A STUDY ON THE EFFECT OF VIBHITAKADI GHrita TARpana WITH SHATAVARI Choorna INTERNALLY IN THE MANAGEMENT OF PRATHAMA PATALAGATA TIMIRA W.S.R. TO SIMPLE MYOPIA

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ABSTRACT

Introduction: Prathama Patalagata Timira is one among drishtigata netra roga which is characterized mainly by blurred vision and other symptoms based on dosha and the patala involved. Timira involving prathama patala has resemblance with Simple myopia, a variety of refractive errors. Usual treatment for Simple myopia is optical correction to restore distance vision. The Ayurvedic approach of the disease mainly concentrates on preventing the progression of the disease. With this aim clinical study was undertaken. Materials and Methods: The study was conducted on 30 patients, 15 patients of group A were treated with Vibhitakadi ghrita tarpana (2 sittings of 7 days each, with the gap of 14 days) and 15 patients of group B were treated with Jeevantyadi ghrita tarpana (2 sittings of 7 days each, with the gap of 14 days) as the control. Shatavari Choorna internally was administered orally for both the groups (6grams BD with Madhu for 30 days). Observation and Results: The data of both the groups were tabulated in case proforma and analysed using repeated measures of ANOVA Test and Mann-Whitney U Test. The efficacy of both ghrita tarpana was statistically significant at ‘p’ value <0.001 in most of the symptoms. Conclusion: On comparison of Vibhitakadi ghrita tarpana along with Shatavari Choorna internally and Jeevantyadi ghrita tarpana along with Shatavari Choorna internally, both have an equal effectiveness in relieving the blurriness of vision, headache, eye strain, distant vision and auto refracto meter reading.
KEYWORDS: Prathama patalagata Timira, Simple Myopia, Akshi Tarpana, Vibhitakadi ghrita, Jeevantyadi ghrita, Shatavari choorna.

INTRODUCTION

Timira[1] is one among drishtigata netra roga which is characterized mainly by Avyakta Darshana[2] (blurred vision) and other symptoms based on dosha and the patala involved. Timira can be taken as refractive errors. Timira involving prathama patala has resemblance with Simple myopia, a variety of refractive errors.

In myopia patient complains of blurred vision for distant objects. The prevalence of myopia in Asia is as high as 80-90%[3] and simple myopia alone accounting about 20-40%[4] of the population and the fourth major cause of vision loss after cataract, glaucoma, and senile macular degeneration. It limits occupational choices with substantial social, educational, economic impact. Usual treatment for Simple myopia is optical correction (spectacles or contact lenses) to restore distance vision. This is just an aid to improve the diminished vision; meanwhile, it fails to decrease the risk of posterior segment sequel of Myopia. Surgical intervention although popular has no high success rate in all individuals, complications such as dry eye and night glare can be annoying.

In Ayurveda there are various ways of approach in this regard, like chakshushya dravyas and dietary regimen, netra kriyakalpas, shodhana procedures etc, which are said to enhance visual acuity, improve the general health of eyes, also prevents further progression of the condition and helps in avoiding ocular complications.

This study is aimed at two among those various approaches available in ayurveda i.e tarpana[5] kriyakalpa and oral administration of chakshusya dravyas. In this regard Vibhitakadi ghrita[6] explained in Bharat Bhaisajya Ratnakar netra roga adhikara was selected for tarpana and Shatavari choorna[7] for internal administration. This study is controlled clinical trial. Hence study group is treated with Vibhitakadi ghrita tarpana and the control group treated with Jeevantyadi ghrita[8] tarpana. Shatavari choorna was administered orally as chakshusya rasayana for both the groups.

OBJECTIVES OF THE STUDY

1. To evaluate the efficacy of Vibhitakadi ghrita tarpana with Shatavari Choorna internally in the Management of Prathama Patalagata Timira.
2. To evaluate the efficacy of Jeevantyadi ghrita tarpana with Shatavari Choorna internally in the Management of Prathama Patalagata Timira.

3. To compare the efficacy of Vibhitakadi ghrita tarpana with Shatavari Choorna internally and Jeevantyadi Ghrita tarpana with Shatavari Choorna internally in the Management of Prathama Patalagata Timira.

MATERIALS AND METHODS

Sampling 30 patients irrespective of the sex, fulfilling the inclusion criteria from OPD & IPD of Shree Jagadguru Gavisiddeshwar Ayurvedic Medical College and Hospital were randomly selected and divided into two equal groups.

