

AYURVEDIC TREATMENT MODALITIES IN MANAGEMENT OF MYOPIA- A CRITICAL REVIEW

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ABSTRACT

Myopia is the most common refractive error of the eye, and it has become more prevalent in recent years. Near-sightedness can be corrected with glasses, contact lenses or refractive surgery. All these treatments are not much patient friendly and also not the actual solution to the pathology occurring in eye. Hence varieties of the researches are being carried out in alternative systems of medicines thus in Ayurveda too. An attempt has been made to review the researches carried out in Ayurveda in management of Myopia which is considered as *Timira*. Therapies like *Tarpana*, *Anjana*, *Nasya*, *Trataka*, *Shatkarma*, eye exercises, *Snehapana* were evaluated. Maximum correction of refractive error was found to be possible with *Tarpana*. *Snehapana* and *Nasya* were found to have added on effect for better management.

Keywords: Myopia, *Tarpana*, *Timira*, *Nasya*, *Snehapana*.

INTRODUCTION

Eye is a vital organ of vision that plays a very important role not only in life but also the Human body. The human eye is the organ which gives us the sense of sight, allowing us to learn more about the surrounding world than we do with any of the other four senses. Myopia is the most common eye problem and is estimated to affect 1.5 billion people (22% of the population).¹ Rates vary significantly in different areas of the world. Rates among adults are between 15 and 49%.³ Various surveys in India have found the myopia prevalence ranging from 6.9% to 19.7%.⁴ Uncorrected myopia is one of the most common causes of vision impairment globally along

with cataracts, macular degeneration, and vitamin A deficiency.⁵ Due to the significance of myopia as a global public health concern, it was chosen as a priority for Vision 2020,

World Health Organization's global initiative for the elimination of avoidable blindness by year 2020.⁶ Ayurveda being the most ancient science thus can play a vital role in management of Myopia than conventional care of merely using glasses. Lot of research work have been done and going on in various research institutes on Ayurvedic management of Myopia. Thus it is need of hour to critically review the works carried out so far so that a basic line of

treatment and effective modality can be adopted by the clinicians.

Materials and Methods:

Various articles published in international journals and available from open access sources such as Pub med were compiled and screened to revalidate the therapeutic attributes of ayurvedic drugs and therapies in management of Myopia.

Observations and Results:

Total 8 research publications were found which were used in Myopia.

Trial 1: Badwaik Premkumar Panjabrao studied the efficacy of Trataka two groups i.e., myopic and hypermetropic between the ages of 13 to 16 yrs. After completion of 3 months study it was observed that in myopic group diminished ophthalmic vision is reduced to 90%. Headache is reduced by 66.67%, lacerimation of eyes is reduced to 84.62%, ocular pain is decreased up to 85.71% & eye fatigue is reduced by 65.22%. Thus author concluded that Trataka plays an important role in Myopia in children.⁷

Trial 2: Adikanda Biswal et al studied Triphala Ghreeta in case of myopia as oral, Tarpana and Tarpana with Oral Triphala Ghreeta administration. After administration of treatment in three methods it is found that the method of tarpana is the best way to treat than the patients with tarpana and oral treatment. But there is no change of disease condition in case of only oral administration. It is found that in trapan case the cure of disease came about 80.7% and in oral and tarpana administration it came about 96.1%. Hence, concluded inferring the use of Triphala Ghreeta in both ways i.e. oral as well as Tarpana for better cure.⁸

Trial 3: Bharti Lotika et al studied Phalatrikadi Ghrita 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. Statistically significant results (p-value<0.05) were found in watering in eyes (% relief 100%), eye strain in both eyes (% relief 92.3%) and headache (% relief 72.7%). Also in blurring of vision statistically sig-

nificant results (p-value<0.01) were found in RE (% relief 57.6%) and LE (% relief 58.8%). On Objective Parameters statistically significant results (p-value<0.05) were found in visual acuity in RE (% relief 48.2%) LE (% relief 44.2%), dioptric 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%. Researcher concluded that Prathama Patalgata 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.⁹

Trial 4: Anant Shankarrao Bangar, studied role of Dhatriyadi Rasakriya Anjana in Refractive errors. Total 30 patients of myopia were studied and dhatriyadi rasakriya anjana was applied. After application of anjana, observations were recorded & patients were reviewed on 8th, 15th, 30th, & 60th day. The anjana therapy was given for 2 months. Total 63.33% patients were improved and 13.33% patients were cured however in 23.33% patients no improvement was seen.

