

A CLINICAL STUDY TO EVALUATE THE EFFICACY OF TIMIRHAR LAUHA ON
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ABSTRACT

Introduction: Visual acuity commonly refers to clarity of vision, but technically rates a person's ability to recognise small details with precision. This ability is compromised in people with refractive errors like Myopia and Hypermetropia. The symptoms of these refractive error closely resembles with the disease *Timir*. It involved *pratham* and *dwitiya patala* of *Netra*. **Material and Methods:** In the present study, 30 clinically diagnosed patients of visual acuity / *Timir* were selected and randomly divided into two groups (Group –A -15 patients, Group –B-15 patients). Patients of group A were administrated *Timirhar lauha* with *Sukhoshana jala*. While patients of group B were administrated *Timirhar lauha* with *Madhu*. **Result:** The study shows that *Timirhar lauha* with *Madhu* had much greater potential to ameliorate the symptoms of visual acuity / *Timira*.

KEYWORDS: Visual acuity, *Timir*, *Timirhar lauha*, Myopia and Hypermetropia.

INTRODUCTION

Visual acuity (VA) commonly refers to the clarity of vision, but technically rates a person's ability to recognize small details with precision. Visual acuity depends on optical and neural factors. Optical factors of the eye influence the sharpness of an image on its retina. Neural factors include the health and functioning of the retina, of the neural pathways to the brain, and of the interpretative faculty of the brain.

The most commonly referred-to visual acuity is distance acuity or far acuity (e.g., "6/6 vision"), which describes someone's ability to recognize small details at a far distance. This ability is compromised in people with myopia, also known as short-sightedness or near-sightedness. Another visual acuity is near acuity, which describes someone's ability to recognize small details at a near distance. This ability is compromised in people with hyperopia, also known as long-sightedness or far-sightedness. A common optical cause of low visual acuity is refractive error (Ametropia): errors in how the light is refracted in the eyeball.

Timira is the *Drishtigata Rog* explained by all the *Acharyas*. *Timira* is a disease, which starts with simple

visual disturbance (*Avyakta Darshana*) but if unattended it may lead to ends in complete loss of vision (*Linganasha*). Due to this reason all the *Acharyas* have paid special attention to this disease. The clinical features of *Timira* (first *Patalashrita- Avyakta Darshana*- indistinct distance vision and second *Patalashrita-Vihwala Darshana*- blurred vision) can be correlated symptomatically with refractive errors.

In Ayurveda, various treatment formulations are advocated for **Timira Roga** for enhancement of vision. Here *Timirhar Lauha* (Ref. *Rasendrasara samgrah*^[1]) was selected for present study along with *Madhu* and *Sukhushana Jala* as *Anupana*.

As the disease *Timira* is degenerative in nature, the *Chakshushya*, *Rasayana* and *Tridosha* mitigating action might be helpful in such type of disorders. Majority of *Rasayana* drugs work on multiple areas and helps in achievement of *Vyadhikshamatwa* through its *Dipana*, *Pachana*, *Medhya* and non specific immune booster properties. *Chakshushya* term indicate for regeneration of eye sight. Thus a drug having both *Chakshushya* and *Rasayana* properties might be helpful for treating the disease *Timira* (myopia).

Therefore, a clinical study was planned to study the efficacy of *Timirhar Lauha* orally with *Madhu* and *Sukhushan jala* for evaluating the efficacy of above therapy in reduction of dioptric power and visual improvement.

The researches in *Ayurveda* are being carried out in different institutions all over the India with special attention to *Timira* and also to visual acuity. The present study is a step forward in that direction to find out the remedial measure for this problem with the topic entitled 'A clinical study to evaluate the efficacy of *Timirhar Lauha* on Visual Acuity'. This clinical trial is interventional, randomized study and approved by Institutional Ethical committee with letter number Ayu/ICE/2022/1336.

