

INTERNATIONAL JOURNAL OF UNANI AND INTEGRATIVE MEDICINE



E-ISSN: 2616-4558
P-ISSN: 2616-454X
IJUIM 2019; 3(1): 51-55
Received: 02-11-2018
Accepted: 03-12-2018

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Aiyya-tul ain (computer vision syndrome) management through unani system of medicine

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Abstract

Computers innovation is one of the biggest achievements of this century to the mankind. From the day of discovery it become the basic necessity and influenced the society. People are depending on different devices of computer for day to day work in every field. Excess of anything causes negative effect in many ways. Prolonged use of computer causes discomfort to humans. *Aiyya-tul Ain* (Computer vision syndrome) in one of the major problem among the computer users. Unani system of medicine one of the oldest system of medicine, guided the people for healthy living by adopting its essential factors for healthy life and through its different treatment modalities. This paper is an effort to sort out the etiology, clinical picture of computer vision syndrome and its management in the light of Unani philosophy.

Keywords: Computer vision syndrome, Unani medicine, *Aiyya-tul Ain*, *Asbāb Sitta Darūriyya*, Regiminal therapy

Introduction

The biggest and one of the important inventions of this era is Computer. It has become an integral part of our life in many ways almost every fields^[1, 2]. Scientist, literate, intellectuals to a common man work on computers and spend time from minute to several hours depending on the types of jobs. Most of them experience eye discomfort and vision problems when viewing digital screens after the use of computer^[1, 2]. The level of discomfort depends on the duration of use and many other factors. This discomfort in vision is known as *Aiyya-tul Ain* (computer vision syndrome/CVS). It is also referred as digital eye strain results from prolonged computer, tablet, e-reader and cell phone use^[1, 2].

According to American Optometric Association, computer vision syndrome (CVS) is a complex of eye and vision problems related to activities, which stress the near vision and which are experienced in relation or during the use computer^[3]. It has been estimated that 23-90% of computer users are suffering from CVS^[2, 3]. Children who used computers for long duration of times have same problem as adults but the way they use computer can make them more susceptible to these problems^[1, 2]. This health related complaints range from visual, musculoskeletal and neural ailments are major concern for physicians. The symptoms of CVS may vary upon various factors which include amount of time spent, viewing distance, seating posture, level of computer screen, vision acuity disturbance, age factor and underlying systemic ailments. These problems can result from poor lightening, glare, an improper work place, vision problems or a combination of these factors^[3]. The purpose of this presentation is to give safe and effective medical remedy through Unani system of medicine.

Material & Method

The literature available on CVS from various sources and Unani classical medical literature related to similar conditions have been searched. It is also make an effect to make a bridge between the condition of today due to excess use of computer in the light of Unani philosophy and regimens.

Observations and Results

There is no specific terminology for CVS in Unani classical literature as such but the similar complaints and conditions are mentioned under the heading of *Aiyya* (tiredness). It is a type of inflammatory condition developed due to prolonged activity by which temperament of affected area changes to hot and causes pain. This *aiyya* may be localized or generalized^[4].

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Due to prolonged usage of computer ayya may developed in ciliary muscles of eyes (*Aiyya-tul Ain*), muscles of neck and shoulders, stress on skeletal muscles of neck and back causes pain, discomfort etc. some other factors e.g. wrong posture, screen light, radiations etc. may also plays an important role. According to Unani philosophy long term working activities without rest may be the reason of *Su'-i-Mizaj Yabis* (deranged dry Temperament) or stress of organ. Working on computer for long duration without break lead to *Su'-i-Mizaj Yabis* (deranged dry Temperament) in eyes, neck and shoulder muscles, which in turn weakens eye and vision^[5] and weak eyes are more prone to get fatigued. This may be responsible for the clinical picture similar to CVS e.g. eyestrain, headache, heaviness, dryness, dullness in eyes etc. The observational and philosophic genius of Unani System of Medicine found one of its best expressions in the six essential factors (*Asbāb Sitta Darūriyya*), whose appropriate deployment in the life of a person, determined by their Temperament, ensures health (6). Six essential factors (*Asbāb Sitta Darūriyya*) i.e. air, food and drink, bodily movement and repose, psychic movement and repose, sleep and wakefulness, and evacuation and retention. These six essential factors are remarkable in providing such six categories that can include a very large number of factors, which may outwardly be quite distant to each other. Thus, one of the six factors is 'movement and rest,' health being dependent on movement and rest appropriate to the Temperament of a person (7). Unani philosopher says 'six essential factors' are not only for maintaining health and preventing diseases, but also for treating diseases. Departing from principles of these factors results into disease, and following them through various modes of regimenal therapy (*Ilāj bi'l-Tadbīr*), including massage (*dalk*), exercise (*riyādat*), turkish bath (*hammām*), cupping (*hijāmat*), venesection (*faṣd*), leeching (*ta'liq*) etc., pharmacotherapy (*Ilāj bi'l-Dawā*) and dietotherapy (*Ilāj bi'l-Ghidhā*), helps to restore health (6).

