



Clinical Research

Clinical efficacy of Ayurvedic management in computer vision syndrome: A pilot study

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Abstract

Improper use of sense organs, violating the moral code of conduct, and the effect of the time are the three basic causative factors behind all the health problems. Computer, the knowledge bank of modern life, has emerged as a profession causing vision-related discomfort, ocular fatigue, and systemic effects. Computer Vision Syndrome (CVS) is the new nomenclature to the visual, ocular, and systemic symptoms arising due to the long time and improper working on the computer and is emerging as a pandemic in the 21st century. On critical analysis of the symptoms of CVS on *Tridoshika* theory of Ayurveda, as per the road map given by Acharya Charaka, it seems to be a *Vata-Pittaja* ocular cum systemic disease which needs systemic as well as topical treatment approach. *Shatavaryadi Churna* (orally), *Go-Ghrita Netra Tarpana* (topically), and counseling regarding proper working conditions on computer were tried in 30 patients of CVS. In group I, where oral and local treatment was given, significant improvement in all the symptoms of CVS was observed, whereas in groups II and III, local treatment and counseling regarding proper working conditions, respectively, were given and showed insignificant results. The study verified the hypothesis that CVS in Ayurvedic perspective is a *Vata-Pittaja* disease affecting mainly eyes and body as a whole and needs a systemic intervention rather than topical ocular medication only.

Key words: Computer vision syndrome, *Shatavaryadi Churna*, *Tarpana*

Introduction

Eye holds a special status among all the sense organs. Eyes are the most precious gift of God to the living beings. When the human race evolved, hunting was very essential for survival; hence, they were specialized for distant vision works that could enable the man to hunt. With the passage of time, science developed; and today, no longer does he require hunting in the forests. Rather, he has to hunt the internet on computer in a closed chamber.

Today, in the 21st century, where we are living in a highly sophisticated environment, computer is one of the most developed technologies which are used presently by the children, the young and the old. More and more men are sitting in front of the computer for longer hours, which is a highly vision demanding task. But the eyes are still structured according

to the old hunting days and are unable to cope up with the demand of computer work, leading to ocular and systemic discomfort coined as Computer Vision Syndrome (CVS).

No remedial measures for the prevention and cure of this pathology prevail in the domain of modern medicine except using ocular surface lubricants, computer glasses, and counseling for judicious computer use.^[1] This opens the door to the other systems of medicine including Ayurveda to suggest experiments and contribute alternative modalities to alleviate or to check the sufferings of the computer users.

Ayurveda, the first systematic health system on this planet, has kept the doors open to prospective/undescribed health problems to be incorporated in the system on the fundamental grounds.^[2,3] Upon critical and systematic review of CVS, its etiopathogenesis in view of the given guidelines regarding the new health problem seems to be a group of *Vata-Pitta* dominant ocular cum systemic symptoms.

Acharya Vagbatta has indicated cooling and rejuvenating therapies for eyes affected by bright light, high-voltage electric spark, and heat exposure.^[4,5] This phenomenon is also close to the etiopathology of CVS. So, local therapy in the form

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of *Tarpana Kriyakalpa*^[6,7] and systemic *santarpana* (anabolic nutritional supplement) with *Shatavaryaadi Churna*^[8] has been studied in the management of CVS.

Aims and objectives

- To study the CVS in Ayurvedic perspective.
- To know the effects of *Shatavaryaadi Churna*, *Go-Ghrita Tarpana*, and changing the working style and standards in the treatment of CVS.

Materials and Methods

Selection of patients

Patients were selected from the Shalaky Tantra (eye unit) OPD of the hospital affiliated to R. G. Govt. P. G. Ayurvedic College, Paprola, Distt. Kangra (HP), for the present study. A total of 30 patients of CVS were registered irrespective of age, sex, caste, and religion.

Inclusion criteria

All patients using computer at least 2 h/day presenting with following clinical features of CVS were included in this study:

- Eye strain - Blurred vision
- Dizziness/nausea - Headache
- Redness - Burning sensation
- Dry eye - Changed color perception
- Slow refocusing - Excessive fatigue (neck/shoulder/back pain)

Exclusion criteria

- Patients not willing for registration.
- Cases complicated with acute, chronic, infective conjunctivitis, any specific eyelid disorders, corneal ulcers, dacryocystitis, and lagophthalmos.
- Patients suffering from any systemic or metabolic disorders.

