



## Research Article

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### A CLINICAL STUDY ON THE EFFECT OF TARPANA KARMA WITH PHALATRIKADI GHRITA IN PRATHAMA PATALAGATA TIMIRA WITH SPECIAL REFERENCE TO MYOPIA

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#### ABSTRACT

*Prathamapatalgata Timira*/myopia is becoming more common problem in general population. Prevalence of myopia in India is found to be 6.9%. In fact vision 2020 which is the foremost large scale program run by WHO has one of its objectives to control and treat uncorrected refractive errors. Moreover, there is well established and universally accepted management of myopia. But surely there are some shortcomings that give way to Ayurveda to deal with this problem. So, *Tarpana karma* with *Phalatrikadi Ghrita* was selected for the management of *Prathamapatalgata Timira*/simple myopia. An open clinical trial was planned for 20 patients presenting with clinical features of *Prathamapatalgata Timira*/ simple myopia and local therapeutic ocular procedure *Tarpana karma* with *Phalatrikadi Ghrita* was done. On assessment of criteria selected significant results were found in subjective and objective parameters like blurred vision, eyestrain, headache, watering, visual acuity and dioptric power except axial length.

**Keywords:** *Prathamapatalgata Timira*, Simple myopia, *Tarpana*, *Phalatrikadi Ghrita*

#### INTRODUCTION

*Timira* is one among *Drishtigata Rogas*, which are 12 as per *Acharya Sushruta*<sup>1</sup> and 27 as per *Acharya Vagbhata*.<sup>2</sup> Among all these disorders of vision *Timira* is said to be "*Paramdarun Vyadhi*"<sup>3</sup> (difficult to cure) as it is progressive and ultimately ends in blindness. According to classics, there are 6 *Patalas* (layers of the eyeball) in which two are *Bahya* described as *Bahya Vartmagata Patalas* and four covering the eyeball. *Timira* manifests due to affliction of these four *Netra Patalas* causing *Prathama*, *Dwitiya*, *Tritiya* and *Chaturtha Patalgata Timira*; among them *Lakshanas* of *Prathamapatalgata Timira* are "*Avyaktani Sroopani Sarvanyav Prapashati*"<sup>4</sup> These symptoms resemble to refractive error myopia also known as nearsightedness. It is a refractive error in which parallel rays of light from an object at infinity enters the eye and is focused in front of retina accommodation being at rest.<sup>5</sup> An estimate of number of people suffering from refractive errors in the world is in the range of 8 million to 2.5 billion.<sup>6</sup> According to WHO, 43% of the vision impairment is due to uncorrected refractive errors.<sup>7</sup> The present day treatment in medical science includes Radial keratotomy (RK), photorefractive keratectomy (PRK), and laser in-situ-keratomileusis (LASIK).<sup>8</sup> All these modalities present some limitations like spectacles are cosmetically unaesthetic, refractive surgeries are not pocket friendly. Also these refractive surgeries result in certain complications like dry eye and night glare that are very annoying.<sup>9</sup> In Ayurveda texts, *Timira* is said to be "*Aushadha Sadhya Vyadhi*"<sup>10</sup> i.e. medically treatable disease. Various treatment modalities like

*Samshodhana Chikitsa* (*Virechan karma*), *Kriyakalpa*, *Nasya*, *Dhoom*, *Tarpana*, *Putpaka* and *Anjana* are described in detail. *Tarpana Karma* a local therapeutic procedure with *Phalatrikadi Ghrita* mentioned in *chakradutta*<sup>11</sup> was selected for the management of *Prathama Patalagata Timira*/simple myopia.

#### Aims and objectives

1. To study conceptual resemblance between *Prathama Patalagata Timira* and simple myopia.
2. To evaluate the efficacy of *Tarpana Karma with Phalatrikadi Ghrita* in *Prathama Patalagata Timira*/ Simple Myopia

#### MATERIAL AND METHODS

##### Selection of Patients

The patients presenting with clinical features of *Prathama Patalagata Timira* / simple myopia were selected from the O.P.D. of the Department of *Shalaky Tantra* (*Netra Roga* Unit) of Rishikul campus Uttarakhand Ayurveda University, Haridwar. A total of 20 patients were registered irrespective of their sex, religion, occupation, education etc. Approval from institutional ethical committee was taken before commencing trial (UAU/R/C/IEC2016-17/2) Informed and written consent were taken from all the patients.

##### Inclusion Criteria

- The patients presenting with classical features of *Prathama Patalagata Timira*/simple myopia after proper screening.
- Patient aged between 10 to 40 years.

- Patients having -0.25D to -1.5D of vision (simple myopia)
- Snellen's chart reading for distant vision should be = or < 6/24

*Triphala Churna* 3gms at bed time was done according to *Koshtha* before starting *Tarpana*.

