MANAGEMENT OF COMPUTER VISION SYNDROME THROUGH
AYURVEDA

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ABSTRACT

In the present era of prolong and rampant computer usage, there has been rapid upsurge in computer related health problems. People are spending more and more time on screens. Prolonged exposure to VDTs has been the cause of a visual and ergonomic disorder called “Computer Vision Syndrome” (CVS). CVS is growing public health issue and contributing significantly towards reducing quality of life and productivity at work place. Therefore, an Ayurvedic approach in understanding the samprapti and management thereafter is hypothesized for CVS. The symptoms of CVS are irritated eyes, eye strain, blurred vision, red eyes, burning eyes, double vision and headache. So, these symptoms are related to vata-pitta pradhana vyadh in Shushkakshipaka. Shushkakshipaka is one among “Sarvagata Netra Rogas” mentioned by Sushruta as well as Vagbhata under Sadhya Vyadhis. This paper aims to review multifacets of Ayurvedic management of CVS which is common lifestyle disease among youngsters worldwide.

KEYWORDS: Computer Vision Syndrome(CVS), Digital Eye Strain, Shushkakshipaka.

INTRODUCTION

Undoubtedly technology has revolutionized the world and benefitted the society but its impact can be devastating on human health. With an increased use of digital technology in every field, it has become indispensable for an individual to keep computers, laptops, mobile etc. at bay. Moreover, the affordable prices, increased productivity, and social changes have led to computers and mobile computing devices being used by a large proportion of population. Professionals spend increasing amounts of time sitting at their computer work-
stations and take less and less breaks. With increasing demand for more productivity and tight deadlines workers are exposed to more hours of work in front of computers. Not only adults at their workplaces but at academic institutions, kids also now a days are getting education by various new methods in which digital devices have become an important part and they acquire cellphones at younger ages and are using more frequently for recreational purpose. Digital screens emit a specific type of blue light, which is a high energy (HEV) light with short wavelengths that penetrate deep into the eye and can have a negative effect on vision.

Unplugging and neglecting mobile phone for a while has become impossible for some. As a result, exposure to digital screens is part of our daily routine. Excessive dependence and overuse of digital devices has led to increased number of patients complaining about ocular and nonocular symptoms which has given a term Digital Eye Strain or Computer Vision Syndrome. A variety of electronic devices can cause digital eye strain, including television, desktop, laptops, smartphones, e-readers, tablets, and gaming systems. As these devices are used by a large number of population in everyday life, CVS has become a major public health issue.

Prevalence of CVS ranges from 64% to 90% among computer users.\textsuperscript{[1]} Nearly 60 million people suffer from CVS globally, and million people suffer from CVS occur each year.\textsuperscript{[2]}

**Disease Review**

The American Optometrist Association (AOA) defines CVS as “A complex of eye and vision problems related to near work which are experienced during or related to computer use.”\textsuperscript{[3]} Most commonly reported symptoms of prolonged users of VDT’s comprise dry and irritated eyes, eye strain/fatigue, blurred vision, red eyes and burning sensation. Ergonomic problems associated with computer use include muscular stiffness, cervical pain, headache, numbness of the fingers.\textsuperscript{[4]} The prevalence of eye symptoms among computer users ranges from 25-93% as reported by various investigators. These symptoms of CVS are due to ocular (ocular-surface abnormalities or accommodative spasms) and/or extra ocular (ergonomic) etiologies.

Symptoms of computer vision syndrome are broadly classified into four categories: i) asthenopic – sore eyes, eye strain, (ii) ocular surface related- dry eye, irritation, watering, (iii)
visual – double vision, blurred vision, slowness of focus change iv) extra ocular – shoulder pain, neck pain, back ache.[5]

**Diagnosis of CVS**
A comprehensive eye examination is to be done to diagnose CVS

- Patient history to determine any symptoms the patient is experiencing and the presence of any general health problems, medications taken, or environmental factors that may be contributing to the symptoms related to computer use.
- Visual acuity measurements to assess the extent to which vision may be affected.
- A refraction to determine the appropriate lens power needed to compensate for any refractive errors.
- Testing how the eyes focus, move and work together.

**Ayurvedic View**
Direct reference of Computer Vision Syndrome is not found anywhere in Ayurveda Classics, but Acharya Charak has advocated clear guidelines for identification and treatment for such maladies which are not mentioned in the texts.[6] By analyzing the symptoms, it can be correlated with Shushkakshipaka which is a Sarvagata Netra Roga explained by both Sushruta and Vagbhata.