Method of study

By random sampling technique, the diagnosed patients, who fulfilled the inclusion criteria, were divided into the following three groups:-

- Group I – In this group, *Shatavaryaadi Churna* with *Ghrita* and *Madhu Anupana* orally and *Tarpana Karma* with *Go-Ghrita* was given.
- Group II – In this group, only *Netra Tarpana* with *Go-Ghrita* was given.
- Group III – Counseling for changing the working style and standards on computer was given.

Drug schedule

Group I

Shatavaryaadi Churna was given orally in a dose of 3 g twice daily with *Ghrita* and *Madhu Anupana*, and *Tarpana Karma* with *Go-Ghrita* was given 5 days in a week, followed by a gap for 15 days, and then the same was repeated again. The dose of *Go-Ghrita* for *Tarpana* was customized, i.e., to the level of drowning the eye lashes in it.

Group II

Tarpana Karma with *Go-Ghrita* 5 days in a week, then a gap for 15 days, and then the same is repeated again.

Group III

- Counseling regarding proper posture of the patient while working on the computer.
- Low illumination of the monitor screen of the computer.
- Good room illumination or light.
- Frequent blinking and intervals of rest.
- Plenty of fluid intake.
- Regular eye check-up and use of computer glasses.

Duration of trial

The trial of therapy was carried out up to 1 month for all groups.

Follow-up

Follow-up was done fortnightly to assess the changes and patients were followed up for the next one month for withdrawal effects.

Criteria of assessment

Grading and scoring system was adopted for assessing each clinical feature before the commencement of trial and after the completion of trial.

Results and Observations

Demographic data have been presented for 30 patients, while clinical data and observations were made on 22 patients who completed the trial, and similarly the results were analyzed and are presented in Tables 1-3.

Demographic profile

It revealed that the incidence of CVS was higher, i.e., 73.33%, in the age group of 21–30 years, and was 56.66% in males and 96.66% in Hindus. Majority of the patients, i.e., 53.55%, were full-time computer workers and 46.66% of them belonged to middle socio-economic status. Most of the patients, i.e., 26.66%, were using computer for 8–10 h/day; 83.33% of patients were on mixed diet. The incidence was more, i.e., 50%, in patients with *Vata-Pittaja Prakriti*. Maximum number of patients, i.e., 43.33%, was addicted to tea or coffee, 36.66% of patients were having regular bowel habits, and 56.66% of patients were having sound sleep. Most of the patients, i.e., 63.33%, were having graduate qualification, and 63.33% of patients were unmarried. Maximum number of patients, i.e., 56.66%, belonged to rural area, and 90% of patients were having no refractive error.

Clinical profile

Maximum number of patients, i.e., 93.33%, was having eye strain, while 83.33% patients had excessive fatigue (neck or shoulder or back pain). 80% patients had blurred vision and burning sensation, while 76.66% patients had headache and slow refocusing. 56.66% patients had change in color perception, while 66.66% had redness. 30% patients had dizziness or nausea and only 16.66% patients had dry eye.

Discussion

Demographic profile

Majority of the patients were in the age group 21–30 years because this age group used computer more than the other age groups. Maximum number of patients was Hindus because

Table 1: Effect of the therapy in trial group I

Cardinal feature	No. of patients	Mean		D	% of relief	±SD	±SE	“t”	P
		BT	AT						
Eye strain	9	2.22	0.22	2.0	90.09	0.5	0.166	12	<0.001
Blurred vision	8	2.0	0.22	1.77	88.88	0.85	0.28	6.24	<0.001
Dizziness/nausea	7	1.33	0.22	1.11	83.70	0.78	0.36	4.26	<0.01
Headache	9	1.55	0.33	1.22	79.06	0.84	0.28	4.37	<0.01
Redness	7	0.88	0.11	0.77	88.38	0.68	0.23	3.41	<0.05
Burning sensation	9	1.66	0.22	1.44	86.61	0.74	0.25	5.86	<0.001
Dry eye	1	0.11	0.0	0.11	100	0.33	0.11	1.0	>0.05
Change in color perception	6	1.22	0.22	1.0	81.96	0.87	0.29	3.46	<0.05
Slow refocusing	8	2.33	0.22	2.11	90.48	0.60	0.20	6.28	<0.001
Excessive fatigue (neck/shoulder/back pain)	9	1.77	0.22	1.55	87.50	0.74	0.25	10.53	<0.001