Inclusion criteria
1. Patients having signs and symptoms of Prathama Patalagata Timira.
2. Patients between the age group of 8 to 20 years.
3. Those who are indicated for Tarpana.
4. Patients with refractive error up to 5 dioptre.

Exclusion criteria
1. Patients having other ocular pathologies and other forms of Refractive error.

METHOD OF TARPAONA

Tarpana was performed in kriyakalpa room devoid of direct sun rays, wind and dust. The patient were asked to lie down in supine position and was given mild fomentation with a cotton soaked in lukewarm water, then the eyes were encircled with firm, compact wall of two angula height made up of Maasha kalka (black gram dough). The liquefied Ghrita was poured slowly on closed eyes of patient till the eyelashes get completely immersed in Ghrita. Patient were instructed to blink slowly during the procedure. After 800 matra kala the Ghrita was drained out through the hole made near the outer canthus. Then mridu swedana was given to eyes by lukewarm water.

Duration of the treatment
- 30 patients, 15 patients of group A were treated with Vibhitakadi ghrita tarpana (2 sittings of 7 days each, with the gap of 14 days) and 15 patients of group B were treated with Jeevantyadi ghrita tarpana. (2 sittings of 7 days each, with the gap of 14 days) as the
control. *Shatavari choorna* was administered orally for both the groups (6gms BD with madhu internally for 30 days).

- Follow up: Treatment duration is 30 days and follow up is done for the next 60 days.

**Assessment criteria**

The net result obtained by various parameters of assessment both before and after treatment was taken into consideration to assess the overall effect of the therapies. Then they were graded in terms of percentage of relief in subjective and objective parameters.

<table>
<thead>
<tr>
<th>Response/ Improvement</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>More than 70% relief in subjective and objective parameter</td>
</tr>
<tr>
<td>Moderate</td>
<td>45-70% relief in subjective and objective parameter</td>
</tr>
<tr>
<td>Mild</td>
<td>20-45% relief in subjective and objective parameter</td>
</tr>
<tr>
<td>Poor</td>
<td>Less than 20% relief in subjective and objective parameter</td>
</tr>
</tbody>
</table>

**OBSERVATIONS AND RESULT**

Table No 1: Effect of Vibhitakadi Ghrita Tarpana in trial Group A.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Mean</th>
<th>MD</th>
<th>% of relief</th>
<th>SD</th>
<th>SE</th>
<th>F value</th>
<th>P value</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>BT</td>
<td>AT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blurring of vision</td>
<td>3.47</td>
<td>2.33</td>
<td>1.14</td>
<td>33%</td>
<td>0.724</td>
<td>0.165</td>
<td>48.32</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Eye strain</td>
<td>2.53</td>
<td>0.67</td>
<td>1.86</td>
<td>74%</td>
<td>0.488</td>
<td>0.165</td>
<td>88.61</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Headache</td>
<td>2.27</td>
<td>0.20</td>
<td>2.07</td>
<td>91%</td>
<td>0.414</td>
<td>0.067</td>
<td>227.96</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Distant vision</td>
<td>4.33</td>
<td>3.53</td>
<td>0.8</td>
<td>18%</td>
<td>1.885</td>
<td>0.212</td>
<td>16.98</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>AR-Readings</td>
<td>9.40</td>
<td>7.07</td>
<td>2.33</td>
<td>25%</td>
<td>3.77</td>
<td>0.303</td>
<td>51.43</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Table No 2: Effect of Jeevantyadi Ghrita Tarpana in Control Group B.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Mean</th>
<th>MD</th>
<th>% of relief</th>
<th>SD</th>
<th>SE</th>
<th>F value</th>
<th>P value</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>BT</td>
<td>AT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blurring of vision</td>
<td>3.27</td>
<td>2.20</td>
<td>1.07</td>
<td>33%</td>
<td>0.941</td>
<td>0.118</td>
<td>55.40</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Eye strain</td>
<td>2.47</td>
<td>0.73</td>
<td>1.74</td>
<td>70%</td>
<td>0.704</td>
<td>0.153</td>
<td>77.25</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Headache</td>
<td>2.27</td>
<td>0.27</td>
<td>2.0</td>
<td>88%</td>
<td>0.594</td>
<td>0.169</td>
<td>72.02</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Distant vision</td>
<td>4.40</td>
<td>3.60</td>
<td>0.8</td>
<td>18%</td>
<td>1.639</td>
<td>0.153</td>
<td>22.00</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>AR-Readings</td>
<td>9.13</td>
<td>7.47</td>
<td>1.66</td>
<td>18%</td>
<td>4.103</td>
<td>0.232</td>
<td>35.69</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>
Table No 3: Showing the overall Results during treatment between Group A and Group B.

