



Research Article

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A COMPARATIVE STUDY TO EVALUATE THE EFFICACY OF PATOLADI GHRITA TARPANA AND SHATAHWADI TAILA NASYA IN PRATHAMA PATALAGATA TIMIRA (SIMPLE MYOPIA)

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ABSTRACT

Myopia is a highly significant problem because it can contribute to visual morbidity. Research suggests that in the year 2000, roughly 25% of the world's population was near-sighted but by 2050, it is expected that half the people will be myopic. Simple myopia is a physiological error and the sharpest rise occurs at school going age. It resembles Prathama Patala Timira in terms of symptoms. The present study was conducted to assess the efficacy of Patoladi Ghrita Tarpana and Shatahwadi Taila Nasya in Prathama Patalagata Timira. Patients presenting with the features of Prathama Patalagata Timira and between 10-21 years were selected and allotted in Group A and Group B with 20 patients in each. Group A was administered with Patoladi Ghrita Tarpana for 5 days with an interval of 30 days and Group B with Shatahwadi Taila Nasya for 5 days with an interval of 30 days (both for 3 sittings). Percentage wise relief was found higher in Group A, but statistically, both groups showed equal effect. On comparing the 't' values, Group A showed better effect on parameters – Avyakta Darshana, Eyestrain, Visual Acuity and Dioptic Power; whereas Group B showed better effect on Headache and Watering of eyes. Both the treatments have proved effective in the management of Prathama Patalagata Timira.

Keywords: Simple Myopia; Prathama Patalagata Timira; Patoladi Ghrita Tarpana; Shatahwadi Taila Nasya

INTRODUCTION

The eyes are the most highly developed sensory organ and 80% of the knowledge is perceived through the sense of sight¹. Vision can deteriorate for many reasons and WHO estimates that up to 80% of blindness and serious visual loss around the world is avoidable through prevention and treatment.

Myopia, commonly referred to as short-sightedness is the most common eye disease in the world with substantial social, educational and economic impact. It is a leading cause of visual disability throughout the world. In India, uncorrected refractive errors are the most common cause of visual impairment and second major cause of avoidable blindness. The prevalence of Myopia among children is 4.1% from Southern India and 7.4% from Northern India².

When the vitiated Doshas invade the first Patala, patient complains of difficulty in seeing objects distantly. So the Timira of first Patala can be correlated to refractive errors³. As far as the management of Timira is concerned, Acharya Sushruta and Vagbhatta have recommended Kriyakalpa and the treatments like Nasya, Dhumapana, Virechana, Anjana etc. Among Kriyakalpa, Tarpana is considered as the foremost in the management of Timira⁴. Good numbers of Nasya Yogas are also described for Timira because nose is the gateway of drug administration in Urdhvajatrugata Rogas and Nasya is the only procedure which directly influences all the Indriyas⁵.

Hence, this study is planned to evaluate the efficacy of Tarpana with Patoladi Ghrita and Nasya with Shatahwadi Taila in the management of Prathama Patalagata Timira.

MATERIALS AND METHODS

Selection of patients

Total 40 patients fulfilling the diagnostic and inclusion criteria irrespective of gender, religion, occupation, socio economic status was selected from the OPD and IPD of Shalaky Tantra, Alva's Ayurveda Medical College, Moodbidri, D.K, Karnataka, India. Selected patients are randomly divided into two groups - Group A and Group B with 20 patients in each group. The study design was randomized comparative clinical study.

Ethical clearance and consent

The study was approved by the Institutional Ethical Committee, Alva's Ayurveda Medical College, Moodbidri (Protocol No. ICEC/SHKT/01) and an informed consent from each patient was obtained before starting the course of treatment.

Collection and Preparation of Drug

Method of Preparation of Patoladi Ghrita

128 g each of Patola, Katukarohini, Daruharidra, Nimba, Vasa, Triphala, Duralabha, Parpatata and 2 Kg of Amalaki is taken and 32 L of water is added and reduced to ¼ (8 L). Then 55 g each of Bhunimba, Kutaja, Musta, Yashtimadhu, Rakta Chandana and Pippali is taken and Kalka is prepared. 2 L of Ghrita is taken in a clean wide mouthed vessel and when fumes start appearing in Sneha, Kalka is added followed by Kashaya and boiled with frequent stirring until Sneha Siddhi Lakshanas appear in it. Later

it is filtered through a clean cloth and preserved (Madhyama Paka)^{7,6}

Method of Preparation of Shatahwadi Taila

500 g each of Shatahwa and Erandmoola is taken and Kashaya is prepared by adding 8 L of water and reduced to 2 L. Then 42 g each of Tagara, Kantakari and Vacha is taken and Kalka is prepared. 500 ml of Tila Taila is taken in a clean wide mouthed vessel and when fumes start appearing in Sneha, Kalka is added followed by Kashaya and boiled with frequent stirring until Sneha Siddhi Lakshanas appear in it. Later it is filtered through a clean cloth and preserved (Mridu Paka)^{9,8}