**Hetu**
Causes of CVS can be understood according to Ayurvedic concepts.

- Atiyoga of Darshanendriya (Excessive use of eye) : Continuous long working ours staring at VDTs
- Mithyayoga of Darshanendriya (Improper use of eyes): Abnormal working hours, continuously viewing screens of digital devices without blinking, Working in dimly lit room
- Sooksham nirikshnat : Viewing very small fonts against very bright illumination
- Ati Samipayat : Concentrating more on the near work without shifting gaze

**Rupa**
The symptoms of CVS are related to vata-pitta pradhana tri-dosa vitiation at chakshurendriya leading to the sthanasamshraya (lodged) in netra (eyes).
Shushkakshipaka is one among “Sarvagata Netra Rogas” mentioned by Sushruta as well as Vagbhata under Sadhya Vyadhis, caused by Vata and Pitta Doshas.

According to Vagbhata it is characterized by Gharshan(foreign body sensation),Toda (picking pain), Upadeha (Coating), Rooksha Darun Vartma (Hardness and Roughness of eye lids), Sushkata (dryness) and Shoola(pain and desire for cold comforts).[7]

Shushkakshipaka is a disorder of the eye characterized by difficulty while closing the lids because of
- Daruna Rooksha Vartma Yat Kunitam (Hardness and Roughness of the Eye Lid).
- Avila Darshana (Patient cannot see the Objects Clearly).
- Sudarunam Yat Pratibodhanam (Difficulty in Opening/Closing the Eye).

**Samprapti**


**Management**

Along with Ocular therapy, adjustment of the workstation can very well manage symptoms of Computer Vision Syndrome.

The main concept of treatment of Netra roga is Nidan parivarjan and Vatadi doshanashak. Nidana Parivarjana is the first and foremost Chikitsa in CVS. Vaatadi Doshashama includes Sthanika and Sarvadehika treatment procedures like Shamana and Shodhana which include Rasayana, Aushadha, Kriyakalpa and Panchkarma. Tarpan, Seka, Netradhara, Netra-prakshalan etc. used as Sthanaika (local) treatment while Nasya used as Shodhana treatment for Sarvadehika purpose.

**Nasya Karma**

In Ayurveda, Panchkarma therapy is used for the maintenance of health and eradication of diseases from their root and Nasya Karma is one among them. In this therapy, the medicine is administered through nose either in the form of ghee, oil, powder, liquid or smoke. It helps in nourishing the ocular structures and providing lubrication to eyes. According to Doshaj symptom Vagbhatta acharya while explaining type of Nasya as Pratimarsha Nasya has
mentioned Klamanaashaka i.e. it reduces the fatigue and eye strain. It improves the vision and hence can be useful in relieving the symptoms like blurred vision, difficulty in focusing, double vision, and eye strain. It also does the Vatashamana, hence can be useful in relieving the pain in the neck and shoulder also.\(^8\) Shaman Nasya helps in treating the redness of the eyes, and it reduces the linear congestion.\(^9\) Sneha Nasya acts as rejuvenating therapy where it strengthen functions of sense organs & improves the vision.\(^{10}\)

Probable mode of action: In Ayurveda it is said that Nasa hi Shirasodwaram. i.e. nasal cavity leads to the structures of the head.\(^{11}\) So medicines administered through such route spreads to the following parts - Eyes through the nasolacrimal duct, Middle ear - through the Eustachian tube, Intra cranial spaces - through the middle ear. The Nasya dravya acts by reaching ‘Sringataka marma’. Sringataka is a main vital point situated on the surface of the brain corresponding to the nerve centres. It is a composite structure consisting of four Shiras (arteries) in connection with four sense organs-viz, nose, eye, ear and tongue. It is an experimentally proved that wherever any type of irritation takes place in any part of the body, the local blood circulation is always increased. The same things happen when provocation of Doshas take place in Shira due to irritating effects of administered drug resulting in increase of the blood flow circulation of brain. So extra accumulated morbid Doshas are to be expelled out from small blood vessels and ultimately these morbid Doshas are thrown away in the Nasal discharge, tears and by salivation. The nasal mucosa which comes into direct contact with the drugs applied directly included in Nasya therapy is supplied by many nerve ending, specially Trigeminal nerve. Direct counter irritation or stimulation of those nerve terminals could cause distal changes in the Trigeminal ganglion itself and impulses are transmitted to the central nervous system. This results in better circulation and nourishment of the organs and the disease will subside. Probably the Nasya karma stimulates the Trigeminal neurons which inturn may lead to alleviation of headache and other symptoms.\(^{12}\)

**Properties of Nasya dravya**

Most of the drugs described for Nasya therapy have got Katu (Bitter), Ushna (Hot) and Teekshna (Sharpness) properties. These drugs produce dravekaranam (liquification) and chedanam (expulsion) of vitiated doshas. The Kashaya rasa (Astringent) drugs produce astringent effect while Madhura rasa (Sweet) drugs produce cooling and nourishing effect.
Eye wash (Prakshalan)
Eyewashes are very beneficial for soothing irritation and burning sensation in eyes. In this procedure, mouth is filled with cold water (without swallowing it) and then cold water is splashed over the opened eyes. This is a very effective method and it has a double cooling effect, both from outside and from the oral cavity, that will make eyes feel fresh, cheerful and strain free. For eyewash, in one glass boiled water, one fourth teaspoon of Triphala, Lodhra and Yashtimadhu powder are kept overnight and on next day, water is strained, particles are discarded and eyes are washed with this water twice a day. Triphala is a well known chakshushya medicine and Lodhra and Yashtimadhu provides cooling effect.

