EFFECT OF ‘USHIRAADI ANJANA’ ON ‘TIMIRA’ W.S.R. TO REFRACTIVE ERRORS & PRESBYOPIA: A CLINICAL STUDY

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ABSTRACT
The disease ‘Timira’ manifests due to affliction of Netra Patals i.e. layers of the eye ball. The critical analysis of the symptoms of Timira are suggestive of two different categories of visual disorders i.e. refractive errors and pathologies of refractive medias leading to poor vision and ultimately loss of vision described in modern ophthalmology. Refractive errors are the most common diseases affecting human eye. Ushiraadi Anjana, a name coined to depict the combined effect of five Ayurvedic ingredients were evaluated with standard statistical tests. The results of this clinical trial which was conducted for one month on a group of sixty one patients, subdivided in four groups of Timira- indicate possibility of significant benefits of Ushiraadi Anjana on subjective symptoms like ‘Avyakta darshana’ i.e., blurring of vision, eye strain, headache, nausea and vomiting etc. The treatment also resulted in improving visual efficacy on objective parameters, particularly on the sub-group of Myopia. However, tests indicate a longer duration of clinical treatment is required to determine the efficacy of Ushiraadi Anjana on all objective parameters of all subgroups.

Keywords: Timira, Anjana, Refractive errors, Myopia

INTRODUCTION
“Timira” is said to be a “Param Darun Vyadhi”⁶. Critical analysis of the symptoms of Timira on the basis of affliction of patalas as well as on the basis of vitiated doshas are suggestive of two different categories of visual disorders described in modern ophthalmology viz., refractive errors and pathologies of refractive media leading to poor vision and ultimate loss of vision. Estimates of number of people suffering from refractive errors in the world is in the range of 500 million to 2.3 billion². The main causes of blindness in India are: cataract (62.60%), refractive errors (19.7%)³. Here is systematic effort is carried out to establish the efficacy of Ushiraadi Anjana in the management of
Timira w.s.r. myopia, hypermetropia, astigmatism and presbyopia.

One of the features of Dwitiya patalgatagata Timira is, patient is unable to locate the eye of needle. This feature is in parlance with clinical features of Presbyopia. Nowadays, treatment of Refractive errors includes spectacles, contact lenses, Radial keratotomy (RK), photorefractive keratectomy (PRK), and laser in-situ keratomileusis (LASIK). Spectacles are only palliative, as they cannot check further progression of the condition. Contact lenses need more care, refractive surgeries are not cost friendly, and surgical complications sometimes lead to keratitis.

Surgery like RK, PKR and LASIK, which are generally not affordable.

In Ayurvedic texts, Timira is known as "Aushadha Sadhya Vyadhi" i.e. medically treatable disease. Various treatment modalities like Shanshodhana Chikitsa (Virechan karma), Kriyakalpa–Nasya, Dhoom, Tarpan, Putpaka and Anjana are described in detail.

In the light of the above mentioned scenario, “Ushiradi Anjana”, a sarvatimirahar compound, i.e. useful in all types of visual disorders, as mentioned by Acharya Vagbhata has been selected for evaluation of its clinical efficacy in Timira (Refractive errors and Presbyopia) in our present study with null hypothesis that Ushiradi anjana is not having any role in the treatment of Timira.

Aims and Objectives:-

To evaluate the effects of “Ushiraadi Anjana” in Timira roga (Refractive errors & Presbyopia).
To study side effects/ adverse effects of this medicine, if any.

Material and Methods

Source of Data - Patients of Timira (Refractive errors and Presbyopia) attending the OPD of Shalakya Tantra at R. G. P.G. Ay. Hospital Paprola, Distt. Kangra (H.P), were selected for the present study.

Study Period: - one month

Inclusion criteria

All patients presenting with signs and symptoms of refractive errors and presbyopia and those mentioned in classical text for 1st and 2nd Patalgata Timira were included in study.

