Total		73	47	120	
		INITIALV/A		Total	
		ABSENT	PRESENT		
RETINALDETACHMENT	ABSENT	57	57	114	<0.05
	PRESENT	1	5	6	
Total		58	62	120	

As per the study, it was observed that most ocular injuries 80.83% occurred within the age group 0-50. Study shows that the incidence of ocular injuries between age group 70-80 was 7.5%. In the course of the study, it was found that 75.83% were male, and 24.17% were females out of the total 120 patients taken into consideration for the course of the study.

In open penetrating injuries the chi-square=0.030 and the p value<0.05. Further, the chi-square for corneal tear was 8.695, and the p-value was less than 0.05. The chi-square of lens injury was found to be 5.171 and the p-value <0.05. The chi-square for initial v/a was 2.536, and the p-value was less than 0.05. This shows that there is a statistically significant relationship between the factors mentioned above and retinal detachment and endophthalmitis.

Discussion

Diagnosis of endophthalmitis and retinal detachment was made in 5.83% and 5% patients respectively. Development of endophthalmitis was found to be significantly associated with lower economic status, open penetrating injuries especially with corneal

involvement, lens injury, retinal detachment and initial visual acuity. Risk factors associated with retinal detachment were lower economic status, associated endophthalmitis with hypopyon, lens injury and final visual acuity. The age group distribution is given. The number of patients between age groups 0-10yrs (22.5%) is most commonly affected closely followed by age group 10-20 yrs (21.67%). Dandona L[18] et al. stated that the majority of trauma resulting in blindness occurs in childhood and young adulthood. Soylu M et al[19] stated that the incidence of ocular trauma is maximum between the age group 0-15 years and more common in males. In the present study group of 120 patients, 7 (5.83%) patients had developed post-traumatic endophthalmitis. Patients were kept under regular follow-up, and any signs of endophthalmitis or any other complications of trauma were looked for. A functionally successful outcome was defined as Snellen's visual acuity of more than or equal to 3/60 (as would be required for unaided ambulation) with the attached retina and no signs of infection at the time of last follow-up examination. Mukherjee AK et al[20] found the incidence of endophthalmitis in 13.41% of patients. Asaminew T et al[21] found the incidence to be 4.9%, which was nearly equal to my findings. Singh D V et al[22] quoted that the diagnosis of post-traumatic endophthalmitis was made in 20.5% of open globe injuries, which is slightly greater than the current findings (9.46%). Retinal detachment is another dreadful complication of trauma. In the current study found that 6 (5%) of the patients had a retinal detachment in the follow-up period of 6 months. Rao Lavanya G et al[23] quoted the incidence of retinal detachment in the range of 6%, which is close to the current findings.

Conclusion

The vast majority of eye injuries are preventable with existing, relatively inexpensive devices. Polycarbonate lenses, sport eye protectors, industrial safety goggles and glasses with side shields, face masks can be used. They can protect the eyes in industrial workers or sportsmen. Using seat belts, airbags, and helmets can prevent ocular injuries in road traffic accidents. Ocular injuries are very common in festive seasons like Holi, Diwali etc. Special precautions should be taken during these seasons. The detrimental effects of delayed care or care outside of the speciality eye clinic may reflect geographic and economic barriers to care. For optimal visual outcomes, patients who are injured in a rural setting should recognize the injury and seek early care at a speciality eye care centre. Trained non-ophthalmologists may be able to clinically manage many eye injuries encountered in a rural setting in the developing world, reducing the demand for emergency services of ophthalmologists. If trained ophthalmologists can be utilized in remote locations, injured patients may seek early care to maximize the visual outcome of the injured eyes.

References

1. Doft DM. et al. Retinal Detachment in the Endophthalmitis Vitrectomy Study. Arch Ophthalmol. 2000;118(12):1661-1665.
2. Tielsch JM, Shankar B.Time trends in the incidence of hospitalized ocular trauma. Arch Ophthalmol 1989;107:519-523.
3. Liggett P, Prince K, Barlow W. Ocular trauma in urban population. Ophthalmology 1990;97: 581-584.
4. Katz J, Tielsch JM, Lifetime prevalence of ocular injuries from Baltimore eye survey. Arch Ophthalmol 1993;111:1564-1568
5. Negrel A, Thylefors B. The Global impact of eye injuries. Ophthalmic Epidemio 1998;5: 143-169
6. Kuhn F, Master V, Witherspoon CD, et al. Epidemiology and socioeconomic impact of eye injuries, In: Vitrectomy in the management of the injured globe. Philadelphia: Lippincott Raven; 1998:17-24
7. Kuhn F, Collins P. Epidemiology of motor vehicle crash related serious injuries. Accid Anal Prev 1994;26:385-390.
8. Kuhn F, Morris R. Serious fire work related injuries. Ophthalmic Epidemiol 2000;7:139-148.
9. Maltzan B, Pruzon H. A survey of ocular trauma. Surv Ophthalmol 1976;21:285-290
10. Karman K, Antunica AG, Perk SR. Epidemiology of adult eye injuries in Split- Dalmatian County. Croatian Medical Journal 2004;45:304-309
11. Vinger PF. The eye and sport medicine. In Duane TD and Jaeger EA, editors: Clinical Ophthalmology, vol5, Philadelphia, 1965, Harper and Row. Chap 5
12. Wilkinson CP, Ferris et al. Global Diabetic Retinopathy Project Group. Proposed international clinical diabetic retinopathy and diabetic macular oedema disease severity scales. Ophthalmology 2003;110(9):1677-82
13. International Committee for the Classification of Retinopathy of Prematurity. The International Classification of Retinopathy of Prematurity revisited. Arch Ophthalmology 2005; 123:991-9
14. Kuhn F, Morris R, Witherspoon D, Heimann K et al. A standardized classification of ocular trauma. Ophthalmology 1996;103:240-243

15. Kuhn F, Morris R, Witherspoon D, Heimann K, Maisiak R. The OTS: Predicting the Final Vision in the Injured Eye. In Eds. Kuhn F, Pieramici DJ. Ocular Trauma: Principles and practice. New York, New York 2001: Thieme

16. Zander & Geissler, 1864, Die Verletzungen des Auges Leipzig

17. Soliman MM, Macky TA. Pattern of ocular trauma in Egypt. 2008;246:205-12

18. Dandona L, Dandona R, Srinivas M, John RK, McCarry CA, Rao GN. Ocular trauma in urban population in southern India. Clinical and experimental ophthalmology 2000;28:350-56.

19. Soylu M, Demircan N, Yalaz M, Işigüzel I. Etiology of pediatric perforating eye injuries in southern Turkey. Ophthalmic Epidemiol 1998;5:7-12.

20. Mukherjee AK, Saini JS, Dabral SM. A profile of penetrating eye injuries. Indian J Ophthalmol 1984;32:269-71

21. Asaminew T, Gelaw V, Alemseged F. A 2-year review of ocular trauma Jimma University specialized hospital. Ethiop J Health Sci 2009;19:2.

22. Singh DV, Sharma YR, Azad RV, Talwar D,Rajpal. Profile of Ocular Trauma at Tertiary Eye Centre. JK SCIENCE 2005;7: 1.

23. Rao LG, Ninan A, Rao KA. Descriptive study on ocular survival, visual outcome and prognostic factors in open globe injuries. Indian J Ophthalmol 2010;58: 321-3