The overall response of during treatment is as follows in Group A out of 15 patients- 15 patients (100%) showed mild response. While in Group B out of 15 patients- 14 patients (93%) showed mild response, 1 (7%) patients showed moderate response.

Table No 4: Showing the overall Results after treatment between Group A and Group B.

The overall response after treatment is as follows in Group A out of 15 patients- 3 patients (20%) showed mild response, 12 patients (80%) showed moderate response. While in Group B out of 15 patients- 6 patients (40%) showed mild response, 8 patients (53%) showed moderate response and 1 patients (7%) showed marked response.
Table No 5: Showing the overall Results after follow up -1 between Group A and Group B.

The overall response after follow up 1 is as follows in Group A out of 15 patients- 2 patients (13%) showed mild response, 11 patients (73%) showed moderate response and 2 patients (13%) showed marked response .While in Group B out of 15 patients- 4 patients (27%) showed mild response, 9 patients (60%) showed moderate response and 2 patients (13%) showed marked response.

Table No6: Showing the overall Results after follow up -2 between Group A and Group B.
The overall response after follow up 2 is as follows in Group A out of 15 patients- 2 patients (13%) showed mild response, 11 patients (73%) showed moderate response and 2 patients (13%) showed marked response. While in Group B out of 15 patients- 4 patients (27%) showed mild response, 9 patients (60%) showed moderate response and 2 patients (13%) showed marked response.

**DISCUSSION**

The observation obtained out of 30 patients is discussed below.

**Symptoms:** The present clinical study reveals that all the patients i.e. 100% were reported to have complaint of blurring of vision, followed by 100% eyestrain, 97% had headache. This denotes that most of patients had associated asthenopic symptoms.

**Visual acuity:** Majority of the patients in the present study were found Out of total 30 patients, 13% were having visual acuity 6/9-6/12, 42% were having visual acuity 6/18-6/24, 45% were having visual acuity 6/36-6/60. This signifies nothing.

**Dioptric power:** Out of 30 patients, 3% were having AR reading -0.25 to -0.75, 48% were having AR reading -1.00 to -1.75, 22% were having AR reading -2.00 to -2.75, 20% were having AR reading -3.00 to -3.75, 7% were having AR reading -4.00 to -5.00. This signifies nothing.

**DISCUSSION ON RESULTS**

To evaluate the effect of treatment on individual parameters in Group A and Group B repeated measures of ANOVA was applied to compare the efficacies within the groups and Mann-Whitney U rank test was applied between the groups. The obtained results are discussed here.

**Effect of therapy on Subjective parameters**

1) **Blurring of vision**

   **In Group A-** There was reduction from 3.47 to 3.20 i.e. by 8% improvement during treatment (DT) and it reduced from 3.20 to 2.33 i.e. by 27% improvement after treatment (AT), it is highly significant at p<0.001 and it was reduced from 2.33 to 1.93 i.e. by 17% improvement after 1st follow up (FU1) and no changes after 2nd follow up (FU2), it is highly significant at p<0.001.
In Group B- There was reduction from 3.27 to 3.07 i.e. by 6% improvement during treatment (DT) and it reduced from 3.07 to 2.20 i.e. by 28% improvement after treatment (AT), it is highly significant at p<0.001 and it was reduced from 2.20 to 1.93 i.e. by 12% improvement after 1st follow up (FU1) and no changes after 2nd follow up (FU2), it is highly significant at p<0.001.

2) Eyestrain
In Group A- There was reduction from 2.53 to 1.33 i.e. by 47% improvement during treatment (DT) and it reduced from 1.33 to 0.67 i.e. by 50% improvement after treatment (AT), it is highly significant at p<0.001 and it was reduced from 0.67 to 0.33 i.e. by 50% improvement after 1st follow up (FU1) and no changes after 2nd follow up (FU2), it is highly significant at p<0.001.