Prevalence of CVS

It has been estimated that nearly 64-90% among computer users were affected with this problem. It is also estimated that approx one million new computer users comes every year. (6-7). Computers are used by children and adults for their educational and recreational purposes^[3]. India more than 20 million computer users have discomforts due to CVS^[8,9]. Studies suggested that students are more prevalent than others and dryness of eye increases with age and is higher in women than men. The common symptoms are redness, burning sensation, blurred vision and dry eyes as compared to headache, neck, and shoulder pain^[10].

Causes

Several factors like prolonged working hours, inadequate rest breaks, inadequate blinking, constantly staring at a single source are some of the important causes of CVS^[11]. Visual symptoms and complaints are common who spend more than four and six hours continuously on computer screen^[12]. Reduced blinking rate contributes to a poor tear film quality and temporarily stresses the cornea and may lead to symptom of dry eye^[13-14] Blinking plays an important role in maintaining the integrity of ocular surface^[15]. Other environmental factors also producing corneal drying may be low humidity, high forced-air heating or air conditioning sittings or the use of ventilation fans, excess static

electronicity, air borne contaminants^[11]

• Age and Gender

Dryness in eyes depends on age and gender. Dryness in eye increases with age and is higher in women than men^[15].

• Low contrast and angle of screen

Viewing a computer or digital screen is different from reading a printed page. Computer monitor is populated by tiny dots known as pixels. For human eyes it is difficult to focus these pixels they are not uniformly bright. Even at high resolutions the edge of the letter looks fuzzy this adds to strain on eyes and is one of the important causes of CVS^[18]. The level of the contrast of the letters to the background is reduced and the presence of glare and reflection on the screen may make viewing difficult. Even spectacle and contact lens users face difficulty to letters from specific distance of their computer screen. Some tilt their heads at odd angles because their glasses are not specially designed for computer. Or they bend towards the screen in order to see it clearly. Their posture can result in muscular spasm or pain in the neck, shoulder or back^[18].

Theory of Mizaj and CVS

According to Unani philosophy following factors causes changes in normal body temperament locally or generally in the body. These factors may be considered as risk factors for CVS^[5,19].

- Watching continuously on bright light
- Reading of low font writings.
- Excessive sex indulgence
- Chronic constipation
- Intake of salty fishes
- Sleep just after food intake.
- Less blinking, less eye movement also implies *sue-mizaj barid* of eye muscles.

Headache in CVS can correlate with Galen thought, "Gazing continuously at bright light can cause headache which is a type of *sudaa e aasaabi*" (referred headache due to involvement of eyes)^[20].

Pathophysiology

To understand the patho-physiology of CVS we have to switch over two components of *asbab sitta daruriyya* (six essential factors) *nawm-o-yaqza* (sleep and wakefulness) and *harakat-o-sukun e badani* (Physical movement and repose). Normal sleep helps physical faculty, prevents the dispersion of neuma and also restores the essential fluid of the body. During sleep body especially brains regains its energy, strengthen neurological powers, gets relief and comfort and combat its dryness and tiredness occurred during the period of wakefulness. Similarly normal wakefulness is also necessary for health. Lack of sleep and excessive wakefulness weakens neurological functions and digestion which leads to dry temperament of both brain and body. For a good, balance between physical movement and rest of body is essential.

Effects of movements on human body depend upon whether the movement is vigorous or mild, prolonged or short and accompanied with rest or not. Movements produce heat which leads to dispersion of humours and rest is moistening as it protects the dispersion of superfluties^[21]. Hence it can be concluded that imbalance in above two mentioned

essential factors almost always increases the dryness inside the body which is a type of *su-i-mizaj* (deranged Temperament) a form of impaired temperament in which clinical features depend upon its severity. On using computer continuously without break people mostly develop *Su'-i-Mizaj Yabis* (deranged dry temperament) which is responsible for the clinical picture as in case of CVS.

Moreover it is also quoted from classical Unani text that *Su'-i-Mizaj* especially in ciliary muscles of Iris is responsible for narrowing of its aperture (Miosis), which in turn weakens vision. This *Su'-i-Mizaj may be dry or sometimes wet also*.^[19]

When there is *Su'-i-Mizaj Yabis* (deranged dry Temperament) in Iris causes development of abnormal silhouettes (silwat) and spasm (*tashannuj*) in ciliary muscles and hence showed symptoms like fatigue, strain, dryness, dullness etc in eyes^[5, 19]

When *Su'-i-Mizaj Ratab* (deranged Wet Temperament) occurs, it increases tension (Tanaw) in iris muscles, produces *istirkha* (Paresis of ciliary muscles), which in turn again causing narrowing of aperture (Miosis) and weakness of vision developed, which may be a cause of watering and dullness and heaviness in eyes^[19].