**Exclusion Criteria**

- Dwitiya, Tritiya and Chaturtha Patalagata Timira*
- Pathological Myopia or progressive Myopia
- Congenital Myopia
- Patients more than -1.5D of vision.
- Refractive errors like Hypermetropia, Astigmatism and other ocular pathologies
- Myopia with systemic diseases like T.B, Hypertension, Diabetes Mellitus

**Pradhana Karma:** After proper *Snehana* and *Swedana Tarpana* with *Phalatrikadi Ghrita* was done in morning time for 28 days in two sittings of 7 days each sitting with 7 days gap.

**Assessment Phase**

**Criteria for Assessment of Result**

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

**Investigations**

Blood examinations - Hb gm %, Total and Differential leukocyte count was done to rule out systemic disorders.

**Plan of Study**

Clinical study was accomplished in three phases – Diagnostic phase, interventional phase and Assessment phase.

**Diagnostic Phase**

All the patient of *Prathama Patalagata Timira*/simple myopia were diagnosed on the basis of various clinical presentation, laboratory investigation and findings.

**Subjective Parameter**

- Blurred vision for distance.
- Asthenopic symptoms i.e. Eye strain, Headache, Watering

**Objective Parameter**

- Visual acuity measured by **Snellen's Chart** for distant vision
- Clinical refraction** (spherical dioptric power) done by Retinoscopy or Auto Refractometry
- Fundoscopy:** It was done under full mydriasis
- Slit lamp examination:** it was done to rule out any abnormality of cornea, iris, aqueous humour and lens
- Scan:** Keratometry reading were taken than axial length was calculated with the help of A-Scan.

**Interventional Phase**

**Study Design:** The method adopted for the study was open clinical study.

**Sampling:** A total number of 20 patients with clinical features of *Prathama Patalagata Timira*/simple myopia were registered and treated with *Tarpana karma* with *Phalatrikadi Ghrita*.

**Proforma:** A special proforma was prepared on the basis of classical features of *Prathama Patalagata Timira*/simple myopia to maintain the records of all findings (before and after treatment) regarding all patients.

**Informed Consent:** The purpose of the study, nature of the study drugs, the procedures to be carried out and the potential risks and benefits were explained to the patients in detail in non-technical terms. There after their written consent was taken before starting the procedure.

**PROCEDURE**

**Poorva Karma:** *Deepana– Pachana* with *Hingwashtak churna*-3gms twice a day after meals and *Koshtha-Shudhhi* with

**Blurring of vision**

No problem	0
Occasional blurring	1
Regular blurring without disturbing work	2
Regular blurring disturbing day to day work	3

**Eye Strain**

After > 6 hours of near work.	0
After 4-6 hours of near work	1
After 2-4 hour of near work.	2
Before 2 hour of near work.	3

**Headache**

No headache	0
Occasional dull aching pain	1
Off and on headache that interferes with routine work but doesn't require any medication	2
Severe headache experienced often & requires medication	3

**Watering**

No watering	0
Slight watering of eyes on strain	1
Off & on watering of eye even without any strain needs handkerchief at the interval of 3 or more hours	2
Excess irritable watering of eye requires frequent use of handkerchief	3

**Visual Acuity (According to parson)**

6/6	100%
6/9	90%
6/12	80%
6/18	60%
6/24	50%
6/36	40%
6/60	20%

**Dioptric Power**

0	0
0.25 - 0.50D	1
0.75 – 1.00D	2
1.25 – 1.50D	3

**Axial Length**

23.00 - 23.50	0
23.50 – 24.00	1
24.00 – 24.50	2
24.50 – 25.00	3

**Statistical Analysis**

The information regarding demographic data was given in percentage. All the parameters were analyzed in terms of median for qualitative data and subjected to Wilcoxon’s signed rank-Test (W-value) for evaluating the effect of therapy before and after treatment and finally results were incorporated in terms of probability (p) as -  $p > 0.05$  – Insignificant,  $p < 0.05$  – Significant,  $P < 0.01$  – Significant,  $p < 0.001$  - Highly significant.

Overall effect of Therapy was assessed on basis of:

**Cured:** >90 % relief in signs and symptoms and no recurrence during follow up study

**Marked improvement:** 76% to 90 % improvement in signs and symptoms

**Moderate improvement:** 50% to 75% improvement in signs and symptoms.

**Mild improvement:** >25% improvement in signs and symptoms.

**Unchanged:** <25% reduction in signs and symptoms.

**Follow up-** Follow up study was conducted for 1 month (at 15 days interval) after completion of the treatment.

**RESULTS**

**Percentage Effect of Therapy on Subjective Parameters**

Statistically significant results ( $p$ -value<0.05) were found in watering in both eyes (% relief 100%), eye strain in both eyes (% relief 92.3%) and headache (% relief 72.7%). Also in blurring of vision statistically significant results ( $p$ -value<0.01) were found in RE (% relief 57.6%) and LE (% relief 58.8%)

**Percentage Effect of Therapy on Objective Parameters**

Statistically significant results ( $p$ -value<0.05) were found in visual acuity in RE (% relief 48.2%) LE (% relief 44.2%), dioptic power RE (% relief 51.4%) LE (% relief 52.8%). While statistically insignificant results were seen in axial length in both eyes with no change i.e. 0%.