Criteria for selection of patients

Diagnostic criteria

- Patients presenting with symptoms of Prathama Patalagata Timira: Avyaktam Roopa Darshana
- Snellen's Distant Vision Chart.

Inclusion criteria

Patient fulfilling the diagnostic criteria, between the age group of 10 to 21 years having the Dioptric Power less than -6D and those who are fit for Nasya Karma and Tarpana were included for the study.

Exclusion criteria

Patients with Dwitiya, Tritiya and Chaturtha Patalagata Timira, other ocular pathologies, H/o of ocular trauma and ocular surgeries, other refractive errors except simple myopia, High or Progressive Myopia and with systemic disorder were excluded from the study.

Intervention

The whole procedure was explained to the patient before starting the treatment.

In group A, patients were administered Tarpana for 5 days with an interval of one month (3 sittings).

In group B, patients were administered Nasya karma for 5 days with an interval of one month (3 sittings).

Total Study Duration: 135 days

Follow Up: Patients were reviewed 2 months after the treatment period.

Assessment criteria

Subjective Parameters

Defective vision and Asthenopic symptoms like headache, watering of eyes and eyestrain

Objective Parameters

Snellen's distant vision chart and Auto refractive reading.

Gradation index

Table 1: Gradings of subjective and objective parameters

Subjective	Assessment
Defective vision	1-Occasional blurring of images. 2-Blurring without disturbing routine works. 3-Regular blurring disturbing day to day works. 4-Complete blurriness
Headache	0-No headache. 1-Very occasional headache. 2-Irregular attacks of frequent headaches. 3-Regular attacks of headache.
Watering of eyes	0-No watering. 1-Occasional watering. 2-Regular watering.
Eye strain	0-After more than 6 hours of work. 1-After 4-6 hours of work. 2-After 2-4 hours of work. 3-Before 2 hours of work.

Overall effect of treatment

Assessment	Scoring pattern
Complete Relief	Improvement in all the parameters after treatment.
Marked Relief	Improvement in any 4 of the parameters after treatment.
Moderate Relief	Improvement in any 3 of the parameters after treatment.
Mild Relief	Improvement in any 2 of the parameters after treatment.
Minimal Relief	Improvement in any 1 of the parameters after treatment.
Unchanged	No improvement in any of the parameters after treatment.

Overall degree of improvement in Dioptric power

Dioptric Power	Degree of improvement
≥ 1 D	Good improvement.
0.75 D	Marked improvement.
0.50 D	Moderate improvement.
0.25 D	Slight improvement.
< 0.25 D	Unchanged

Observations

40 patients with features of Prathama Patalagata Timira were registered for the study. Observations revealed that, among age group the incidence was more in patients from the age group 10-15 years (49.8%) followed by patients from the age group 16-21 years (62.3%), 72.5% of patients were females, 90% of patients were Hindus, 45% of patients belongs to Middle class, 67.5% were non vegetarians, 57.5% of patients were not having any familial history, 40% of patients were having the chronicity of less than 3 years; 55 % were of Vata Kapha Prakruti, 77.5% of patients were having the habit of taking Guru Abhishyandi Ahara and 75% were having the habit of taking Snigdha ahara, 92.5% were doing Bashpagraha as a Nidana and 80% were having Swapna Viparyaya and Dhooma Nishevana and 60% were having Kopa as Nidana, 100% were having Avyakta Darshana followed

by 67.5% with eyestrain and 65% with headache. In Group A, among the 20 registered patients, 11 eyes (27.5%) were having 6/9 Visual Acuity and in Group B, 15 eyes (37.5%) were having 6/9 Visual Acuity. In Group A, among the 20 registered patients, 22 eyes (55%) were having the Dioptric power less than -2 D and in Group B, 26 eyes (65%) were having the Dioptric power less than -2 D.