Inappropriate sitting posture and or *Su'-i-Mizaj Yabis* both may be responsible for cramps or stiffness in neck muscles and sometimes low backache. Heaviness or headache also can be seen due to *Su'-i-Mizaj Yabis* of brain or simply may be a referred pain due to eye involvement. The condition becomes more pronounced when it is associated with underlying ophthalmic pathology.

Clinical Features

Patient history to determine any symptoms the patient is experiencing and presence of any general health problems, medication taken, or environmental factors that may be contributing to the symptoms related to computer usage. The symptoms of CVS may vary upon various factors which include amount of time spent, viewing distance, seating posture, level of computer screen, vision acuity disturbance, age factor and underlying systemic ailments.

CVS can be diagnosed through a comprehensive eye examination Visual acuity measurement to assess the extent to which vision may be affected. The health related complaints range from visual, musculoskeletal and neural ailments. The most common visual symptoms among people who use computers for prolonged periods and steadily are eyestrain, dry eyes, ophthalmalgia, subconjunctival hemorrhage, irritation, color perception change (achromatopsia), photophobia, decrease visual efficiency and headaches^[22, 23].

Headache in CVS can correlate with Galen thought, "Gazing continuously at bright light can cause headache which is a type of *Sudaa-e-Asabi*" (Referred Headache due to involvement of eyes)^[20].

Uncorrected vision such as farsightedness and astigmatism, can be major contributing factors to computer related eyestrain^[24-26]. A refraction to determine the appropriate lens power needed to compensate for any refractive errors like myopia, hypermetropia, astigmatism etc.

Management

As it is assumed that the different clinical features in CVS are directly proportional to computer usage. For preventing or reducing the symptoms of CVS have to follow the proper

guidelines of use of computer. This includes location & light conditions, position of chair, location of reference materials, position of the monitor, and the use of rest breaks^[19]. Prevention or management of CVS is based on the two principles, eye care and correction the way of viewing of computer screen^[15]. Follow the preventive measures norm and condition of using computer. Use antiglare screen guard on monitor^[25], keep reference material between monitor and keyboard, balance the side around computer, adjust height of chair accordingly use padded and comfortable, take 20 second rest to eyes after every 2 hours of continuous computer use. Blinks eyes frequently to keep surface moist^[2, 28].

Avoid crying and exposure to extreme hot or cold air, sunshine and pollution etc.^[21]. Unani philosophy suggested: *Tadeel-e-Mijaz* (keep temperament normal), treat any systemic illness affecting eye functions, bowel must be clear; follow *Asbab-e-Sitta Daruriya* (Six essential factors for healthy life).

The therapeutics in Unani System of Medicine are described under the major headings of Regimenal therapy ('*Ilāj bi'l-Tadbīr*'), Dieto-therapy ('*Ilāj bi'l-Ghidhā*'), Pharmacotherapy ('*Ilāj bi'l-Dawā*') and Surgery ('*Ilāj bi'l-Yad*'). Regimenal therapy along with Dietotherapy is considered the best approach for promotion of health and treatment of disease.

1. Perform daily light exercise for whole body and Cold pad exercise for eye (Sit in a relax position for 3-5 minutes, place a cotton pad dipped in the rose water on both the eyes), swimming in fresh water. It gives soothing effect and helps reduce burning sensation and keep eye relaxed^[19-21]. Some exercises can also be performed to strengthen eye muscles, like Palm exercise, Swinging exercise, Clock exercise, Candle light concentration, Ball exercise etc.^[30, 31]. Rub eyes gently on awaking and massage all extremities^[19].
2. Stimulate vomiting and sneezing centre on empty stomach both improve vision^[19].
3. Application of Leech on bilateral temporal regions improve the vision^[19].
4. Give some stimulation in scalp by combing^[19].
5. If there are signs of dryness inside the body advise *Hammam* (Turkish bath), *Natool* (Head irrigation) of lukewarm water on head. Give *Inkibab* (Bhaphara) and put some drops of almond oil into the nose^[4]. Pour few drops of Almond oil in nose and ear also^[29].
6. Cupping at nape of the neck and shoulders relieves muscle spasm and pain of eyes^[19].
7. To improve vision pour few drops of *Rasaut* (*Barbaris aristata* Linn) soaked in plain water or a mixture prepared from rose water and *Rasaut* in both eyes. *Kuhl-e-Rasaut* (coryllium of *Rasaut*) once in a week is also recommended as eye tonic. Oral as well as local use of cinnamon is also beneficial for eye strength^[19].
8. For ophthalmalgia and congestion:
 - Pour 2-3 drops of freshly prepared *Arq-e-Badiyan* (distillate of *Foeniculum vulgare* Mill.), *Aab-e-Anaar* (Fresh juice of *Punica granatum* Linn.) into the eyes. It produces soothing effect and helps in relieving burning and redness of eyes^[4].
 - Apply of *Usaara-e-Barg-e-Gulab* (distillate of *Rosa damascena* Mill.) as liniment and *Sharbat-e-ward* produces soothing effect^[19, 20], Galen recommended application of Melon pulp for relieving ophthalmalgia.