Table 2: Effect of therapy in trial group II

Cardinal feature	No. of patients	Mean		D	% of relief	±SD	±SE	“t”	P
		BT	AT						
Eye strain	8	2.125	0.375	1.75	82.35	0.46	0.16	10.69	<0.001
Blurred vision	6	1.5	0.25	1.25	83.33	1.03	0.37	3.42	<0.05
Dizziness/nausea	1	0.125	0.125	0.0	0.0	0.0	0.0	0.0	>0.05
Headache	5	1.125	0.375	0.75	66.66	0.71	0.25	3.00	<0.05
Redness	5	0.75	0.125	0.625	83.33	0.74	0.26	2.38	>0.05
Burning sensation	5	0.875	0.25	0.625	71.42	0.74	0.26	2.38	>0.05
Dry eye	1	0.25	0.0	0.25	100	0.71	0.25	1.0	>0.05
Change in color perception	4	0.875	0.25	0.625	71.43	0.92	0.32	1.92	>0.05
Slow refocusing	5	1.875	0.875	1.0	53.33	0.53	0.19	5.29	<0.01
Excessive fatigue (neck/shoulder/back pain)	7	1.25	0.375	0.875	70.0	0.99	0.35	2.497	<0.05

Table 3: Effect of therapy in trial group III

Cardinal feature	No. of patients	Mean		D	% of relief	±SD	±SE	“t”	P
		BT	AT						
Eye strain	3	1.4	1	0.4	28.57	0.55	0.24	1.63	>0.05
Blurred vision	5	1.4	1	0.4	28.57	0.55	0.24	1.63	>0.05
Dizziness/nausea	0	0.0	0.0	0.0	0	0	0	0	>0.05
Headache	3	1.2	0.8	0.4	33.33	0.55	0.24	1.63	>0.05
Redness	3	0.6	0.6	0.0	0.0	0.0	0.0	0.0	>0.05
Burning sensation	3	1.4	1.0	0.4	28.57	0.55	0.24	1.63	>0.05
Dry eye	1	0.4	0.2	0.2	50.0	0.44	0.20	1.0	>0.05
Change in color perception	3	0.8	0.6	0.2	25.0	0.44	0.20	1.0	>0.05
Slow refocusing	5	1.8	1.2	0.6	33.33	1.44	0.51	1.17	>0.05
Excessive fatigue (neck/shoulder/back pain)	3	1.0	0.8	0.2	20	0.44	0.20	1.0	>0.05

this area (where the trial was conducted) is a Hindu dominated area. Most of the patients were full-time computer workers and using computer for 8–10 h/day, which shows that prevalence of CVS is more in long time computer users because they have no time for rest (break). Most of the patients belonged to middle socioeconomic status, and their over stress of responsibility (which demands over work) as well as not meeting the required nutritional demand adds into the precipitation of CVS. Most of the patients were addicted to tea or coffee. Maximum number of patients was of *Vata–Pittaja Prakriti*, again suggestive of CVS, a *Vata* dominating *Pittaja* disorder.

Maximum number of patients belonged to rural area because this study was done in a rural area.

Clinical profile

Effect of therapy in group I

In dry eye which was the only subjective feature, because objectively (i.e., Schirmer-I test and T-BUT) they had no findings, the percentage of relief was 100%, which was statistically insignificant ($P > 0.05$) owing to the reason that ‘n’ was 1, i.e., <6.

In eye strain the percentage of relief was 90.09%, in blurred vision 88.88%, in burning sensation 86.61%, in slow refocusing 90.43%, and in excessive fatigue (neck or shoulder or back pain) 87.50% relief was observed, which were statistically highly significant ($P < 0.001$).

In dizziness/nausea the percentage of relief was 83.70% and in headache 79.06% relief was observed, which were statistically significant ($P < 0.01$).

In change in color perception the percentage of relief was 81.96% and in redness 88.38% relief was observed, which were statistically significant ($P < 0.05$).

Effect of therapy in group II

In dry eye which was only subjective, the percentage of relief was 100%, which was statistically insignificant ($P > 0.05$) owing to the reason that 'n' was 1, i.e., < 6 .

In eye strain the percentage of relief was 82.35%, which was statistically highly significant ($P < 0.001$). In slow refocusing the percentage of relief was 53.33%, which was statistically significant ($P < 0.01$).