RESULT

The obtained data from both the groups (Group A and Group B) before, during and after the clinical study was tabulated and graded. Statistical analysis was done with details of the same by adopting Paired 't' test to assess the changes in the values before and after treatment and adopting the un paired 't' test to compare the two groups.

Within the group results**Table 2: Results in reduction of symptoms in Group A after the treatment**

Symptoms	Mean Score			%	S D	SE	t value	p value
	BT	Mean AT	BT-AT					
Avyakta Darshana	1.95	1.45	0.5	25.6%	0.513	0.115	4.359	< 0.001
Headache	1.05	0.35	0.7	66.6%	0.733	0.164	4.273	< 0.001
Watering of Eyes	0.8	0.4	0.4	50%	0.598	0.134	2.990	0.008
Eyestrain	1.4	0.55	0.85	60.71%	0.671	0.150	5.667	< 0.001
Visual Acuity of Both Eyes	2.65	1.95	0.7	26.41%	1.031	0.231	3.036	0.007
Visual Acuity of Right Eye	3.9	2.45	1.45	37.17%	1.234	0.276	5.253	< 0.001
Visual Acuity of Left Eye	3.4	2.2	1.2	35.29%	1.056	0.236	5.080	< 0.001
Dioptric Power of Right Eye	2.3	1.7	0.5	21.73%	0.489	0.109	4.921	< 0.001
Dioptric Power of Left Eye	1.75	1.4	0.35	20%	0.417	0.093	3.75	0.002

(BT: Before Treatment; AT: After Treatment; SD: Standard Deviation from the Mean; SE: Standard Error of the Mean; t-value: measures the size of the difference relative to the variation in sample data; p-value: Probability Value; <: less than; >: greater than)

Table 3: Results in reduction of symptoms in Group B after the treatment

Symptoms	Mean Score			%	S D	SE	t value	p value
	BT	Mean AT	BT-AT					
Avyakta Darshana	2.15	1.7	0.45	20.9%	0.510	0.114	3.943	< 0.001
Headache	1.55	0.75	0.8	51.61%	0.523	0.117	6.839	< 0.001
Watering of Eyes	0.95	0.25	0.7	73.68%	0.801	0.179	3.907	< 0.001
Eyestrain	1.15	0.65	0.5	43.47%	0.513	0.115	4.359	< 0.001
Visual Acuity of Both Eyes	3.05	2.5	0.55	18.03%	0.826	0.185	2.979	0.008
Visual Acuity of Right Eye	3.5	2.85	0.65	18.57%	0.671	0.150	4.333	< 0.001
Visual Acuity of Left Eye	3.5	2.75	0.75	21.4%	0.786	0.176	4.265	< 0.001
Dioptric Power of Right Eye	2.05	1.7	0.27	13.17%	0.436	0.097	2.820	0.01
Dioptric Power of Left Eye	2.07	1.36	0.71	42.5%	1.761	0.394	1.81	0.03

(BT: Before Treatment; AT: After Treatment; SD: Standard Deviation from the Mean; SE: Standard Error of the Mean; t-value: measures the size of the difference relative to the variation in sample data; p-value: Probability Value; <: less than; >: greater than)

Between the group results

Table 4: Comparative effect of treatment between two groups

Symptoms	Mean		M. D	t value	P value
	Group A	Group B			
Avyakta Darshana	0.5	0.45	0.050	0.309	0.759
Headache	0.7	0.8	0.100	0.497	0.622
Watering of eyes	0.4	0.7	0.300	1.342	0.188
Eyestrain	0.85	0.5	0.350	1.853	0.072
Visual acuity of both eyes	0.7	0.55	0.150	0.508	0.614
Visual acuity of right eye	1.45	0.65	0.800	2.547	0.015
Visual acuity of left eye	1.2	0.75	0.450	1.528	0.135
Dioptric power of RE	0.5	0.27	0.700	1.579	0.123
Dioptric power of LE	0.35	0.713	0.100	0.262	0.795

(MD: Mean Deviation; RE: Right Eye; LE: Left Eye)

The difference in the mean values of the two groups in all symptoms is not great enough to reject the possibility that the difference is due to random sampling variability. There is not a statistically significant difference between the input groups.