Exclusion criteria

- Patient not willing for registration.
- Patients outside age group of 14-55 years.
- Refractive media pathologies.
- Cases complicated with infection and corneal ulcer etc.
- Other systemic/metabolic disorders.

CLINICAL STUDY-

1) Diagnostic phase (2) Interventional Phase (3) Assessment phase

1) Diagnostic phase- Symptoms of 1st and 2nd patalgata Timira - Avyakta darshana, Vihwala darshana and patient unable to thread the needle etc as mentioned in Sushruta Samhita were recorded along with doshik features and taken for most criteria of diagnosis

2) Interventional Phase- The study was intervened by the treatment with “Ushiraadi Anjana” (Rasakriyanjna).

USHIRAADI ANJANA Composition:- It is composed of 5 ingredients. Ushira (1 part), Pippali (1/4th part), Saindhava Lavana (1/4th part), Ghrita Naveena (1/8th Part), Madhu (1/8th part)

Diagnosed patient who fulfilled the inclusive criteria were divided into following 4 groups:

Trial Group I (Myopia) - 20 patients
Trial Group II (Hypermetropia) - 13 patients
Trial Group III (Astigmatism) - 20 patients
Trial Group IV (Presbyopia) - 20 patients.
Dose:- 3 Vidanga Matra (i.e. approx. 90 mg) per day in two divided doses.

Duration: -1 month.

Assessment interval: -Day1, Day15 & Day30

Route of Administration: - Topical

3) Assessment phase –

Grading and scoring system was adopted for assessing each sign and symptom before the commencement of trial and after completion of trial on these Parameters Avyakta Darshan, Vihwala darsana, Eye strain, Headache, Nausea and Vomiting Distortion of objects, Reduced near vision in dim light, Reduced near vision in day light :-

Overall assessment of the result

After completion of the trial, assessment of overall improvement was done on the basis of improvement of following subjective and objective features, over its pre trial values.

1. Cured: - more than 75% reliefs in symptoms and more than 75% improvement in visual efficacy.

2. Markedly Improved: - More than 50% improvement in symptoms and more than 50% improvement in visual efficacy.

3. Improved: - Less than 50% relief in symptoms and less than 50% improvement in visual efficacy.

4. Unchanged and Deteriorated: - No change in symptoms and no change in visual efficacy. Further progression of refractive errors and presbyopia were also taken into account as deteriorated.

Observations

Clinical study has been carried out into four different trial groups. Total 73 patients were registered. Out of them, 20 were in Gr. I, 13 were in Gr. II, 20 were in Gr. III and 20 were in Gr. IV. Among all the patients enrolled, 12 patients did not complete the trial i.e. 2 were from Gr. I, 5 were from Gr. II, 2 were from Gr. III and 3 were from Gr. IV. Patients who completed the trial were distributed as 18 patients in Gr. I, 8 in Gr. II, 18 in Gr. III and 17 in Gr. IV. Maximum patients 21-25% was found in the age group of 21-25 years. Major number of patients was females 70%. In cardinal symptoms avyakta darsana was found in 90% patients. The diopteric power of 100% patients in right eye was 0-1.00 and in left eye was 0-1.00ds and 0-1.00dc.

Table 1: Comparative Effects of Therapy on Cardinal symptoms

<table>
<thead>
<tr>
<th>Groups</th>
<th>Cured</th>
<th>Markedly improved</th>
<th>Improved</th>
<th>Unimproved</th>
<th>Total patients</th>
<th>%age</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. %age</td>
<td>No %age</td>
<td>No. %age</td>
<td>No. %age</td>
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</tr>
<tr>
<td>Gr. I</td>
<td>2 11.11</td>
<td>3 16.66</td>
<td>10 55.55</td>
<td>3 16.66</td>
<td>18</td>
<td>100</td>
</tr>
<tr>
<td>Gr. II</td>
<td>1 12.5</td>
<td>1 12.5</td>
<td>4 50</td>
<td>2 25</td>
<td>8</td>
<td>100</td>
</tr>
<tr>
<td>Gr. III</td>
<td>4 22.22</td>
<td>1 5.55</td>
<td>10 55.55</td>
<td>3 16.66</td>
<td>18</td>
<td>99.99</td>
</tr>
<tr>
<td>Gr. IV</td>
<td>2 11.76</td>
<td>0 0</td>
<td>9 52.94</td>
<td>6 35.29</td>
<td>17</td>
<td>99.99</td>
</tr>
</tbody>
</table>