MATERIAL AND METHODS

Patients Selection

Patients attending the O.P.D. & I.P.D. of P.G. Department of *Shalakya Tantra*, R.G.G.P.G. college and hospital, Paprola with signs and symptoms of myopia/hypermopia/*Timira*. 30 patients of myopia/hypermopia, who attended O.P.D./ I.P.D. during this period were selected for present study.

i. Inclusive criteria

- Patients willing for trial.
- Patients having refractive error with normal ophthalmoscopic findings
- Patients between age of 19 to 50 year.
- Patients having no other ocular disease and systemic disease.

ii. Exclusive criteria

- Patients not willing for trial.
- Patients below 19 years and above 50 years of age.
- Patients having lenticular changes and ocular diseases like - Glucoma, cataract, corneal opacity, corneal ulcer, Age related macular degeneration, uveitis, stye, Triachiasis, diabetic retinopathy, strabismus etc.
- Associated symptoms i.e. fever, malaise and lymphadenopathy.
- Patients having systemic disorders i.e. Cardio vascular disorder, Diabetes and hypertension.

Grouping of Patients

In the present study, 30 clinically diagnosed patients of visual acuity / *Timir* were selected and randomly divided into two groups (Group –A -15 patients, Group –B-15 patients). Patients of group A were administrated *Timirhar lauha* orally with *Sukhoshana jala*. While patients of group B were administrated *Timirhar lauha* orally with *Madhu*. All the cases were examined initially in O.P.D. and were selected for study on the basis of clinical presentation and diagnostic criteria.

Laboratory Investigations

Hb gm%, TLC, DLC, ESR, FBS were advised to all the patients to rule out any sever pathology and to note the changes, if any.

Drug Schedule

Timirhar Lauha orally

Dose: 500mg once a day with honey.

Mode: oral Duration: 30 days

Follow up: were done once in 15 days for a period of 45 days.

CRITERIA OF ASSESSMENT

Subjective

The patients were subjectively assessed based on the symptoms– *Avyakta Darshana* (indistinct distant vision), *Vihwala Darshana* (blurred vision), *Shirobhitapa* (headache), *Netrayasa* (eye strain)- by adopting the scoring pattern.

Objective

- Visual Acuity/LogMAR Value
- Diopter power/ clinical refraction

Grading

❖ *Avyakta Darshna* (Indistinct distance vision)

- Occasional blurring of the vision
- Routine blurring which affected routine work
- Regular blurring disturbing routine work
- Complete darkness before the eyes

❖ *Vihwala Darshna* (blurred vision)/ *Makshikadi Abhuta Dravya Darshan* (Floaters)

Visualization of non existing objects like flies, gnats, hairs, webs, circles, flags, mirage and earrings.

- Occasional visualization of any such objects
- Irregular visualization of two to four kinds of the above mentioned objects
- Regular visualization of two to four kinds of the above mentioned objects
- Regular visualization of more than four kinds of the above mentioned objects

❖ *Shirobhitapa* (Headache) - Scored on the frequency of attacks

- 0 - No headache
1 - Occasional headache
2 - Irregular attacks of frequent headache
3 - Regular attacks of Headache

❖ *Netrayasa* (Eye Strain) - It was recorded on the basis of minimum time taken to produce eye strain after near work

- 0 - More than 6 hrs of near work
1 - After 4- 6 hrs of near work
2 - After 2- 4 hrs of near work
3 - Before 2 hrs of near work.

Statistical Analysis

Various observations made and results obtained were computed statistically using Student t – test, Wilcoxon matched pairs signed ranks test and Mann Whitney test on graph Pad Instat 3 software.

The results obtained were considered Extremely Significant for p value for p value <0.0001, Very significant for <0.001, significant for p value <0.01 and insignificant for p value >0.05.

