



A STUDY OF OCULAR DISORDERS RELATED TO VARIOUS PROFESSIONS IN WESTERN RAJASTHAN.

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ABSTRACT

Purpose: A study of ocular disorders related to various professions in Western Rajasthan, India.

Materials and methods: A hospital based prospective study involving 85 patients. It was undertaken from 1 January 2016 to 31 July 2016. All the patients clinical data recorded included age, gender, of the patient, type of occupational work and environment, time interval between injury and presentation, details about protective eye wear. A good history taking and thorough clinical examination was done. Required investigations were done. The clinical situation was managed accordingly. If any of the required treatment was not available, the patient was referred to higher referral center after giving appropriate primary treatment.

Result: Ocular trauma at work place cause a good share of ocular morbidity. The sad part is that they can be easily prevented. An early recognition of the complaint and prompt treatment can also be helpful. But in long run, awareness and primary prevention should be encouraged.

Conclusion: Periodical medical examinations, work place preventive measures, breaks from long working hours, occasional recreations and following the standard guidelines should be encouraged.

KEYWORDS : .occupational ocular trauma, chemical eye injury, headache, computer eye disease, CSR

Introduction:

Eyes are protected very well by nature. Anatomically; by its situation in the elastic fatty tissue of the orbital cavity. Overhung on all aspects, except downwards and out wards, by sturdy bony projections of the orbital rim and the nose. Physiologically by the vigilance exercised by the blink reflex and head turning reflex on approach of an object which can be seen, and the copious lacrimation which follows intrusion of any irritant material. In spite of these protections, disorders of the eye which lead to subtle itching, watering, redness, foreign body sensation upto potential blindness are not uncommon.

It is because of this reason that ocular disorders and injuries attain great socio economic importance in Ophthalmology. This subject has been taken up for study because of its ever increasing importance in our own country following rapid growth in industrialization. Few professions are very well known for the risk they impose to eyes. Like welding, goldsmith, handicraft work, long working hours in front of computer. We, here, wish to outline few other such professions which may prove threatening to the vision.

Eyes are very delicate structure. Disruption of tear film, over strenuous job, poor background illumination, long duration, easily transferred infection, less frequency of blinking, poor posture all these things affect the normal functioning of eye in long or short run.

Since eye is intricately related to brain, the feature of long standing anxiety and stress often presents as serous detachment of macula.

The present paper deals with the pattern of ocular disorders related to various occupations we have come across in a tertiary health care system during seven months, so that appropriate measures can be instituted to prevent them.

About one quarter of all serious eye disorders are related to activities in the workplace. According to a Finnish report, eye injuries account for 12% of all work related injuries.^[1] Unfortunately, work related ocular injuries have not received enough attention in India. The Indian statistics on occupational eye trauma are not yet available. In a rapidly industrialising country like India, occupational eye injury is particularly common as the hazards of the workplace are not yet appreciated by workers or their supervisors.^[2]

The ocular disorders associated with occupations include asthenopia caused by visual display terminal (VDT) work and eye disorders from eye injuries or exposure to organic solvents or ionizing radiation. The factors associated with the eye disorders can be divided into two

groups: mechanical factors and non-mechanical factors. Furthermore, the latter factors can be divided into two subgroups: chemical factors and physical factors.

We have outlined the preventive and protective measures that would help reduce the number of occupational eye complaints. It is said that we can prevent most accidents that cause occupation-related eye disorders if all workers wear suitable protective gear. However, the compliance with wearing protective gear is relatively low because of inattention or discomfort. The industrial specialists have to educate the workers about the proper use of the protective gear. Then, the safety and health promoters have to remind the workers to frequently check their field site for potential hazards.

Material and methods:

A hospital based prospective study involving 85 patients. It was undertaken from 1 January 2016 to 31 July 2016. All the patients clinical data recorded included age, gender, of the patient, type of occupational work and environment, time interval between injury and presentation, details about protective eye wear.

All the patients underwent complete history taking, anterior segment examination by a slit lamp, measurement of IOP by non contact tonometer in closed globe injuries, fundus examination, B scan in eyes with hazy media, X ray orbit to look for fractures or foreign bodies, CT scan for required cases.

For the cases of mechanical/ chemical injury following steps in history taking and examination were taken.

- Name, Age and gender;
- Chief complaints, Type of injury (if any) , nature of work and associated hazard that caused the eye problem/injury;
- The type of industry and nature of work were classified as agricultural, mining, iron and steel and others e.g., small scale industry, computer work, medical professionals.
- The use of industrial grade protective eye wear at the time of work was noted.
- A history of alcohol consumption at the time of sustaining the injury was specifically elicited. The alcohol consumption may give us false positive results. Consumption of alcohol causes poor judgment capability which can easily lead to accidents.
- The severity of the injury was graded on an injury scale. We used the anatomic and physiologic variables specified in the International Ocular Trauma Classification.^[6] These factors were:

- (i) Visual acuity at the time of presentation;
- (ii) Pupillary reaction in the affected eye. If this was not possible due to hyphaema, the consensual reaction in the other eye was noted;
- (iii) The extent of laceration; and
- (iv) The type of injury: penetrating, perforating and rupture with or without intraocular foreign body.

