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Nutan Chougule
Shalakya Tantra, Jain AGM Ayurveda Medical College and Hospital, Varur, RGUHS Karnataka, India

Mangala Morbale
Rasa Shastra and Bhaishaj Kalpana, Sant Gajanan Maharaj Ayurveda Medical College and Hospital, Mahagaon, Kolhapur, Maharashtra, India

Corresponding Author:
Nutan Chougule
Shalakya Tantra, Jain AGM Ayurveda Medical College and Hospital, Varur, RGUHS Karnataka, India

Efficacy of Netra-Tarpan with Triphala Ghrit in dry eye/computer vision syndrome

Nutan Chougule and Mangala Morbale

Abstract
In modern era and in lockdown period people are more exposed to computer screen and pollution due to industrialization. Many peoples have to outdoor jobs like marketing, salesmanship. Information technology is also growing fast and providing job opportunities to young generation. But drawback of this job is employees have to work on computer more than 8 hours daily. In these peoples due to outdoor jobs and prolonged computer work eyes get dry due to exposure to wind, sunlight, dust and lack of blinking during computer work which hampers formation of uniform tear film. This results in dryness of cornea which leads to blurring of vision during continuous work. Long standing conditions results in itching, redness and foreign body sensation in eyes which may include headache pain in neck and blurred vision. To treat these patients, Ayurvedic special therapy "Netratarpan" is one of the best options. Hence this therapy was selected for comparative study in treating patients having Dry eye/computer vision syndrome. Total 50 patients having Dry eye/computer vision syndrome and willing to participate in study were selected for each group i.e. experimental and control group. These patients were selected from patients attending OPD of Netra Vibhag, Shalakya Tantra department, Jain AGM ayurvedic medical college. The study was carried at AGM Jain Ayurved Hospital, varur from Feb 2020 to 30th Sep 2020. Group A was treated with Netra-tarpan with Triphala Ghrit. Netra-tarpan was given for subsequent 3 days each week for three months duration. Group B was prescribed carboxymethyl cellulose (lubricating) eye drops for three months duration. Both groups were advised eye exercise, precautions to be taken during near and computer work as well as to use sun goggles for protection from pollution, dust and sunlight. Assessment of treatment was done on the basis of relief from symptoms before and after treatment. Triphala Ghrit is rich in vitamin A as well as it contains linoleic acid. Due to these contents it has anti-inflammatory property and also helpful in treating xerosis and dry eyes. After this comparative clinical study it can be concluded that dryness and other complaints in patients of Dry eye/computer vision syndrome who were treated with Netra–tarpan with Triphala Ghrit from Group A were better treated than Group B.

Keywords: Carboxymethyl cellulose, computer vision syndrome, dry eye, eye exercise, netra–tarpan, triphala ghrit, xerosis

1. Introduction
Dry eye/computer vision syndrome occurs due exposure to pollution, dust, sunlight and meibomian gland dysfunction. It is common in peoples doing outdoor jobs and information technology professionals who are working on computer more than 6 to 8 hours daily. These patients have complaint of burning sensation, itching & foreign body sensation in eyes 5-8. Etiology: It is a response to prolonged effect of environmental factors such as exposure to sun, dry heat, wind and pollution. These symptoms are common in people doing jobs like salesmanship and working on computer for long time. Lack of blinking during computer work results in dryness of cornea which lead to blurring of vision during continuous near and computer work. Nutritional deficiency and decreased water intake worst the condition. Other proposed theories include an inflammatory disorder, immune system and tear film abnormalities 5-8. Pathophysiology: In peoples doing outdoor jobs and prolonged computer work eyes get dry due to exposure to wind, sunlight, dust and lack of blinking which hampers formation of uniform tear film. This results in dryness of cornea which leads to blurring of vision during continuous work. Long standing conditions results in itching, redness and foreign body sensation in eyes. Primary prevention: As UV radiation, exposure to dust, pollution outdoor jobs, regular computer work job for more than 6 to 8 hours daily is believed to play an important role in the pathophysiology, avoidance of UV exposure is probably important to primary prevention. Regular break for rest, palming, eye movements, habit of natural blinking during continuous and prolonged near work or computer work, ocular surface lubrication may also help. Need of research topic: The increased globalization, industrialization has increased job opportunities in marketing, salesmanship and information

technology. In these job employees have to travel frequently as well as increased working hours which may be at night time. People doing outdoor jobs and prolonged computer work gets their eyes dry due to exposure to wind, sunlight, dust and decreased blinking during computer work. This results in dryness of cornea which leads to blurring of vision during continuous work. Long standing conditions results in itching, redness and foreign body sensation in eyes. Hence there was a need to give a safe effective line of treatment which will give relief from dry eyes [2-4].

