



### Computer vision syndrome in children & it's management:

#### An Ayurvedic approach

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#### Abstract:

Technology has become such an integral part of our life, most of us spend many hours staring at screens today. The digital devices in the form of computers, laptops, i-pads & smartphones etc. are included in day to day lives of everyone. So now a days working adults are not the only ones who are dealing with computer vision syndrome (CVS), even children are affected because of this. Today millions of children use computers & smartphones daily. Too much screen time may cause vision problems for kids. CVS also called digital eye strain. CVS comes under *Netrarogas* in *Ayurveda*. Acharya *Sushruta* & *Vagbhata* have described about *netrarogas* in detail in *Uttartantra* as compared to other *Acharyas*. So an attempt has made to understand the wisdom of our

*Acharyas* through *Ayurvedic* classics interpreted by them long ago.

#### Keywords:

computer vision syndrome, *Netrarogas*, *Shushkakshipak*,

#### Introduction

Computer Vision Syndrome (CVS) is also called digital eye strain-is a condition that is caused by visual stress from extended screen time. CVS is leading occupational hazard of 21st century. Globally, CVS is one of the major public health problem. Today millions of children use computers, smart phones, gaming devices & screen time among them is all time high. Extensive viewing of screen can lead to eye discomfort, eye strain, dry eyes, blurred vision, and neck & shoulder

pain. We can co-relate CVS with *Shushkakshipak* & *Anyatovata netrarogas* described by *Sushruta* & *Vagbhata*.

### Incidence:

- In India smart phone user population in 2018 was 610 million & it will reach 1.25 billion up to 2024
- Indian smart phone users consume maximum data in the world at 9.8GB per month & it will reach up to 18GB in 2024. Out of these users 80% have discomfort due to CVS

### Aims & Objectives:

- To collect references from Ayurvedic texts regarding CVS
- To co-relate CVS with the concept of *Ayurveda*
- To find out the treatment modalities in *Ayurvedic* texts described by our *Acharyas*

### Material & Methods:

- The data is collected from Ayurvedic texts & internet Google search.
- Anatomy of *Netra* by *Ayurvedic* View

### Review of Literature:

**Synonyms of *Netra*** - *Netrabudbud*, *Chakshu*, *Akshi*, *Nayana*, *Druk*

**Shape** - Shape of *Netra* is round and like Gostana or egg shaped, parabolic Size - 1. Antah-pravesh or height (vertical diameter)-2.0 angula. Ayama or parinaha (antero-posterior diameter)-2.5 angula 3. Vistara or breadth (horizontal diameter)-2.5 angula. Panchmahabhutas & Eye Basic

Constitution of *netra* is panchmahabhautic but *Teja mahabhutadhikya* is there Part of eye 1. Mansa 2. Rakta. 3. Krushnamandal 4. Shuklamandal 5. Ashrumarg. Dominant mahabhuta Pruthvi Agni Vayu Apa Akash Saptadhatu & Eye. Rasa- Eye lids, cornea, tears, aqueous humour. Rakta- Vascular coat of eye Mansa- Intra & extra ocular muscles Meda- Lens, vitreous humour, fat in the orbital cavity. Asthi- Bones of orbital cavity, part of *nasolacrimal* duct, nervous coat Majja- Eye lashes, eye brows, excreta of eye. *Shukra*- Luster of eye, oiliness over eyelids, strength of eye *Mandala* - *Sandhi* - *Patala* (Layer-Joint-Segment) *Mandalas* are 5 *Sandhis* are 5 *Patalas* are 5. Physiological View of Eye Eye works like a camera. Eyelids as Shutter, Cornea & Lens as Focussing system, Iris as Diaphragm, Choroid as Darkened interior, Retina as Light sensitive plate of camera respectively.

### Visual Pathway:

Cornea > Aqueous humour > Pupil > Lens > Vitreous humour > Retina > Optic nerves > Optic chiasma > Optic tracts > Lateral geniculate bodies > Optic radiations > Visual cortex or Occipital cortex.