OBSERVATION

In present study 85% patients were found in the age group of 15-35 years. According to a survey in Taiwan population there was an increasing prevalence of myopia with age, from 4 percent at age of 6 years to 40 percent at age of 12 years further, more than 70 percent at the age of 15 years, and more than 75 percent at age 18 years.^[2] Only 2 patients were found in age group of 33-40 years, some studies showed the decreasing prevalence of myopia with age (between the ages of 43 and 84 years).^[3]

The percentage of female was 60% whereas male was 40%. Thus studies showed that the prevalence rate was higher in females than males.^[4,5,6]

In present study, among 30 patients, 96.6% patients were Hindu, 3.3% others. This might have occurred due to the dominance of the Hindu community in this region. However, this data is not suggestive of any confirmed finding regarding the disease.

Majority of the patients were unmarried (60%). This only signifies that most of the patients belonged to younger age group and were students.

Majority of patients 70% were graduates. Duration and level of education is highly correlated with time spent on reading and writing. Educational level and intelligence are strongly related to amount of close up work and are probably not independent risk factors but surrogates for close up work.^[7,8,9]

In occupation wise distribution of patients, out of 30 patients majority of the patients i.e. 56.6% were students, it may be due to the fact that students had a higher prevalence of myopia.^[10]

In this study most of the patient belonged to middle (60%) class. It reflects that the area of study is predominantly represented by middle economic class.

Distribution of 30 patients according to *Patalagata* symptoms

<i>Patalagata</i> Symptoms	No. of Patients		Total Patients	%
	Gr I	Gr II		
<i>Awyakta Darshna</i> (Indistinct distance vision)	15	15	30	100%
<i>Vihwala Darshna</i> (Blurred vision)	15	15	30	100%
<i>Shirobhitapa</i> (Headache)	14	13	27	90%
<i>Netrayasa</i> (Eye Strain)	13	15	28	93.3%

Maximum numbers of patients were on Vegetarian diet (53.3%). This is because maximum patients were from Hindu community and they used to take vegetarian diet. So we cannot say clearly that the vegetarian diet may promote the development of the disease.

Majority of patients were having good appetite 54.28%.

Majority of patients (56.7%) were having regular bowels.

Maximum number of patients 46.7% were of Pitta kapha Prakriti. No specific relation can be established between them and the disease myopia from this small number of data.

In the present study 33.4% patients were having addiction to tea while 60% patients were having no addiction.

Maximum number of patients spent 4-6 hours in front of Visual Display Screen (46.6%) followed by 36.7% patients spent 2-4 hours in front of visual Display. In Ayurveda, Atiyoga or Sookshmanireekshnat is a main etiological factor for eye diseases. According to modern science, close up work encompasses tasks of high accommodative demand, such as reading, writing, computer work, close television viewing, play video games and use of mobile phone.

There are several theories which attribute close up work to the increase in axial length that causes myopia. One of the most widely held theories is the accommodation theory, wherein there is an increase in pressure in the posterior part of the eye during accommodation which is poorly resisted by the sclera, resulting in increased ocular length.^[11]

Maximum patients, 60% were from rural areas. Maximum number of patients, (56.7%) had disturbed sleep.

Maximum numbers of patients, 36.7% were having positive family history. Parental myopia is considered as a marker for both genes and a shared family environmental exposure. Myopic parents are more likely to create myopigenic environments such as more intensive education or less time spent outdoors.^[12,13]

RESULT AND DISCUSSION

Effect of Therapy on Subjective Parameters

Relief in the symptom of Aavyakta Darshana was observed 21.43% in Group A ($p < 0.05$), and 31.44% in Group B ($p < 0.05$), there was significant difference between BT and AT scoring of two groups, Groups B showed 10.01% more relief than Group A, which indicated that the Timirhar Lauha with Madhu is better than Timirhar Lauha with Sukhushan Jala on visual acuity.

Relief in the symptoms of Vihwala Darshana was 29.18% in Group A with a p value < 0.05 and 35.53% in Group B

with a p value < 0.05 and there was difference of 6.35% between the 2 groups, here also Group B showed better result than Group A.