Trial 5: Gupta DP et al studied effect of Akshitarpana and combination of Akshitarpana with Nasya therapy in Timira with special reference to myopia. Total, 41 patients were registered in two groups, out of which 30 patients completed the treatment. In Group A, Tarpana with Mahatriphaladya Ghrita and in Group B, Nasya with Abhijita taila followed by Tarpana with Mahatriphaladya Ghrita was administered. N group A, Tarpana provided statistically highly significant relief in Doorastha Avyakta Darshana (32.14%), Vihwala Darshana (43.33%), Shirobhitapa (46.67%), Netrasrava (55.56%), Netradaha (54.54%), and Netrayasa (50%). In group B, Nasya followed by Tarpana provided statistically highly significant relief in Doorastha Avyakta Darshana (45.45%), Vihwala Darshana (45.45%), Shirobhitapa (47.83%), Netrasrava (55.56%), Netradaha (66.67%), and Netrayasa (62.5%). On visual acuity, in Group A, there was an average of 16.80% improvement in the right eye and 3.72% in the left eye, and in Group B, an average of 26.98% improvement in the right eye and 23.34% in the left eye. On clinical refraction, for spherical lens, in Group A, there was an average of 17.97% improvement in the right

eye and 14.53% in the left eye, while in Group B, 24.16% improvement in the right eye and 25.95% in the left eye was observed. In Group A, the dioptric power of the spherical lens on fresh myopes was reduced by 40.91% in the right eye and 48% in the left eye, and in the old myopes, 13.39% in the right eye and 10% in the left eye. In Group B, the dioptric power of the spherical lens on fresh myopes was reduced by 39.47% in the right eye and 41.67% in the left eye and in the old myopes 19.81% in the right eye and 20% in the left eye. On clinical refraction for cylindrical lens, an average of 35.29 and 14.28% decrease was observed in the dioptric power for both the eyes in Group A, while an improvement of 41.67 and 33.33% was observed for both the eyes in Group B. Researcher concluded that in reduction of the dioptric power, Nasya followed by Tarpana has shown better results than only Tarpana. Newly detected cases and patients having dioptric power less than -3D were found to have better results.

Trial 6: Poonam et al, studied on the role of Akshi Tarpana with Jeevantyadi Ghrita in Timira (Myopia). The study is aimed at evaluating the efficacy of the *Akshi-Tarpana* procedure with *Jeevantyadi Ghrita* in fresh and old myopes. A total of 54 patients (108 eyes) having myopia ≥ -6 D were registered for the study and divided into two groups (Group A, *Akshi-Tarpana* with *Jeevantyadi Ghrita*, and Group B, *Akshi-Tarpana* with plain *Go Ghrita*), by stratified sampling. The procedure was done in 5 sittings of 5 days each with an equal interval of 5 days between each sitting. A total of 22 patients in Group A and 18 in Group B completed the treatment. Obtained data were statistically analyzed using a *t*-test and the study reveals that objectively, 09.30% and 05.55% eyes were cured, 16.28% and 02.78% markedly improved, and 34.88% and 11.11% moderately improved in Group A and B, respectively. In the reduction of the dioptric power, *Jeevantyadi Ghrita* has shown better results than plain *Go Ghrita*¹⁰

Trial 7: Komal Krishna Tiwari et al studied Effects of Vintage Nonpharmacological Techniques in Reducing Myopia (Bates eye exercise therapy vs. *Trataka Yoga Kriya*). 24 participants (48 eyes) were included and divided into two groups viz. Group A and Group B, where Bates eye exercise therapy and *Trataka Yoga Kriya* were given, respectively, for 8 weeks. Participants were assessed for their refractive

errors and visual acuity pre- and post-intervention. Results obtained revealed that both Bates exercises and *Trataka Yoga Kriya* were not significantly effective in reducing refractive errors and in improving visual acuity.¹¹

Trial 8: Charu Bansal et al compared effect of *Saptamrita Lauha* and Yoga therapy in myopia. a total 60 patients with age group between 8 to 30 years were selected & divided in two groups. In Group A, *Saptamrita Lauha* 250 mg twice daily with unequal quantity of honey and *Ghrita* was administered while in Group B, patients subjected to Yoga therapy (*Jala Neti*, *Nadi Shodhana*, *Shitali Pranayama* and point *Tratak*) for 3 months duration with 1 month follow-up. In none of the group, statistically significant reduction in the visual acuity and dioptric power was recorded in either of eyes. However, associated changes were seen to be reduced. In Headache *Saptamrta Lauha* therapy (Group A) and *Jala Neti*, *Pranayama* and *Trataka* therapy (Group B) were equally effective ($P < 0.005$). However in the other symptoms like pain in the eye, watering in the eye, eye strain and in heaviness of the eye Group B (*Jala Neti*, *Pranayama* and *Trataka* therapy) was more effective ($P < 0.005$).

