

REVIEW ARTICLE ON ROLE OF *TARPARNA* IN COMPUTER VISION SYNDROME

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ABSTRACT

Computer vision syndrome (CVS) is a complex of eye and vision related problem that experienced during prolong computer use. The conventional and main approach in the management of CVS is lubricating eye drops, but frequently instillation of eye drop develops drug toxicity and costly regime. To overcome these lacunas, it is necessary to find out drugs or therapy which can be beneficial for management of CVS without any side effect. Therefore, in this review article an attempt is made to asses CVS and discuss about role of '*Tarpana*' in preventing CVS.

Keywords: Computer Vision Syndrome, *Tarpana*.

INTRODUCTION: The use of computers and digital electronic devices has become the necessities of life. This unnecessary prolonged exposure to digital devices has been the cause of ocular disorder termed as computer vision syndrome (CVS). The symptoms associated with CVS are dry eyes, eye strain, fatigue, excessive tear secretion, red eyes, burning eyes, blurred vision, light or glare sensitivity and the musculoskeletal problem like neck pain, shoulder pain. These symptoms result from ocular surface abnormalities or accommodative spasm or extraocular etiologies. The present trend of treating CVS is ocular surface lubricant, computer glasses and counseling for judicious computer use, but these treatment modalities have very little effect.ⁱ

According to American optometric Association, constant looking at the monitor or screen decreases the blinking rate of eyelids due to this reduces moisture in the eyes drastically and causes dryness. In 21st century, CVS is a major occupational hazard and it affects approximately 70 % of all computer users.

A data from worldwide shows about 60 million people suffering from CVS and 1 million new cases recorded each year.ⁱⁱ

There is no description of CVS in Ayurvedic texts, but according to *Charaka*, if the name of the disease is not known then consider the pathophysiology and dominance of *Tridoshas* for the treatment of disease.ⁱⁱⁱ

Symptoms of CVS are similar to the symptoms of *Shushkaakshipak* of *Sarvagata Netravadyahi*. Symptoms of *Sushkaakshipak* are *Gharshan* (grittiness), *Toda* (pricking sensation), *Bheda* (pain), *Updeha* (coating), *Krichomeelan* (difficulty in opening and closing of eye lids), *Vishushkata* (dryness), *Rooksh Vartma* (dryness of eyelids), these symptoms can be correlated with symptoms of CVS. On the basis of *Tridoshik* theory of Ayurveda, as per guideline given by Acharya Charaka, CVS seems to be a *Vata pittajanya Vyadhi*.^{iv} Many local therapeutics are described for management of *Netravikara*, among them *Netratarpana* is the highly beneficial for eye disorder. The alternative word for

Netratarpana is *Netrabasti*. *Netratarpana* means nourishment or rehydration of eyes.^v

AIM AND OBJECTIVES

- To explore textually the etiopathogenesis of CVS according to Ayurvedic concept as well as modern point of view.
- To review of the Ayurvedic approach to management of CVS.

Disease review:

Symptoms of CVS are classified into four group

1. Asthenopia – Asthenopia is a word that describes the strain on the eyes for any reason.
2. Extraocular symptoms- Musculoskeletal symptoms such as neck pain, shoulder pain, headache these symptoms are often due to improper placement of computer screen.
3. Ocular surface related symptoms- Dryness of the eyes, red eyes, gritty sensation and burning of eyes.
4. Visual symptoms like blurred vision, double vision, and difficulty in changing focus.

Dryness and redness of eyes are common factors found in computer users due to the absence of adequate blinking of eyelids.^{vi} The normal blinking rate is about 16-20 per minute, but while working on a computer the blink rate comes down 6-8 blink per minute because of continuous staring at the computer screen. It leads to evaporation of corneal tear film and causes dryness.^{vii} Uncorrected refractive error can increase the intensity of symptoms of CVS. The computer monitor is made up of small dots called pixel. It is difficult to focus on the screen of the computer. The character (pixel) on computer screen are not uniformly bright and produce a slight difference in contrast, as a result the letter

appears hazy even at high resolutions. This increases strain on the eyes and it is important cause of CVS.^{viii}

Ayurvedic Review

According to Charaka, *Asatmendriarth Sanyoga* is one of the causes of disease^{ix}. *Asatmya sanyoga* means composite of *Indriyarth* which are harmful to body and mind.