2. Aim and Objectives

Aim

To study comparative results of Netra-tarpan with Triphala ghrit in patients having Dry eye/Computer vision syndrome.

Objectives

1. To study the etiology and pathology of Dry eye/Computer vision syndrome.
2. To aware and educate the people to take care to avoid Dry eye/computer vision syndrome.

2.1. Materials and Methods

Selection of drug

Trial drug Triphala ghrit was selected for Netra-tarpan1-4. Procurement of Drug: Triphala ghrit contents are Aawla (*Embelia officinalis*), Hirda (*Terminalia chibula*) and Behda (*Terminalia bellirica*). Market preparation of Triphala ghrit was preferred [3, 5].

2.2. Research design

Study population

The study population was selected from patients attending OPD of Netra Vibhag, Shalakya Tantra department, AGM Jain Ayurved Hospital, Varur. Sampling: Sampling was done randomly. Study sample: Patients having Dry eye/computer vision syndrome were from Hubbli city and its periphery. Sample size: Total 50 patients having Dry eye/computer vision syndrome, willing to participate in study were selected for each group i.e. experimental as well as control group. These patients were selected from patients attending OPD of Netra Vibhag, Shalakya Tantra department, AGM Jain Ayurved Hospital, Varur. Study setting. Diagnostic criteria: The diagnosis is made by slit-lamp examination. Patients were examined thoroughly for sign and symptoms which include redness, dryness of eyes and any papillae or follicles at palpebral conjunctiva. The diagnosis is most often clear clinically. Inclusion criteria: Patients of 20 to 50 years age group, having Dry eye/computer vision syndrome and willing to participate in study were selected. Exclusion criteria: Patients suffering from pothaki, kumbhaki and other shothjanya vyadhi of vatrma (follicles, papillae, giant papillae, concretions). Patients having vathat vartma, kruchonmilan and pkshmagat vyadhi (ptosis, lagohthalmos, entropion and ectropion). Patients having Adhimanth (glaucoma) svrana and avrana shukla (corneal ulcer and corneal opacity), corneal degeneration and vascularization. Contact lens wearer as well as HIV patients were not included for clinical study. Patient not following line of treatment regularity in treatment.

2.3. Technique of data collection

The patient suffering from Dry eye/computer vision syndrome were selected for the study as per inclusive and exclusive criteria. Detail history in particular format was taken with present complaints which include itching, burning, redness, foreign body sensation as well as visual acuity and other ocular examination was done thoroughly. Patients were examined after every week up to three months duration. After three months duration of therapy according to relief from the symptoms the assessment of effect of therapy was done to evaluate results.

2.4. Treatment and methodology schedule

Patients having Dry eye/computer vision syndrome were selected for the study. These patients according to their age group were divided randomly in two groups. i.e. Experimental Group (Group A) and Control group (Group B). Care was taken that equal number of patients of each age group should come (i.e. 20 to 30, more than 30 to 40 and more than 40 to 50) in both Group A and B. Group A was treated with Netra-tarpan with Triphala Ghrit. Netra-tarpan was given for subsequent 3 days each week for three month duration. Group B was prescribed carboxymethyl cellulose (lubricating) eye drops for three months duration. Both groups were advised eye exercise, reading habits care of eyes during computer work or near work for extended period and to use sun goggles for protection from pollution, dust and sunlight. Precaution for Procedure of Netra-Tarpan: Triphala ghrit used for Netra-tarpan was sterile to avoid infection and inflammation to eye. Udad Pali was used for Netra-tarpan. Flour of Udad dal (black lentils) was used for preparation of dough for pali around eye. Fresh preparation was used for Netra-tarpan each time. Proper sterilization precautions were taken using autoclave method to avoid infection and contamination [1 ,2, 6, 7].