Trial 9: Dr. Shamli Zinjad et al studied effect of *Yashtimadhu Ghrit Tarpana* with *Triphala Choorna Sevana* in the management of simple myopia. 50 patients were randomly divided into 2 groups where in Group A- 25 patients were given *Yashtimadhu Ghrit Tarpana* for alternate 7 days in three settings along with 500mg *Triphala Choorna Sevana* with Ghrit and madhu for 60 days at bed time. In Group B- 25 patients were given 500mg *Triphala Choorna* with Ghrit and Madhu in unequal quantity at bed time for *Abhyantar Sevana* for 60 days. There were 35.56% patients got relief for headache in group A while in group B 25.64% patients got relief for same complain. For eyestrain in group A 65% patients got relief while in group B for the same complain 33.33% patients got relief. Group A provided better outcome significantly in case of visual acuity and lens power.

Commonly found observations: The etiological factors of myopia found commonly in above mentioned researches includes endocrine disturbances, nutritional deficiencies, general debility, stress, excessive near work, genetic factors, heredity etc.

DISCUSSION

On observation of above studies it is seen that Tarpana is used frequently in management of the Myopia. However Tarpana along with Nasya therapy is better than Tarpana alone. Dhatriyadi Raskriya Anjana is also effective but not more than Tarpana. However Tarpana along with Snehapana is also an effective management tool. Eye exercises or Yoga practices and Lohakalpa were not found significantly effective but useful in management of associated symptoms. The effects obtained by Tarpana may be attributed to the Snigdha properties of it. Acharya Charaka mentioned Akshi - Tarpana as one of the 24 Snehapravicharana in Sutrasthana 13th chapter.¹² Ghrita is used primarily for Tarpana. Ghrita is effective in subsiding Pittaja and Vataja disorders; it improves Dhatus and is overall booster for improving Ojas.¹³ The Ghrita has the quality of trespassing into minutest channels of the body. Hence when applied in the eye, it enters into deeper layer of Dhatus and cleanses every minutest part of them. Moreover, Ghrita due to its Sansakaranuvartana quality easily imbibes the properties of other drugs processed with it without leaving its own properties.¹⁴ Ghrita is also Sheeta Veerya, hence the eye being the site of Alochaka Pitta can be effectively managed by constantly using Ghee for Akshi Tarpana. Ghrita also contains properties like Balya, Brimhana and Rasayana, so it gives strength to the overall tissues of the eyeball as well as to the nervous tissues. The same properties thus can be obtained with Snehapana hence Tarpana with Snehapana seems to be the most promising treatment modality. Superiority of Tarpana over other therapies may be attributed to the following facts-

Pressure effect and refractive index: Tarpana exerts extraocular pressure to the lens thus increasing its axial length. Though this pressure effect is transient but due to the oleation and hydration provided by Tarpana may improve the accommodation which can retain this pressure effect for longer duration.

More contact time: Ghrita preparations used in Akshi-Tarpana are in the form of suspension containing different particles of the drugs and the particles do not leave the eye as quick as solution. Tissue contact time and bio availability is more hence

therapeutic concentration can be achieved by Akshi - Tarpana.

Accommodation and visual acuity: Accommodation is the ability of the eye to change the refractive power of the lens to automatically focus on objects at various distances. It is a complex constellation of sensory, neuromuscular and biophysical phenomena by which the overall refracting power of the eye changes rapidly to image objects at different viewing distances clearly on to the retina.¹⁵ Tarpana may act over accommodation capacity of eye by providing nutrition not only to the cornea but also to the sphincter muscles and nerves innervating it. Nutritional supplement from Tarpana drugs: Ghrita is used widely for Tarpana which contains mainly omega-3 & 6 fatty acids, Vit A, E & K & antioxidants.¹⁶ Milk is also used for Tarpana which contain variety of Vitamins, minerals, amino acids etc.¹⁷

Navana Nasya and Snehapana both modalities gives add on effect as they provide Snehana which corrects vitiated Vata. Using Ghrita as Snehana corrects Pitta and nourishes all Dhatu. Nasya is considered as a method of drug administration by which entry directly to the "Shiras", i.e. intracranial cavity/ supraclavicular area is possible. This gives direct nourishment to eyeball and even up to the level of optic nerve causing overall improved visual function. Also theories put forward in previous researches suggest absorption of Nasya drug through diffusion and vascular pathway.¹⁸

CONCLUSION

On reviewing available published researches, it can be concluded that, Tarpana is prime treatment modality in Management of Myopia which can be combined with Nasya or Oral Snehapana for better correction of Myopia.

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