Computer Vision Syndrome
*Uddin GM

Computer vision syndrome (CVS) is the combination of eye and vision problem associated with the use of computers, laptop, tab, smartphones and other electronic devices. About 90% computer users experience visual symptoms which may include eyestrain, headache, tired eyes, dry eyes, redness, blurred vision, ocular discomfort and double vision collectively referred to as computer vision syndrome.[1] Majority of researchers addressed the question of radiation levels from video display terminals (VDTs), known to emit many types of radiation including x-ray radiation, optical radiation, and radio frequency radiation.

Non ocular symptoms include headache, pain in the shoulder, neck or back. All of these ocular and extra ocular problems interfere health and work environment of the people in the developing countries like Bangladesh where high temperature, rapid digitalization are the major factors. The computer related vision symptoms have been divided into four main categories namely asthenopic, ocular surface related, visual and extra ocular.

Prolonged VDTs usage has been shown to cause diminished power of accommodation, removal of near points of convergence and deviation of phoria for near vision; known as asthenopic symptoms.[2] Ocular surface related symptoms denotes when computer users complaint of eye dryness, burning, grittiness or heaviness after an extended period of time at the computer.[3]

Dry eye may be a primary cause of ocular fatigue. Several factors are responsible to dry eyes such as environmental factor, reduced blink rate, increased exposure, age, systemic disease, systemic medications and use of contact lens. The cornea is very sensitive to drying and chemical imbalances from environmental factors. Other factors in an office environment includes: dry air, ventilation fans, airborne paper dust, laser and photo copy toner.[4] Normal blink rate is 10-15 times per minute. But when we use VDTs this rate is significantly less than the normal. This reduced blink rate contributes to a poor tear film quality and temporary stresses of the cornea causing symptom of dry eyes. Computer users view their reading material in a horizontal gaze resulting a wider palpebral fissure and an increased surface area exposed to the effects of evaporation. Tear production normally decreases with age. Post-menopausal women usually suffer from dry eyes. Systemic disease Like Sjogren's syndrome patients suffer from dry mouth and rheumatoid arthritis, associate with dry eyes. Some systemic medications including diuretic, anti-histamine, psychotropic and anti-hypertensive are associated with dry eyes. Office workers wearing contact lenses and cosmetic users are found to suffer severity of ocular discomfort.

Visual symptoms of CVS is caused by display quality, lighting and glare and radiation. Poor display quality leads to visual discomfort. Visual performance is affected by various display parameters, like character size, structure, style and by image contrast and stability. Improper lighting conditions of a workstation can affect computer users' ocular comfort. Radiation emission from VDTs is responsible for hazardous effects on computer users.

Treatment of CVS requires a multidirectional approach. Proper lighting within the computer room area will enable the user to improve visual comfort and eliminate visual fatigue. Postural distortions often lead to pain in the back, neck and shoulder. So it is important to properly distance the monitor and maintain proper height. Regular breaks in the computer work can improve work efficiency and decrease in work discomfort.[5]

One of the most simple and therapeutic modes of therapy is lubricating eye drop to relive the symptoms of dry eyes due to decreased blink rate. Computer eyeglasses (anti-glare filters) can improve visual comfort. Computer screen should be usually 24 inches away and slightly below the primary gaze.

A careful history and examination should focus a relation between computer usage and ocular complaints. Best treatment includes modifications in the ergonomics of the workstation, spectates correction, environmental and lighting factors and properly scheduled work breaks from video screens. To most of us, computer have become an irreplaceable necessity in our lives at work and home. As we become conscious about the CVS, we will further protect our ocular health.

Prof. Dr. Md Gias Uddin

Principal (Acting), Ad-din Skina Women's Medical College, Jashore, Bangladesh.

*Correspondence: Email: drgiasuddin446@gmail.com

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