2.5. Procedure of netra-tarpan1-4

Snehan with til tail and aardra swed was given at mukh and manya pradesh to each patient before Netra-tarpan. Dough was prepared using flour of Udad dal, which was used to prepare Pali around eye for Netra-tarpan. Triphala Ghrit was made luke warm in steel container with the help of hot water. Then it was gently poured with spoon in the Netra pali from apang or kaninika sandhi (lateral canthus or medial canthus). Pouring of Triphala Ghrit directly on karnika (cornea) was strictly avoided. Triphala ghrit was poured till eye lash merge in Ghrit. Patient was asked to blink gently so that Triphala-ghrit should reach every part of eye. Luke warmness of Triphala-ghrit was maintained by removing old and adding fresh luke warm Triphala-ghrit time to time as per season. The procedure of Netra-Tarpan was carried for 10 to 15 minutes. After that Triphala-ghrit was removed from netra pali and pali was also removed and patient was asked to wash eyes with luke warm water. Patient was advised to use sun-goggle to avoid contact of dust, air and pollution [1, 8].

2.6. Duration of therapy

- Three months.
- 10 to 15 minutes duration Netra-tarpan daily for subsequent 3 days each week for three month duration.

2.7. Assessment criteria

- Patient was examined after every seven days.
- After completion of three months duration the patients were examined relief from symptoms like itching, redness, foreign body sensation of eyes. Comparison of symptoms before and after treatment was done.
- Assessment of therapy was done by status relief in symptoms and signs before and after treatment. Gradation score method was adopted for assessment of symptoms and signs as follows. Sign and symptoms like itching, redness, and foreign body sensation of eyes.

Table 1: Score method for assessment of sign and symptoms before and after treatment [2, 3]

Sr. No.	Sign and symptoms grade	Score
1	Absent	0
2	Mild	1
3	Moderate	2
4	Severe	3

3. Observation and Results

Table 2: Relief in itching according to score method before and after treatment in group A and B [2, 6]

Grade for itching (Score)	Group A (No. of patient)		Group B (No. of patient)	
	Before treatment	After treatment	Before treatment	After treatment
Absent (0)	5	34	7	24
Mild (1)	17	11	20	15
Moderate (2)	23	7	19	12
Severe (3)	8	1	8	3

Table 3: Statistical analysis of relief in itching before and after treatment in group A and B

	Score of itching of eyes group A		Score of itching of eyes group B	
	Before treatment	After treatment	Before treatment	After treatment
Mean	1.69	0.52	1.55	0.83
SD	0.85	0.80	0.87	0.93
T test	9.83 *P*<0.01		7.80 *P*<0.01	
% relief	70.26		46.78	

Table 4: Relief in redness according to score method before and after treatment in group A and B [2, 6]

Grade for itching (Score)	Group A (No. of patient)		Group B (No. of patient)	
	Before treatment	After treatment	Before treatment	After treatment
Absent (0)	17	42	19	34
Mild (1)	22	6	18	11
Moderate (2)	11	4	9	5
Severe (3)	4	1	4	0

Table 5: Statistical analysis of relief in redness before and after treatment in Group A and B [2, 6]

	Score of itching of eyes Group A		Score of itching of eyes Group B	
	Before treatment	After treatment	Before treatment	After treatment
Mean	1.00	0.03	0.96	0.43
SD	0.89	0.68	0.96	0.68
T test	7.28 *P*<0.01		6.26 *P*<0.01	
% relief	72.11		46.79	

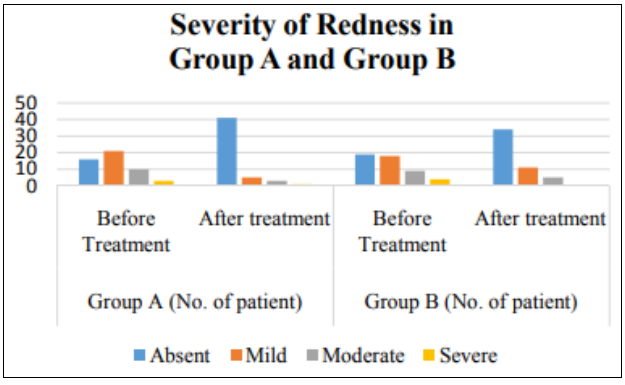

Fig 1: Graphical presentation of relief in redness before and after treatment in group A and B. Statistically there is highly significant relief [7]