In blurred vision the percentage of relief was 83.33%, in excessive fatigue (neck or shoulder or back pain) 70%, and in headache 66.66% relief was observed, which were statistically significant ($P < 0.05$).

In dizziness or nausea the percentage of relief was 0%, in redness 83.33%, in burning sensation 71.42%, and in change in color perception 71.43% relief was observed, which were statistically insignificant ($P > 0.05$).

Effect of therapy in group III

In eye strain the percentage of relief was 28.57%, in blurred vision 28.57%, in dizziness/nausea 0%, in headache 33.33%, in redness 0%, in burning sensation 28.57%, in dry eye 50%, in change in color perception 25%, in slow refocusing 33.33%, and in excessive fatigue (neck or shoulder or back pain) 20% relief was observed, and all of them were statistically insignificant ($P > 0.05$).

Conclusion

The discussion on ocular and non-ocular symptoms of CVS in the perspectives of Ayurveda is clearly suggestive of *Vata* dominating *Pittaja* vitiation in eye and body as a whole. These pathological factors give rise to *Vata-Pittaja* ocular surface symptoms like *Vataja*, *Ppittaja Raktaja Abhishyanda*, as well as *Shushkakshipaka* (dry eye syndrome). Not only ocular surface discomfort but also *Vata-Pittaja* dominating disorders of vision,

i.e., *Timira*, are manifested in CVS patients. The generalized or physical symptoms of CVS are also the manifestations of vitiated *Vata* and *Pitta*.

As per the given fundamentals regarding naming an unknown disease, CVS may be coined as "*Sanganak Atiyoga-Janya Netra Samlakshana*."

- *Shatavaryadi Churna* with *Ghritha* and *Madhu Anupaan*, along with *Tarpana Karma* with *Go-Ghritha* was more effective in relieving the different ocular as well as non-ocular features of CVS.
- *Tarpana Kriyakalpa* alone was less effective in relieving the different features, especially ocular features of CVS.
- Changing the working style and standard alone was least effective in relieving the CVS.
- During the course of study, no significant adverse effects were observed.
- However, this is only a preliminary study conducted as a part of postgraduate research training program, and further clinical and experimental studies of longer duration on larger sample of patients with follow-up are required to establish the curative effect of *Shatavaryadi Churna* and *Tarpana Karma*.
- To sum up, it can be concluded that CVS is *Vata-Pitta* vitiation pathology and needs to be managed by lubricating (*Snigdha*) and rejuvenating (*Rasayana*) measures, both locally and systemically.
- It is hoped that the observations made in this work will be helpful for future studies and to the mankind as a whole.

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हिन्दी सारांश

कम्प्यूटर विज्ञान सिण्ड्रोम के आयुर्वेदीय उपचार के मूल्यांकन पर एक चिकित्सात्मक अध्ययन

करतार सिंह धीमान, दीपक कुमार आहूजा, संजीव कुमार शर्मा

ज्ञान-विज्ञान के संग्रहण विश्लेषण व प्रस्तुतिकरण के साधन रूप में संगणक का अविष्कार २० वीं शताब्दी की प्रमुख देन है। दिनोदिन इसका प्रयोग इतना बढ़ गया है कि इस के बिना जीवन अधूरा प्रतीत होता है। कम्प्यूटर का अति प्रयोग व असमयक प्रयोग नेत्र पीड़ादि व सार्वदैहिक प्रतिकूल वेदनाओं की उत्पत्ति का जनक भी बना है जिसे कम्प्यूटर विज्ञान सिण्ड्रोम नाम दिया गया है। आयुर्वेद परिपेक्ष्य में इस का तार्किक विवेचन करने पर यह वात और पित्तज नेत्ररोग व सार्वदैहिक लक्षणों का समूह रोग है। कम्प्यूटर पर कार्य करते समय उचित प्रयोग दर्शक शिक्षा-निर्देशों का पालन व नेत्र स्नेहकारक नेत्रबिंदु के अतिरिक्त अन्य उपचार आधुनिक विज्ञान के पास नहीं है। अतः अक्षितर्पण व शतावर्यादि चूर्ण के चिकित्सकीय उपयोग का मूल्यांकन इस अध्ययन में किया गया जिस में इस रोग लक्षण समूह से पीड़ित ३० रुग्णों ने भाग लिया। अध्ययन में आयुर्वेदीय उपचार रुग्णों में अति लाभदायक पाया गया है।