**Table 1: Contents of Phalatrikadi Ghrita**

Sr.No.	Drug Name	Botanical Name	Family	Part Used
1	Haritaki	<i>Terminalia chebula</i> Retz.	Combretaceae	Fruit
2	Bibhitaka	<i>Terminalia bellirica</i> Roxb.	Combretaceae	Fruit
3	Amalaki	<i>Phyllanthus emblica</i> Linn.	Euphorbiaceae	Fruit
4	Yasthimadhu	<i>Glycyrrhiza glabra</i> Linn.	Fabaceae	Root
5	Shatavari	<i>Asparagus racemosus</i> Willd.	Asparagaceae.	Root

*Kwatha Dravyas - Haritaki, Bibhitaka, Amalaki, Shatavari Kalka Dravya – Yasthimadhu Ghrita and Madhu*

**Table 2: Percentage effect of therapy on subjective Parameters**

Symptoms	Median		Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT				
Blurring of Vision RE	2.00	1.00	-3.755 <sup>a</sup>	<0.01	57.6	Significant
Blurring of Vision LE	1.00	0.50	-4.066 <sup>a</sup>	<0.01	58.8	Significant
Eye Strain RE	1.00	0.00	-2.640 <sup>a</sup>	<0.05	92.3	Significant
Eye Strain LE	1.00	0.00	-2.640 <sup>a</sup>	<0.05	92.3	Significant
Headache	0.50	0.00	-2.530 <sup>a</sup>	<0.05	72.7	Significant
Watering RE	0.00	0.00	-1.732 <sup>a</sup>	<0.01	100.0	Significant
Watering LE	0.00	0.00	-1.732 <sup>a</sup>	<0.01	100.0	Significant

BT- Before treatment AT- After treatment RE - Right eye LE - Left eye

**Table 3: Percentage effect of therapy on Objective Parameters**

Parameters	Median		Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT				
Visual Acuity RE	1	0	-1.732 <sup>a</sup>	<0.05	48.2	Significant
Visual Acuity LE	1	0	-2.000 <sup>a</sup>	<0.05	44.2	Significant
Dioptic Power RE	2	1	-3.578 <sup>a</sup>	<0.05	51.4	Significant
Dioptic Power LE	1	1	-3.945 <sup>a</sup>	<0.05	52.8	Significant
Axial Length RE	0	0	.000 <sup>b</sup>	>0.05	0	NS
Axial Length LE	0	0	.000 <sup>b</sup>	>0.05	0	NS

**Table 4: Overall Effect of Therapy**

Overall Effect	Group A (n=40) n- number of eyes	
	N	%
Cured	2	5
Marked Improvement	8	20
Moderate Improvement	21	52.5
Mild Improvement	9	22.5
No Improvement	0	0

## DISCUSSION

Acharya Sushruta considered *Timira* as “*Param Daruna vyadhi*” (difficult to cure) as it finally falls into blindness. In first stage of *Timira*, there is “*Avyakta Darshan*”<sup>12</sup> i.e. blurring of vision which is itself the cardinal feature of simple myopia. So, simple myopia can be correlated with *Prathama Patalagata Timira*. *Prathama Patala* is *Tejojalaashrita* in which *Teja* indicates *Rakta dhatu* and *Jala* indicates *Tvakashrita Rasa Dhatu*.<sup>13</sup> Probable hypothetical pathogenesis can be that due to *Nidana sevana* there is vitiation of doshas causing *Srotodusti* leading to lack of nutrients to the *Patalas* leading to *Dhatukshaya* that result in symptoms of *Prathama Patalagata Timira*/ simple myopia i.e. blurred vision and asthenopic symptoms like eyestrain, headache and watering. Here *Tarpana* with *Phalatrikadi Ghrita* causes pacification of *Vata Dosha* in turn *Dhatupushti* due to proper flow of nutrients up to coats of eyeball. As corneal epithelium is lipophilic<sup>14</sup>; So, *Ghrita* alone and also with the *Chakshushya* (good for eyes) properties of contents of *Phalatrikadi Ghrita* nourishes cornea. As per classics, some of the contents of *Phalatrikadi Ghrita* like *Triphala*<sup>15</sup> *Mulethi*<sup>16, 17</sup> and *Ghrita*<sup>18</sup> are *Chakshushya*. Also *Snehana Swedana* done before *Tarpana* causes increased circulation towards eye resulting in relaxation of extra ocular muscles causing relief in asthenopic symptoms and somewhat changes in blurring of vision, visual acuity and dioptric power.

## CONCLUSION

In present study, it can be concluded that *Prathama Patalagata Timira* and simple myopia both are nearly same entities. *Phalatrikadi Ghrita Akshi Tarpana* was found effective in relieving subjective and objective parameters except axial length that remained same there was no change in it. Also, there were no side effects during therapy time and during whole trial.

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