In Group B- There was reduction from 2.47 to 1.40 i.e. by 43% improvement during treatment (DT) and it reduced from 1.40 to 0.73 i.e. by 48% improvement after treatment (AT), it is highly significant at p<0.001 and it was reduced from 0.73 to 0.40 i.e. by 46% improvement after 1st follow up (FU1) and no changes after 2nd follow up (FU2), it is highly significant at p<0.001.

3) Headache
In Group A- There was reduction from 2.27 to 1.27 i.e. by 44% improvement during treatment (DT) and it reduced from 1.27 to 0.20 i.e. by 84% improvement after treatment (AT), it is highly significant at p<0.001 and it was reduced from 0.20 to 0 i.e. by 100% improvement after 1st follow up (FU1) and no changes after 2nd follow up (FU2), it is highly significant at p<0.001.

In Group B- There was reduction from 2.27 to 1.33 i.e. by 41% improvement during treatment (DT) and it reduced from 1.33 to 0.27 i.e. by 80% improvement after treatment (AT), it is highly significant at p<0.001 and it was reduced from 0.27 to 0.07 i.e. by 74% improvement after 1st follow up (FU1) and no changes after 2nd follow up (FU2), it is highly significant at p<0.001.
Effect of therapy on Objective parameters

4) Distant vision

**In Group A**- There was reduction from 4.33 to 4.27 i.e. by 2% improvement during treatment (DT) and it reduced from 4.27 to 3.53 i.e. by 17% improvement after treatment (AT), it is highly significant at p<0.001 and it was reduced from 3.53 to 3.20 i.e. by 9% improvement after 1st follow up (FU1) and no changes after 2nd follow up (FU2), it is highly significant at p<0.001.

**In Group B**- There was reduction from 4.40 to 4.20 i.e. by 5% improvement during treatment (DT) and it reduced from 4.20 to 3.60 i.e. by 14% improvement after treatment (AT), it is highly significant at p<0.001 and it was reduced from 3.60 to 3.40 i.e. by 6% improvement after 1st follow up (FU1) and no changes after 2nd follow up (FU2), it is highly significant at p<0.001.

5) Auto refractometer readings

**In Group A**- There was reduction from 9.40 to 8.27 i.e. by 12% improvement during treatment (DT) and it reduced from 8.27 to 7.07 i.e. by 15% improvement after treatment (AT), it is highly significant at p<0.001 and it was reduced from 7.07 to 6.33 i.e. by 10% improvement after 1st follow up (FU1) and no changes after 2nd follow up (FU2), it is highly significant at p<0.001.

**In Group B**- There was reduction from 9.13 to 8.20 i.e. by 10% improvement during treatment (DT) and it reduced from 8.20 to 7.47 i.e. by 9% improvement after treatment (AT), it is highly significant at p<0.001 and it was reduced from 7.47 to 6.93 i.e. by 7% improvement after 1st follow up (FU1) and after 2nd follow up (FU2) it was reduced from 6.93 to 6.87 i.e. 1% improvement, it is highly significant at p<0.001.

**Overall Comparative Effect of therapy between the Groups A-B**

Effect of therapy on Subjective parameters

1) Blurring of vision

The statistical significance between the Groups before treatment and after treatment was insignificant (>0.05) in blurring of vision, while after 1st follow up and 2nd follow up also it was insignificant (>0.05). Thus, it showed that in blurring of vision Group A Vibhitakadi ghrita tarpana and Group B Jeevantyadi ghrita tarpana both are highly significant within the group and insignificant between the group.
2) Eye strain
The statistical significance between the Groups before treatment and after treatment was insignificant (>0.05) in eye strain, while after 1st follow up and 2nd follow up also it was insignificant (>0.05). Thus, it showed that in eye strain Group A *Vibhitakadi ghrita tarpana* and Group B *Jeevantyadi ghrita tarpana* both are highly significant within the group and insignificant between the group.

3) Headache
The statistical significance between the Groups before treatment and after treatment was insignificant (>0.05) in headache, while after 1st follow up and 2nd follow up also it was insignificant (>0.05). Thus, it showed that in headache Group A *Vibhitakadi ghrita tarpana* and Group B *Jeevantyadi ghrita tarpana* both are highly significant within the group and insignificant between the group.

Effect of therapy on Objective parameters

4) Distant vision
The statistical significance between the Groups before treatment and after treatment was insignificant (>0.05) in distant of vision, while after 1st follow up and 2nd follow up also it was insignificant (>0.05). Thus, it showed that in distant of vision Group A *Vibhitakadi ghrita tarpana* and Group B *Jeevantyadi ghrita tarpana* both are highly significant within the group and insignificant between the group.