In CVS the *Asatmendriarth Sanyoga* of *chakshurendriya* is as follow-

1. Heen yoga – less use of *Chakshurendriya* (working on computer without blinking)
2. *Atiyoga* – Excessive use of *Chakshurendriya* – spend a lot of time on the computer screen
3. *Mithya yoga* – Watching continuous changes in brightness of computer screen, seeing computer from very short distance, watching flickering image, small fonts. All these factors together lead to the cause of *Doshprakopa*. These aggravated doshas accumulated in *Bahya Patalas* and produced symptoms of CVS.^x
4. *Pradnyaparadh- Mansika pradnyaparadh* may observe in the patients suffering from CVS. These patients are mostly under mental stress because of the nature of their jobs specially those who are working in the software companies, call centres etc.
5. *Parinama-* Aggravated *Vatadi dosha* lead to increases dryness in the eyes due to exposure to cold in air conditioned atmosphere by CVS patients. The duration of work can also be considered under *Kala* i.e, the longer the period the patient is exposed to computer work he is more prone to develop CVS.
6. *Purvaroop-* The features explained initially under CVS are seen to be explained under *Purvaroop* of *Netrarogas* by Acharya *Sushruta* are

Avila, Samrambha, Ashru, Kandru, Upadeha, Guru, Oosha, Toda, Ragayuktam, Sashoolam Vartma-kosheshu. Shukapurnabham.^{xi}

7. *Rupa*- Dryness of Eye & other signs and symptoms explained in CVS are included under the heading '*Rupa*'.

Management of Computer vision syndrome

The aim of Ayurvedic management in *Netrarogas* is to remove the etiological factors and normalize the deranged *Vata* and other *Doshas*.^{xiii} *Tarpana* is the most prestigious *Kriyakalpa* often used in Ayurvedic practice. It is a procedure of inducing '*Tripti*' (satisfaction) to the eye in which pouring of lukewarm oily substance through specially prepared border over eyes. The eyes are made to open and close several times.^{xiii}

Indication of Tarpana-

By virtue of nourishment *Tarpana* is effective in following condition

Visual disturbance; *Timira*, *Avil Darshana*

Dry eye condition: *Ruksha*, *Parishushkata*, *Ati vishushka*, *Daruna*, *Klishta Vartma*

Disease of eyelids: hardness painful eye lid, damages eyelashes, *Daruna Vartma*.

Structural deformities like squint.^{xiv}

According to *Acharya Vagbhata Tarpana* is effective even in these Conditions-

Difficulty in the movement of eye ball and eye lids: *Stabdhatata*, *Krichhonmila*

Diseases of *Shuklamandala*: *Sirotpata*, *Siraharsha*, *Arjuna*

Disease of *Krishna mandala*: *Savrana Shukla*, *Avrana Shukla*

Sarvagata roga: *Abhishyanda*, *Adhimantha*, *Anyatovata*, *Vataparyaya* and *Sushkaaakshipaka*

Mode of action of Tarpana in CVS

Ghrta being *Madhura* and *Sheeta*, is the best remedy for diseases occurring due to vitiation of *Vata* and *Pitta doshas*. *Netra*

or *Chakshurendriya* has dominance of *Majja Dhatu*. Since *Ghrta* provides best nourishment to the *Majja Dhatu* hence it acts as *Balya* for the eyes.^{xv}

When combined with properly prepared decoction of medicines, the *Ghrta* penetrates into the micro-channels of the body. Therefore after the application of *Ghrta* into the eyes, the *Ghrta* penetrates into all the *Patala's* of eye and thus it cleans and purifies every micro part of the eye.

The medicines put topically penetrate into the eyes through the cornea. The corneal epithelium acts as a barrier due to its lipophilic nature. It gets crossed by the non-polar drugs. The corneal stroma being hydrophilic in nature, it allows easy passage of drugs through the endothelium into anterior chamber.

The transportation of the drug to the target cell is accelerated by lipophilic action of *Ghrta*. Drug penetration into the eyeball via the corneal surface is enhanced by the lipophilic action of *Ghrta* this occurs because the corneal epithelium is permeable to lipid soluble substances. *Tarpana* with *Ghrta* maintain the lipid layer of tear film which minimize the evaporation of the aqueous layer of the tear film so, it helps to maintain the consistency of the tear film, thereby maintaining normal nutrition of the eyes and it minimizes the signs and symptoms of CVS.^{xvi}

DISCUSSION:

In Ayurvedic classical texts, the CVS is not mentioned directly but the principles of Ayurveda can be applied for the better understanding of CVS. The *Hetu* (cause) of CVS is the inappropriate use of *Chakshurendriya*. This causes symptoms like eye strain, dry eyes, headache, burning

sensation etc. There are two reasons responsible for this pathology.

1. Debridement of the tear film caused by continuous exposure of eyes to the computer screen and lack of eye blinking which maintains the tear flow.

2. Fatigue of the extraocular and intraocular muscles occurs due to continuous movements of the eyeball while working.

The *Tarpana* helps to maintain the normal moisture of the sclera and cornea and thus it prevents the corneal scaring. The *Ghrita* is *Chakshushya* in nature and when it is medicated with the *Chakshushya Dravyas*, the results get enhanced.

CONCLUSION: The use of digital devices for work and social purposes often for many hours each day is now common among people of all age group. The rapid increase in their use has ushered in a new era of occupation hazard which is known as CVS. A multidirectional approach is required for management of CVS. Health education, modification of ergonomics and appropriate ocular therapy are combined effective in CVS. Temporary symptomatic relief can be obtained by available modern modalities like artificial tear supplements. Ayurvedic procedures like *Tarpana* lubricates the eyes which maintain pre-corneal tear film. *Tarpana* can be beneficial for the management of CVS without any side effect. It can be used as alternative to tear supplementation.

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