Akshi Tarpana
Akshi Tarpana is the most revered Kriya Kalpa extensively used in Netra practice. It nourishes the eyes, improves & strengthens the Drishti Shakti and thus relieve tiredness eyes. It is a very effective, preventive & curative procedure in Vataja & Pittaja vikaras and also for maintaining ocular health. In this procedure special medicated ghee of choice (such as Triphala Ghrita, Mahatriphala Ghrita, Jeevantyadi Ghrita, Yashtimadhu Ghrita) is filled inside the ring made with black gram floor around the eye socket and ghee is made to stay inside the ring for a specific period of time and patient is advised to blink repeatedly. During this procedure, patient is advised to avoid the exposure of strong winds and bright lights, and other luminous objects.

The medicated ghee possesses lipophilic properties, which facilitate the transportation of the medicaction into the cells as the cell membranes are made up of lipids. Hence, the therapeutic action of this procedure occurs at cellular level. The phosholipid nature of these medicated ghritas also allows the entry of the medicinal molecules into the eyes through the cornea. The corneal epithelial layer is permeable to the lipid – soluble substances. Hence, it allows the lipid-soluble Ghrita to cross the corneal epithelium to reach the inner layers of eyes.

Tarpana forms an occlusive film over the surface of the eyeball and improves the composition of tear film by enhancing the mucin and aqueous layers.

Eye Massage
Massage over eyelids and muscles over brow, temple and upper cheek with Cow Ghrita or Bala oil use bare hands and fingers over closed eyes stimulate the blood circulation around
eyes which can stimulate tear glands to help prevent dry eyes helps relax eye muscles, which may reduce some of the symptoms of eye strain.

**Bidalaka**
Bidalaka is the application of medicated paste on the outer surface of eye i.e. eyelids. Bidalaka relieves burning sensation, excessive tears and redness of eyes.

**Snehapana (Gritapana)**
In this therapy oral intake of heavy dose of medicated Ghrita is advised. Dose of Sneha for oral intake is decided for a patient after assessing the digestive fire. Intake of old Ghrita is very useful for the ocular tissues. After Pana, the Ghrita gets absorbed into the systemic circulation. Due to Chakshushya properties, it has an affinity towards ocular tissues and due to its lipid soluble property crosses blood ocular barriers. By active and passive transport the ingredients of the Ghrita crosses the cell membranes and reach the targeted tissues thereby correcting the abnormalities of ocular tissues, lubricating and rejuvenating it.

**Virechana**
After good lubrication of body with Ghritapana, Sneha Virechana is administered to patient to eliminate the toxins out of the body. In this procedure, due to medicinal effect patient gets loose motion for a day and thus, the desired detoxification of whole body is attained.

**Yogic practices**
Yogic practices help to relieve fatigued eye muscles and also build up the stamina of eye muscles. They include changing focus of eyes from side to side simultaneously, changing focus of eyes forward and sideways simultaneously, rotational viewing, viewing upwards and down simultaneously, nose tip gazing, near and distant viewing followed by palmimg exercise. During these practices frequent blinking is advised to provide a good tear film for healthy eyes. The Asanas included vajrasana, shashankasana, pawanmuktasana I and II, utthitadwipadasana, bhujangasana, & hastapadasan. These asanas bring circulation to the face, neck and shoulders which need to be energized and relaxed for improved vision. Bhramari Pranayam is very relaxing for whole body and eyes.
Preventive Measures

- The computer work-station should be ergonomically correct.
- Take breaks and blink your eyes every now and then and look out from the window to a distant object or to the sky. Follow 20-20-20 rule by giving break to eyes after every 20 minutes, focusing an object 20 feet away for 20 seconds.
- Appropriate glasses or contact lenses for correction of refractive errors, if any should be used

- **Consider computer glasses** – Computer glasses are prescription eyewear that are specifically designed for computer work. They allow to focus eyes on the distance of a computer screen, which is generally farther away than reading material. Computer glasses optimize eyesight when you one is looking at digital screens and help to reduce glare.

**CONCLUSION**

In light of the "digital revolution," we are spending more and more time looking at digital devices than ever before. We now have immediate and unlimited access to information and to one another. Sight is the most abused of our five senses as to most of us, computers have become an irreplaceable necessity in our lives at work and home. We need to protect our ocular health and thus prevent the epidemic of the 21st century. These Ayurvedic therapeutic measures can provide long term relief from the symptoms and hence cost effective than using artificial lubricants for long term use which can even cause toxicity due to preservatives present in them.

**REFERENCES**