5) Auto refractometer readings
Thus, it showed that in auto refractometer reading Group A *Vibhitakadi ghrita tarpana* and Group B *Jeevantyadi ghrita tarpana* both are highly significant within the group and insignificant between the group.

Overall Comparative Effect of therapy
The overall response after treatment data showed that in Group A out of 15 patients- 3 patients (20%) showed mild response, 12 patients (80%) showed moderate response. While in Group B out of 15 patients- 6 patients (40%) showed mild response, 8 patients (53%) showed moderate response and 1 patients (7%) showed marked response.
Overall Comparative effect after Follow up 1

The overall response after follow up 1 data showed that in Group A out of 15 patients- 2 patients (13%) showed mild response, 11 patients (73%) showed moderate response and 2 patients (13%) showed marked response. While in Group B out of 15 patients- 4 patients (27%) showed mild response, 9 patients (60%) showed moderate response and 2 patients (13%) showed marked response.

Overall Comparative effect after Follow up 2

The overall response after follow up 2 data showed that in Group A out of 15 patients- 2 patients (13%) showed mild response, 11 patients (73%) showed moderate response and 2 patients (13%) showed marked response. While in Group B out of 15 patients- 4 patients (27%) showed mild response, 9 patients (60%) showed moderate response and 2 patients (13%) showed marked response.

Discussion on Drug Review

The trial drugs Vibhitakadi ghrita explained in Bharat Bhaisajya Ratnakar netra roga adhikara consists of Vibhitaki, Haritaki, Amlaki, Patola, Nimba, Vasa. Vibhitakadi ghrita has predominance of kasaya rasa, laghu ruksha guna, madhura vipaka, sheeta veerya and kapha pittahara property which helps to counteract the dosha vitiation in timira. Its jeevaniya and rasayana properties maintain the integrity of ocular structures and helps in rejuvenation of tissues. It has been termed as chakshushya and the control drugs Jeevantyadi ghrita explained in Astanga hridaya uttara sthan timira pratisedham adhyaya consists Jeevanti, Amlaki, Vibhitaki, Haritaki, Prapaundarika, Kakoli, Pippali, Lodhra, Shatava, Madhuka, Devdaru, Draksha, Saindava lavana, Sugar, Milk, Ghrita. Jeevantyadi ghrita has predominance of madhura rasa, laghu guna, sheeta veerya madhura vipaka and vata pittahara property which helps to counter acts the dosha vitiation in timira.

Probable mode of action of Vibhitakadi ghrita

Vibhitakadi Ghrita is used as topical application in the form of Tarpana. The results are encouraging and show that Vibhitakadi Ghrita may have action at the level of index or corneal curvature. The fat-soluble ingredients of the trial drug are absorbed through the transcorneal route; as cornea is permeable to lipid materials. These absorbed drugs may have action on the refractive media of the eye. As the study shows the medicine is very effective even in single sitting and shows improvement in clinical symptoms and in refraction. Its long term efficacy should be studied in large group for long term duration.
Probable mode of action of Jeevantyadi ghrita

Jeevantyadi ghrita explained in Astanga hridaya uttara sthan timira pratisedham adhyaya consists Jeevanti, Amlaki, Vibhitaki, Haritaki, Prapaudarika, Kakoli, Pippali, Lodhra, Shatava, Madhuka, Devadaru, Draksha, Saindava lavaana, Sarkara, Go-dugdha, Ghrita. Jeevantyadi ghrita has predominance of madhura rasa, laghu guna, sheeta veerya, madhura vipaka and vata pittahara property which helps to counter acts the dosha vitiation in timira. Thus, the overall effect of the compound drug is Tridosha shamaka and hence it does samprapti vighathana of the disease Timira, which is also Vata Pradhana Tridoshaja in its manifestation.

The Ghrita has the quality of passing 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 apart from providing brihmaniya effect. Other drugs used in the Jeevantyadi Ghrita also have Chakshushya properties.

So, all these drugs processed with Ghrita are beneficial for the power of sight.