[19]

- Applied paste prepared from *Usaara-e-Bhang* (extract of *Cannabis sativa*) along with *Aarad-e-Jau* (flour of *Hordeum vulgare* Linn.) or Paste of *Barg-e-Banafsha* (*Viola odorata* Linn.) as single or with *Aarad-e-Jau* (flour of *Hordeum vulgare* Linn.) for ophthalmalgia and subconjunctival hemorrhage. [19]
 - Unani Scholars also suggested for use of *Halela* (*Terminalia chebula* Retz.) to improve vision or its functional capacity [20].
 - Milk produces soothing effect when used locally. Apply on the eye with the help of cotton by dipping in fresh milk to relieve ophthalmalgia and subconjunctival hemorrhage [19]. It is also quoted from classical texts that pouring of few drops of breast milk into the eyes on bed time is highly beneficial for relieving pains [19, 29].
9. For relieving spasm and narrowing aperture (Miosis) of ciliary muscle *shyaaf* (Ophthalmic suppository) made up of *Zafraan* (*Crocus sativus* Linn.) and *Aas* (*Myrtus communis* Linn.) [19]
 10. Climatic conditions may also to be kept in mind hence, if there is headache and or neck stiffness and temperature is normal (*Motadil*), then advice lukewarm massage with *roghan e gul* (oil of *Rosa damascena* Mill.), *Roghan-e-soya* (oil of *Anethum sowa* Roxb. ex Flem.) In winter season massage with *Roghan-e-soya* (oil of *Anethum sowa* Roxb. ex Flem.) is sufficient to relieve muscular spasm [20].
 12. Neck pain and headaches can also get relieved with application of *Roghan-e-baaboona* (oil of *Matricaria camomilla* Linn.), *Roghan-e-Soosan* (*Lilium chalcedonicum* Linn.) or *Roghan-e-Chameli* (oil of *Jasminum officinale* Linn.) [20].
 13. If there is an associated systemic illness then treat accordingly with above mentioned eye protecting measures:

Dietotherapy

- Bowel must be always clear taken diet laxative in nature [19].
- If CVS is associated with general debility and weakness, give high calorie and nutritious diet [19].
- *Zafran* (*Crocus sativus* Linn), almond oil and honey as health tonic for overall body and beneficial for eyes as well [19].
- Avoid eating of excessive salty and spicy foods causing body dryness like lentils (*Lens culinaris* Medic), black mustard (*Brassica nigra* (Linn.) W.D.J. Koch), brinjal (*Solanum melongena* Linn.), garlic (*Allium sativum* L.), onion (*Allium cepa* Linn.) etc. [19, 21].
- Avoid food causing weakness of vision: heavy to digest and *mubakhkhir* (Flatulent) foods like fenugreek leaves (*Trigonella foenum-graecum* Linn.), dates (*Phoenix dactylifera* Linn.), cauliflower (*Brassica olearacea* Linn.), vinegar, heavy proteins etc. [19, 21]
- Turnip (*Brassica rapa* Linn.) as food sharpens vision, water of soaked gram (*Phaseolus mungo* Linn.), and carrot (*Daucus carota* Linn.) (raw and cooked) improves and strengthen eyes [20].

Conclusion

Prolonged and continuous computer work without following

recommended guidelines for its usage give birth to ocular and neuromuscular ailments which although are self limiting and relieved by merely taking rest, but sometimes it becomes permanent, affecting working efficiency especially in professionals. It is concluded that the unani classical approach of *Asbab Sitta Daruriya* for eye care and general health measures with some regimens and dietotherapy can managed the common problem of IT, computer professional. It may be concluded that by adopting the measure of healthy life management of Unani may reduce the problem. It is recommended that IT professionals may adopt preventive and curative measure of Unani medical system for healthy and long life.

Conflict of Interest: None

Acknowledgement: Authors are thankful to Director General, Central Council for Research in Unani Medicine for providing a good atmosphere of research in the council under the umbrella of Ministry of AYUSH, Government of India.

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