The severity was graded as mild, moderate or severe on the basis of the score given to each factor as shown in adopted from the Organ Injury Scaling VII described by the American Association for the Surgery of Trauma (AAST).^[6]

- g) The medical treatment given to the patients was noted.
- h) The appropriate surgical procedures were done. If any of the required treatment was not available at our center, we referred the patient to higher referral center after giving appropriate primary treatment.

Appropriate medical and surgical treatment was given. Superficial conjunctival or corneal foreign bodies were removed, lid lacerations were cleaned, tears were sutured, corneal and sclera tears were repaired. Patients with hyphaema, vitreous hemorrhage and berlins edema were treated medically. Patients who required any retino-vitreal intervention were referred to VR surgeon.

In cases of chemical injuries, copious irrigation was done with either BSS or NS, antibiotic, anti inflammatory, anti glaucoma medicines were given. Patients were followed weekly for a month and fortnightly for two months. Visual acuity, IOP, slit lamp examination and fundus examinations were carried out for follow up.

For the cases having asthenopic symptoms or vision related complaints, following questions were asked

- a. Name / age/ sex/
- b. Date of presentation.
- c. Chief complaints.
- d. Pattern of complaint, duration, associated factor if any, aggravating, relieving factors.
- e. Nature of job.

Examination:

- a. Uncorrected Visual acuity
- b. Pin hole vision
- c. Best corrected visual acuity
- d. IOP (schiotz tonometer)
- e. Convergence examination.
- f. Anterior segment examination with slit lamp.
- g. Gonioscopy
- h. Fundus examination with direct and indirect ophthalmoscope
- i. OCT in cases required.

Result and Discussion:

85 people were included in the study, who had visited either the OPD or the trauma center during the duration of the study. There were:

- 3 ophthalmologists,
- 1 optometrist,
- 1 radiographer,
- 2 radiotherapy staff,
- 4 army personnel,
- 9 computer users/bankers,
- 12 farmers,
- 5 goldsmiths,
- 6 handicraft workers,
- 3 janitors,
- 6 stone mine workers,
- 14 daily wage workers,
- 17 welders,
- 2 automobile battery workers.

Image 1 Graphical representation of the number and occupation of subjects.

During the study there were few complaints very typical about the occupation.

1. The ophthalmologist and the optometrist complained of headache, easily caught ocular infection. Refractive errors were

corrected and infections were dealt appropriately.

2. Radiologists and those medical and paramedical staff, who were exposed to X-rays complained of dryness, redness and foreign body sensation. Lubricating eye drops were suggested.
3. Goldsmith complained of headache, irritation, burning sensation and poor near vision.
4. Central Serous Retinopathy was found to be more prevalent among defence personnels.
5. Wooden/vegetative foreign body, or penetrating trauma was common among farmers. Negligence of foreign body and treatment from quacks often lead to corneal ulcer formation. Farmers were advised to be careful and seek immediate medical treatment when met with such complaints.
6. Chemical injury was seen more among stone mine workers, painters, automobile battery workers and janitors. A quick and thorough washing of the wound was advised.
7. Hammer and chisel injury was common among stone workers. They mostly came with extraocular foreign body, blunt trauma eye or penetrating wound.
8. People from handicraft industry came with intra or extraocular foreign body, penetrating wound and blunt trauma.
9. People who spent long time in front of computer complained of computer vision syndrome. They were also prescribed lubricating eye drops.
10. Welders mostly came with sudden acute pain in both eyes, mostly 6-8 hours after the last exposure to welding. They were given lubricating eye drops, pain killers, and advised rest.

Occupational eye disorders are usually severe and affect the young active working population. It is also a preventable cause of absence from work. The lower socio economic group of society was found to be mostly affected in our study. The risk of trauma to eye has been reported to have increased among small scale industry and agricultural sector in developing country.^[7] Causes are mostly poor working conditions, longer hours of work and poor safety precautions, less awareness on part of the employees, poor posture, uncorrected refractive errors, advice from quack. Physical agents accounted for the majority of cases of eye trauma.

Conclusion

Prevention of ocular hazards in industrial and occupational field is a matter of prime social significance. Every worker should be examined thoroughly for his visual acuity and colour vision before getting employed for a particular job. Periodical medical examinations and medical care services should be provided to all the employees. General measures in the form of adequate illumination, proper design and painting of work shop, warning labels, proper disposal and drainage of harmful chemicals, adequate ventilation is necessary. Workers should be educated regarding their own occupation, protective goggles, face masks and shields as per the occupation. The industrial safety and advisory committee recommendations on the use and care of protective goggles should be strictly followed.^[8]

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