Probable mode of action of Shatavari choorna

Shatavari Choorna has got predominance of Madhura and Tikta Rasa, Sheeta Virya and Madhura Vipaka. Hence it acts as Tridoshashamaka. It is a single drug with properties mainly Sheeta Virya, Deepana, Pachana, Chakshushya, Balya, Rasayana and Tridoshahara. Deepana-Pachana Karma increases the Jatharagni by virtue of which Ama is digested, which is said to be main cause of all the diseases; which ultimately results into the clearance of the channels (Srotoshuddhi) of the body in general and that of the eye in particular. The clearance of the body channel is also facilitated by tikta properties of the drug. This ultimately subsides the vitiated Tridoshas thereby helps resuming their normal functions. Whereas, the Madhura Rasa, Snigdha and Guru Gunas and Madhura Vipaka further helps in promoting Rasayana action of the drug. From all the above said facts and the effect Seen with the drug, it can be assumed that Shatavari Choorna acts systemically by improving general health and thereby increasing the functional integrity of the visual apparatus which restores the vision.

Probable mode of action of tarpana

The Ghrita has the quality of passing into minutest channels of the body. Hence when applied in the eye, it enters into deeper layer of Dhatus and cleanses every minute part of
them. Moreover, Ghrita due to its *Samsakaranuvartana* quality easily imbibes the properties of other drugs processed with it without leaving its own properties.

Also in the description of the *Drishti, Sushruta* has mentioned that *Sheeta dravyas are Satmya* for *Drishti*. *Ghrita* is also *Sheeta Virya*, hence the eye being the site of *Alochaka Pitta* can be effectively managed by constantly using *Ghrita* for *Akshi Tarpana*. *Ghrita* also possess properties like *Balya, Brimhana* and *Rasayana*, so it gives strength to the overall tissues of the eyeball as well as to the nervous tissues.

*Ghrita* contains approximately 8% lower saturated fatty acids which makes it easily digestible. It contains vit A, Vit E and β carotene which are anti-oxidants and are helpful in reducing ketone bodies and prevents the oxidative injury to the body. Mainly Vit A keeps the epithelial tissue of the body intact, keeps the outer layer of the eyeball moist and prevents blindness.

**Considering the modern pharmacological action**

Penetration of ocular drugs takes place through cornea, conjunctiva and sclera. As the corneal epithelium is rich in cellular membranes, it is susceptible to penetration of drugs which are lipophilic in nature. Thus drug with *ghrita* as a base used in *tarpana* is easily absorbed and also penetration of fat soluble substances is high through cornea.

*Ghrita* preparation is in the form of suspension containing different sized particles of the drugs and the particles do not leave the eye as quick as solution. The viscous nature of *Ghrita* prevents it from disposal through naso-lacrimal route which is the major problem with conventional eye drops in the form of solutions; hence the desired absorption of the active principles can be obtained.

Tissue contact time and bioavailability is more, hence desired therapeutic effect can be obtained.

Conjunctiva is highly vascular structure, by using warm *ghrita* it produces transient vasodilatation and helps in absorption of the drugs.

According to modern pathology the clinical condition of myopia is majorly produced due to the changes in the axial length of the eyeball, change in the refractive index or curvature changes in the cornea.
Tarpana may produce its action at the level of axis, and corneal curvature probably by:

1) Pressure effect.

2) Drug absorption into deeper tissues.

The medicated Gritha is placed over the eyeball directly for specified time. This may produce soothing effect and pressure on the cornea which helps in reducing the length of anteroposterior diameter.

The absorbed drug is transported into anterior ciliary and posterior ciliary vessels and through it later on enters the choroidal and retinal circulation. The absorption of gritha into deeper layers is responsible for strengthening the retina and posterior segment of eye and thereby preventing the damage caused on to the eye due to ongoing myopic stress.

Through cornea the drug diffuses into the aqueous and may show changes in the refractive index. Later drug enters the retinal circulation via retinal capillaries.

Desired therapeutic action is because of the increased bioavailability of the drug.

CONCLUSION

Going through the observations and results both the groups showed better results. There was no much difference in both Groups after follow up. Both the groups were effective in treating the blurring of vision, eyestrain, headache, visual acuity and auto refractometer readings has showed statistical significant result after treatment.

The ingredients of Jeevantyadi ghrita are more in number compared to Vibhitakadi ghrita, most of them are expensive and few are not available. But ingredients of Vibhitakadi ghrita are only 6, easily available and cost effective. Since the effect of both ghrita is same in management of timira. Vibhitakadi ghrita can be a better option which reduces the treatment expense.

No untoward effects were observed in any of the treatment groups except some discomfort only on the first day of tarpana.

REFERENCES