Table 6: Relief in foreign body sensation according to score method before and after treatment in group A and B [2, 6]

Grade for foreign body sensation (Score)	Group A (No. of patient)		Group B (No. of patient)	
	Before treatment	After treatment	Before treatment	After treatment
Absent (0)	13	37	9	31
Mild (1)	28	12	32	17
Moderate (2)	9	1	8	3
Severe (3)	2	0	3	0

Table 7: Statistical analysis of relief in foreign body sensation before and after treatment in group A and B [2, 6]

	Score of itching of eyes Group A		Score of itching of eyes Group B	
	Before treatment	After treatment	Before treatment	After treatment
Mean	1.02	0.29	1.10	0.43
SD	0.78	0.55	0.76	0.62
T test	9.93 *P*<0.01		7.96 *P*<0.01	
% relief	72.56		59.79	

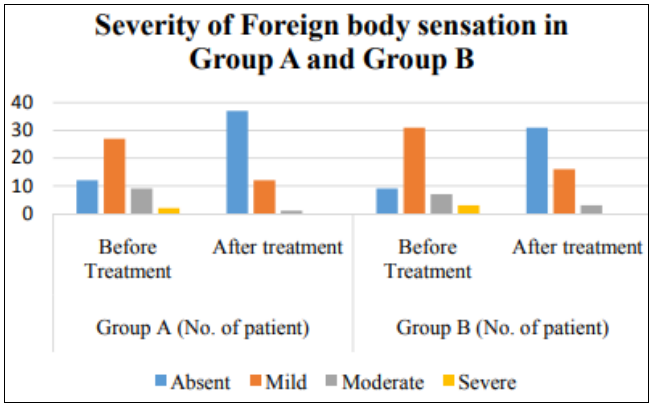

Fig 3: Graphical presentation of relief in foreign body sensation before and after treatment in group A and B [7]

After above mentioned therapy for three months duration, patients of Group A shows better relief as compare to Group B. Overall therapy effect is noticeable effective.

4. Discussion

In Ayurveda many exclusive therapies are described which can be combined with modern for synergetic effect for benefit the patient and give the better quality life. In Shalakya Tantra "Netra-kriyakalpa" is also a unique and effective therapy for treating and preventing eye diseases.1-4 "Netra-tarpan" is one of them. Most of the symptoms of Dry eye/computer vision syndrome are due to dryness conjunctiva and cornea, contact of allergens to eye and vitamin A deficiency. Netra-tarpan gives smoothening effect to eye. Thus useful in preventing dryness and inflammation which may be induced by allergen contact as well as friction due to dryness. Supplementation of Vitamin A also treats its deficiency induced symptoms and helps to enhance healthy status of eyes [8].

4.1. Probable mode of action

Triphala and ghrit both are having Netrya property. Ghrit contains K2 and lionelic acid. It is having anti-inflammatory and anti-cancer property. Ghrit is also rich in vitamin A. Suplimentation of Vitamin A reduces and treats dryness which occurs due to its deficiency. In Netra-tarpan all these properties nourishes the conjunctival as well as corneal layers and avoid dryness and inflammation of tissue of conjunctiva

and cornea. Thus helps to avoid dryness of eyes also gives smoothening to layers of conjunctiva and cornea. Its Chakshushya guna improves the health status of eyes.

5. Conclusion

The clinical study reveals that use of Netra–tarpan with Triphala ghrit in patient of Dry eye/computer vision syndrome helps to cure dryness also improves the health status of eyes [1].

5.1. Limitation

The study was limited to single geographical area having hot and dry climate. Sample size was small. Recommendation for future research: The clinical study was a sincere effort to study the effect of Netra–tarpan with Triphala Ghrit in treatment of Dry eye/computer vision syndrome. Suggestion related to the study are welcome. As the sample size is small, the study has its own limitations so there is need to study and collect data in bigger sample size.

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