

Computer Vision Syndrome

M Raja Rajan Madhan

Introduction

As technological advancement take place, new syndrome or diseases arise. There is a recent outbreak among computer users known as computer vision syndrome (CVS).

This syndrome has been defined variously.

- Complex of eye and vision problem related to near work which is experienced during or related to computer use (American Optometric Association).
- Computer vision syndrome is a complex eye - and vision-related problem associated with computer use.
- Computer vision syndrome is a condition resulting from focusing eyes on computer display units for uninterrupted periods of time.

Case Report

Mr Thirivikkraman, 30 years was admitted in male ophthalmology ward with the complaints of burning and itching eyes for past one week and vision problems like double vision, color distortion for past two weeks. Examination revealed redness of eyes and visual field R 6/6 L 6/6. On occupational history, he was a programmer in IT. He was diagnosed as a case of computer vision syndrome and he advised bed rest, Moissil eye drops (two drops bilateral

31 Escorean Koil Street, Pondicherry-605001.

thrice daily) and vitamin-rich diet.

Incidence

Recent studies have shown that about 85 percent of computer users suffer from vision syndrome. About 175 million working Americans are estimated to be suffering from computer eye strain. Nearly 60 million children connect to the internet each day either at home or at school. Also, 90 percent of 70 million US workers who use computers for more than three hours daily, experience computer vision syndrome in some form or other. About 75 percent of people who work with computers, experience computer vision syndrome.

Risk Factors

The risk factors of CVS include: (i) Age more than 40 years, (ii) Xerophthalmia, (iii) Dry environment, (iv) Keratitis sicca, (v) Kerato-conjunctivitis sicca, (vi) Lens use, (vii) History of vision problem, (viii) Farsightedness (ix) Near sightedness, (x) Dry eye syndrome, (xi) Person who work with computer more than three hours/day, and (xii) Less vitamin intake (vitamin A).

Etiology

- Eye strain and dry eye are two common side effects of daily computer use and main cause of computer vision syndrome.
- Glare from surrounding lamps and lights can lead

to eye strain.

- One of the most common problems in workshop setup is that the monitor of the computer is placed too high.
- Not blinking enough when working with computer (normal blink rate is 16/min).

Environmental Factors

Besides excessive and improper computer use, there are environmental causes that can lead to CVS.

- Heat – the air quality is poor in many offices.
- Dust - contact with dust and dust particles.
- Air-conditioning – poor air conditioning leads to dry environment.
- Cigarette smoking- Incidence of CVS is more among cigarette smokers.
- Use of hair dryers, which can make eyes dry.
- Mental status can also interfere with normal vision.

Signs and symptoms

The symptoms of CVS include : Redness, Slow refocusing, Sensitivity to light, Fatigue, Dry and irritated eyes, Neck ache, Color distortion, Backache, Burning eyes, Blurred vision, Itching eyes and Double vision.

Treatment

According to National Institute of Occupational Safety and Health (NIOSH), computer users should have an eye examination before they start working on a computer and every

year thereafter. Other suggestions are :

- The work environment should have proper lighting.
- Have a break: Full time computer users should take 10 minutes break every hour to reduce strain.
- Refocus your eyes.
- Look away from your computer every 10 to 15 minutes and focus for 5 to 10 seconds on a distant object outside or down the hallway.
- Blink more often to cool your eyes: normal blink rate is 16 per minute.
- Maintain a pleasant environment workstation: adjust your workstation to a correct height. Light the copy stand properly, procure ergonomic furniture to ensure proper location and posture.
- Match the computer screen to the brightness of the environment: closely match the brightness of the environment with that of the computer screen. The contrast between the background and arm screen should be high. Minimise the glare. Use of window shades, blinds or drapes to block out excessive sunlight, or an antiglare screen minimises reflection on the screen itself. Reduce internal ambient light if necessary.
- Exercise even when sitting and move around. NIOSH recommends eye exercises for computer users.
- Be aware when you are not blinking enough, and try to blink more frequently. Take a vision break every 15 minutes or so.
- Use eye lubricants.
- Better use large screen monitor.

- Try to position your monitor about 20 to 26 inches away.

Other Measures

Breath: Breathing regularly will bring more oxygen to your eyes and reduce stress on your vision.

Blink: Remembering to blink will soothe and moisturise the eyes.

Smile: Adding a smile to your exercise will reduce tension.

Exercises

In general each of the exercises selected should be done for one to three minutes, for active computer users try to take 2-3 minutes break every hour on the computer for eye exercises.

General tips when doing eye exercises

- Take off your glasses or contact lenses, you will then feel more comfortable and relaxed.
- When doing exercise intensively, concentrate on your eyes.
- Feel them working and coming to life again.
- Do them on regular basis, ideally three times a day.
- Palming will give energy to the eyes. Blinking helps if you have dry eyes.
- Splashing improves blood circulation.
- Near - far focus improves eye flexibility.
- Swinging relaxes the eye and reduces strain.
- Hydrotherapy improves blood circulation.
- Head rolls relax your neck, head and face muscles and shoulder tension.
- Clockwise rotation exercises will stretch your extra ocular muscles, and

will makes them stronger and more flexible.

Self Care

- General diet rich in carotidnoids, vitamins and minerals is recommended.
- Drink lots of water, at least 8 to 10 glasses of purified water daily.
- Avoid carbonated, caffeinated and alcoholic beverages.
- Manage your stress – meditate, take a walk in nature, practice yoga, visualisation technique or prayer on a daily basis.
- Exercise daily, do at least 20 minutes of aerobic exercise daily like walking and swimming.
- Eye exercises can help to bring energy and blood to the eyes thereby helping to drain away toxins or congestion in the eyes.
- Avoid such foods to which you are allergic.

Yoga for eyes : These include visual jumps up & down, and side to side.

References

Journals

1. Dr S Jose PH Xavier & Prof V Bastin Jerome. "Computer & Health - Computer vision syndrome". Health Action, New Delhi. March 2007. pp 28-30
2. "Computer Vision Syndrome" - Official Journal of TNAI Kerala Branch, Vol 2, No. 1, Jan-March 2007
3. "Computer Vision Syndrome" - The New Indian Express Health, Oct 9, 2007

Internet

1. www.medline.com
2. "Anatomy & Physiology of Eye". Nursing Times, 17 July 2007 Vol 103, No. 29, pp 26-27
3. "Anatomy & Physiology of Eye". Nursing Times, 24 July 2007 Vol 103, No. 30, pp 24-25
4. "Anatomy & Physiology of Eye". Nursing Times, 31 July 2007 Vol 103, No. 31, pp 26.