Overall effect of treatment

Table 5: Overall percentage of relief in patients of Group A and Group B

S. No.	Overall relief	Group A		Group B	
		No.	%	No.	%
1.	Complete Relief	0	0%	0	0%
2.	Marked Relief	5	25%	3	15%
3.	Moderate Relief	6	30%	13	65%
4.	Mild Relief	4	20%	2	10%
5.	Minimal Relief	3	15%	0	0%
6.	Unchanged	2	10%	2	10%

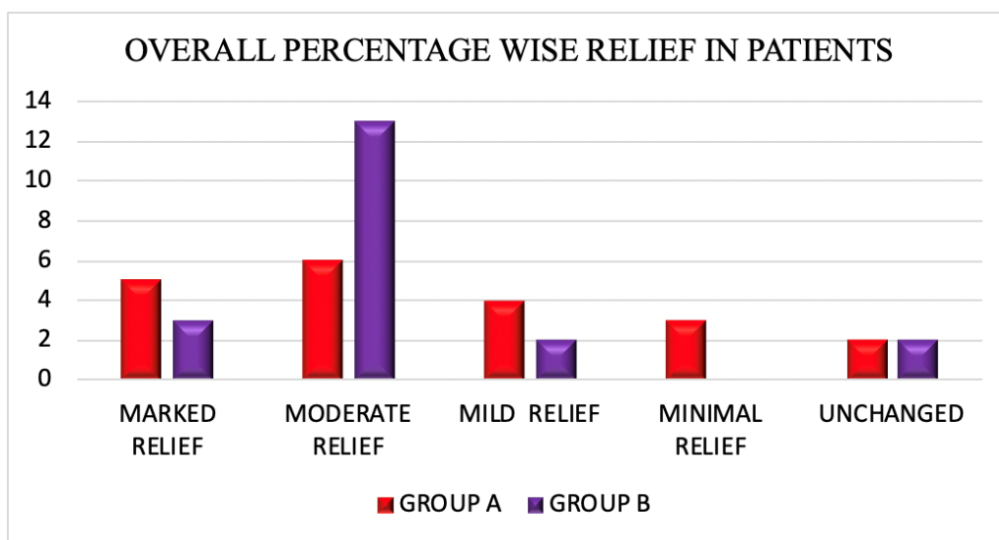


Figure 1: Overall assessment of treatment in both groups

Table 6: Overall percentage of relief in Dioptric power in patients of Group A and Group B

Improvement in Dioptric Power	Group A		Group B	
	No.	%	No.	%
1 D Improvement	2	10%	2	10%
0.75 D Improvement	7	35%	7	35%
0.50 D Improvement	2	10%	5	25%
0.25 D Improvement	8	40%	5	25%
Unchanged	1	5%	1	5%

(D: Dioptric Power)

DISCUSSION

Myopia is one of the major cause of visual disability. It has been given priority under the National Programme for Control of Blindness. The programme is aimed to eliminate blindness due to refractive errors. The increase in prevalence of myopia has also led to complications like retinal detachment, posterior staphyloma etc. The rate of myopia progression is fastest in children and an early onset of myopia is associated with high myopia in adult life. In Ayurveda, Simple Myopia can be compared with Prathama Patalagata Timira based on the Lakshanas i.e. Avyakta Rupa Darshana. If treatment is not given in time, the Doshas spread to fourth Patala and causes Langanasha. The therapeutical procedures in Ayurveda help in decreasing the progression, minimizing the symptoms and preventing it altogether and hence the study is chosen.

The contents of Patoladi Ghrita are Patola, Katuki, Daruharidra, Nimba, Vasa, Haritaki, Vibhitaki, Amalaki, Duralabha, Parpataka, Bhunimba, Kutaja, Musta, Yashtimadhu, Pippali, Raktachandana and Ghrita. Timira is Tridoshaja in nature and Patoladi Ghrita has predominance of Tikta and Kashaya Rasa, Laghu and Ruksha Guna, Sheeta Veerya and Katu Vipaka. Considering the Dosh Karma, it is Tridosha Shamaka by virtue of its Rasa, Guna, Veerya and Vipaka and hence it disintegrates the pathology of the disease Timira which is Tridoshaja in manifestation. Ingredients like Triphala, Daruharidra, Nimba, Yashtimadhu and Raktachandana are having Chakshushya and Rasayana properties which helps to improve the vision.