### Physiological View of *Netra*:

*Netra* is most important, sensitive & dominant functionally amongst five sense organs. *Acharya Sushruta* gave prime position to *Netra* in *Uttartantra*. *Netra* is special sense organ - 'what to see' & 'what not to see' is decided by *mana* (human mind) & the eye obeys. The other 4 sense organs depend on vision Sense organ - *Chakshurindriya*.

- Predominant *mahabhuta* - *Taja*
- Predominant *doshas* - *Alochak pitta* & *Tarpak kapha*.
- *Dnyanendriya adhishtan* – *Roopa* (sight).
- *Buddhi* of *dnyanendriya* - Is created by togetherness of *chakshurindriya*, *buddhi*, *mana* & *atma*

#### Aetiology of CVS By Modern Science:

1. Extensive & continuous screen work without break
2. Distance from screen
3. Glare of screen
4. Faulty seating posture & angle of head to screen
5. light intensity of surroundings
6. Infrequent blinking of eyes

#### Hetus According To Ayurveda:

A) Improper use of sense organs i.e. *Chakshurindriya* (*Asatmyendriyarthasanyoga*)

B) Violating the moral code of conduct (*Pradnyaaparadha*)

1. Observing distant objects
2. Looking at minute objects
3. Staring at a point continuously for longer period ( T.V., computer & smart phone)
4. Reading for longer hours
5. Reading in dim light
6. Alcoholism
7. Over smoking
8. Kopa of krodha & shoka
9. Mental torture
10. Over indulgence of sex
11. Eyes exposed to fumes, smokes, dust

C) Time effect

1. *Rutuviparyaya*
2. Suppression of reflexes of tears, vomiting etc.

#### Frame of Samprapti:

All etiological factors cause vitiation of *Vata* & *Pitta doshas*, via *sira* vitiated *doshas* traverse to *Netra* causing *Shushkakshipaka* & *Anyatovata*.

- *Dosha* - *Vata* (*Sushruta*) *Vata Pitta* (*Vagbhata*)
- *Dushya* - *Rakta Sadhyasadhyatva* - *Sadhya*

#### Clinical Features:

1. Headache (*shirashula*)
2. Eye irritation/pain
3. Eye fatigue
4. Dry eyes (*akshishushkata*)
5. Blurred vision/double vision
6. Red eyes
7. Neck & shoulder pain
8. Watering of eyes

Treatment Modalities According to Ayurveda:

#### Management is twofold

1. *Sankshiapta* - Removal of etiological factors i.e. *Nidanparivarjana*
2. *Vistruta* - *Shodhana* & *Shamana*
  - *Netra Tarpan Putapaka*
  - *Aschotana Bidalaka*
  - *Shirodhara*
  - *Shiro Abhyanga Nasya*
  - *Pada Abhyanga*

## Discussion:

CVS is emerging & worrisome ocular condition affecting both young & old equally due to increased usage of screen both at work & at home. There is correlation between screen usage & CVS. No remedial measures in modern medicine except using ocular surface lubricants, computer glasses & counselling for judicious screen use. Changing the working style is possible upto some extent for adults, but it is highly impossible for young & kids to control them from viewing videos & social media.

## Conclusion:

Overall review of this study suggests that the holistic approach described in *Ayurvedic* texts will be more useful in management of CVS.

Still it needs further clinical studies to explore the importance & efficiency of *Ayurveda* to avoid further complications of life style disorders such as insomnia, diabetes, hypertension, obesity etc. which are life threatening.

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*Conflict of Interest: Non*

*Source of funding: Nil*

*Cite this article:*

*"Computer vision syndrome in children & it's management: an Ayurvedic approach."*

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*Ayurlog: National Journal of Research in Ayurved Science- 2020; (8) (5):01- 04*