Relief in the symptoms of Shiroabhita (Headache) was observed 21.52% with a p value < 0.05 and 33.33% in Group B with a p value < 0.05 .

Relief in the symptoms of Netrayasa (Eye Strain) was 33.33% with a p value < 0.05 and 39.75% in Group B with a p value < 0.05 .

Statistical inter group comparison subjective criteria

Criterion	%age Relief		%of difference
	Gr I	Gr II	
Awyakta Darshana	21.43%	31.44%	10.01%
Vihwala Darshana	29.18%	35.53%	6.35%
Shirobhitapa (Headache)	21.52%	33.33%	6.42%
Netrayasa (Eye Strain)	33.33%	39.75%	11.8%

On the basis of above results we can say that the improvements in the subjective feeling are better in Group B. Therefore we infer that the drug *Timirhar Lauha* with Madhu as anupana is more effective for the improvement of the subjective feeling like *Awyakta Darshana*, *Vihwala Darshana*, *Shiroabhitapa*, *Netrayasa*.

Effect of Therapy on Objective Parameters

Statistically significant relief were found in LogMAR/visual acuity value of 19.66% in Group A ($p < 0.05$) and 23.07% in Group B ($p < 0.05$). However there was difference between BT and AT scoring of two groups with Group B Showing 3.41 % better relief than Group A.

Effect on diopter power/ clinical refraction was found to be 17.31 in Group A ($p < 0.05$) and 20.57% in Group B ($p < 0.05$). However there was difference between BT and AT scoring of two groups with Group B Showing 3.26% better relief than Group A.

Statistical inter group comparison Visual acuity and Dioptric power

Criterion	%age Relief		%of difference
	Gr I	Gr II	
Visual acuity	19.66%	23.07%	3.41%
Dioptric power	17.31%	20.57%	3.26%

Probable mode of action of trial drug Contents of Timirhar lauha- *Triphala, Lauha bhasma, Yasthimadhu, Neelkamal.*

Anupan- *Madhu* and *Sukhushan jala*.

Contents of formulations have *Chakshushya, Rasayana* and *Tridoshshamak* properties. *Triphala, Yasthimadhu, Lauha bhasma*, are well established *Chakshushya* and *Rasayana* drugs.

Neel kamal is *Pittashamak* they reduce Daha (burning sensation) which is a very important associated symptom in *Timir/ Myopia*.

According to *Bhavprakash Madhu* is best *Anupan* and have *Vata Pittahara, Graahi, Lekhana, Chakshushya, Saukumaryakara, Dipana, Srotovishodhana, Yogavahi, Medhakara, Vrishya, Rochana, Prasadajanaka* properties. Thus *Timir* which is a *Vatapitta* dominating *Tridoshaja Vyadhi* and considering its associated symptoms like *Shirobhitapa* (Headache), *Netrayasa* (Eye strain), so *Timirhar Lauha* is selected for the study. After analyzing the content of formulations we can say that they are helpful to mitigating *Vatapitta* and may cure the associated symptoms.

CONCLUSION

Features related to visual disturbances have been described under *Drishtigata Rogas*. *Timira* comes under this group of diseases. *Timira* is a disease when the vitiated *Doshas* are situated in the first and second *Patala*. On the basis of similarities in symptoms, involvement of anatomical structures, aetiology and prognosis, *Timira* can be correlated with the refractive errors in general including myopia. The modern counterpart has made wonderful and remarkable progress in the field of ophthalmology but no satisfactory and universally accepted treatment for myopia is available. Ayurvedic text enumerates number of treatment modalities for the treatment of eye diseases, including both localized and systemic measures.

The study shows that *Timirhar lauha* with *Madhu* had much greater potential to ameliorate the symptoms of visual acuity / *Timira*.

However, the result of this study and conclusion drawn there upon need to be further clarified by conducting a large scale placebo controlled clinical trail.

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