According to Acharyas, Ghrita is effective in subsiding Pittaja and Vataja disorders, Chakshushya and Rasayana and has the quality of travelling into minutest channels of the body and hence when applied in the eyes as Tarpana, it enters into deeper layer of Dhatus. Tarpana is foremost procedure for Timira and provides Vata shamaka effect and nourishment to the eyes and improves vision. Tarpana acts by virtue of its procedural, pressure effects and its medicinal effect. The tissue contact time and bio availability of the medicine is well achieved in Tarpana and the sustained effect with 800 Matra Kala for Drishtigata Rogas for 5 days of duration helps in improving the Drishti and also nourishing the Krishna Mandala. Due to direct pressure applied over the cornea, Tarpana can help bring about the curvatural changes of cornea leading to improved refractive power.

The contents of Shatahwadi Taila are Shatpushpa, Vacha, Eranda, Kantakari, Tagara and Tila Taila. These ingredients are having Katu and Tikta Rasa, Laghu, Ruksha, Tikshna and Snigdha Guna and Katu Vipaka. Thus it is Kapha Vatahara and Deepana Pachana in nature and increases the Jataragni by virtue of which is said to be main cause of all the diseases. Shatpushpa, Vacha and Tagara are mainly indicated in Netra Rogas and Eranda is indicated mainly in Shiroshoola. Limonene, which is a chemical constituent of Shatpushpa protects the eyes from damage due to its antioxidant properties and Diosgene which is a chemical extracted from Kantakari is an essential natural steroidal Saponin which improves the eyesight. Tila Taila is Vata-Kaphahara and Pitta Vardhaka in general but it destroys all disease due to Samyoga (Sneha Pravacharana) and Samskara (processing with the drugs that cause addition of new properties. That is why it pacifies Pitta in combination with Pitta shamaka drugs. Thus it pacifies Pitta Dosh. In Shatahwadi Taila, Tila Taila is used as a media or vehicle and by virtue of properties Vyavayi and Sukshma it can reach to minute channels. Good numbers of Nasya Yogas are described for Timira because nose is a gateway of drug administration in case of Urdhvajatrugata Rogas and Nasya is the only procedure which directly influences all Indriyas and Nasya is said to be Drishti Prasadana.

In this study, among the 40 patients, 62.3% of cases were from the age group of 16-21 years and 49.8% of cases were from the age group of 10-15 years. The age limit of this study was restricted to 10 - 21 years as corneal curvature remains stable in adulthood and 16 -21 years are having more eyestrain due to their academic schedule, 57.5% were not having any family history which indicates both genetic and environmental factors have roles in the development of myopia, 55% were of Vata Kapha Prakruti, Since Vata and Kapha are the main Doshas involved in the manifestation Timira, 77.5% obtained was Guru Abhishyandi Ahara and 75% obtained was Snigdahara which leads to the vitiation of Kapha, 92.5% was Bashpagraha and 80% was Swapna Viparyaya and Dhooma Nishevana. Suppressing the tears produces obstruction of Doshas in the Ashru Vaha Srotas and Divaswapa causes Kapha vitiation and Ratrijagrana causes Vata – Pitta Prakopa. Dhooma Nishevana may vitiate Pitta and Vata by increasing its Tikshna, Ushna and Ruksha Gunas, 60% was kopa, by which Pitta vitiates and causes Pitta Vikaras in the eye.

Effect of treatment on Avyakta Darshana, Eyestrain, Visual Acuity and Dioptric Power: As the vitiation of Tridoshas are mainly involved in the pathogenesis of Timira which produce Avyakta Darshana or blurred vision as the main symptom, the Tridoshahara, Chakshushya and Rasayana properties of the drugs in Patoladi Ghrita might have played a major role in improving the vision. Also, Krishna Mandala being Vata in origin, needs Preenana which might be fulfilled by Tarpana and the sustained effect with 800 Matra kala for 5 days helps in improving the Drishti and also nourishes Krishnamandala, Due to the direct pressure applied over the Cornea, Tarpana might help to bring about the curvatural changes of cornea leading to improved refractive power and thereby it might improve the visual acuity and dioptric power.

Effect of treatment on Headache and watering of eyes: The reduction in the severity of headache may be because of the Nasya Karma itself which is having a direct indication for Shiroshoola and the Vata Kaphahara properties of Shatahwadi Taila. Due to Ruksha and Tikshna Guna and Ushna Veerya along with Vata Kaphahara might have given result in watering of eyes.

CONCLUSION

The study proved that there is significant effect with Patoladi Ghrita Tarpana and Shatahwadi Taila in the management of Prathama Patalagata Timira (Simple Myopia).

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