Bar Diagram No 1

Total effect of therapy on cardinal symptoms
Table 2: Total Effects of Therapy on Distant and Near Vision Efficacy

<table>
<thead>
<tr>
<th>Groups</th>
<th>Cured</th>
<th>Markedly improved</th>
<th>Improved</th>
<th>Table Unimproved</th>
<th>Total patients</th>
<th>% Age</th>
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</thead>
<tbody>
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<td></td>
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<td>%age</td>
<td>No.</td>
<td>%age</td>
<td>No.</td>
<td>%age</td>
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<td>Distant visual efficacy</td>
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<tr>
<td>Right eye</td>
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<td></td>
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<td>4</td>
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<tr>
<td>Gr. II</td>
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<td>0</td>
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<td>0</td>
<td>2</td>
<td>25</td>
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<tr>
<td>Gr. III</td>
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<td>0</td>
<td>0</td>
<td>3</td>
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<td>Left Eye</td>
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<td>Gr. I</td>
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<td>14.29</td>
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<td>11.11</td>
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<td>Near Visual Efficacy</td>
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<tr>
<td>Left eye</td>
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<td>Gr. IV</td>
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</table>

RESULTS & DISCUSSION

Effect of therapy in Tr. Gr. I
Total 18 patients were documented and result was statistically significant in “Avakta darshana” p<0.05, “Eye strain” p<0.001, in “Headache” p < 0.05. In “Vihwala darshana” the result was statistically insignificant p>0.05.
In distant visual efficacy right eye result was significant p<0.05 and left eye the result was statistically insignificant p >0.05.

Effect of therapy in Gr. II
Total 8 patients were registered and result was statistically significant in “Headache” p <0.05. In “Avyakta darshana”, “Eye strain”, “Nausea and Vomiting” result was statistically insignificant p > 0.05.
In distant visual efficacy result was statistically insignificant p>0.05 in both eyes.

Effect of therapy in Gr. III
Total 18 patients were documented and result was statistically significant in “Avakta darshana”
p<0.05, “Eye strain” p<0.05, in “Headache” p<0.05. In “Nausea and Vomiting” and “Distortion of objects” the result was statistically insignificant p> 0.05.
In distant visual efficacy right eye result was significant p<0.05 and in left eye the result was statistically insignificant p >0.05.

**Effect of therapy in Gr. IV** - Total 17 patients were documented and result was statistically significant in “Eye strain” p<0.05, in “Headache” p<0.05. In “Reduced near vision in dim light” and “Reduced near vision in day light”, the result was statistically insignificant p> 0.05.
In near visual efficacy result was insignificant at the level of p>0.05 in both eyes.

**Effect of therapy in Inter group comparison:-**
The result was statistically insignificant at the level of p> 0.05 in inter group comparison of all the four groups.

<table>
<thead>
<tr>
<th>Group</th>
<th>Cured</th>
<th>Markedly Cured</th>
<th>Improved</th>
<th>Unimproved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gr. I</td>
<td>11.11%</td>
<td>16.66%</td>
<td>55.55%</td>
<td>16.66%</td>
</tr>
<tr>
<td>Gr.</td>
<td>12.5%</td>
<td>12.5%</td>
<td>50%</td>
<td>25%</td>
</tr>
<tr>
<td>Gr.</td>
<td>22.22%</td>
<td>12.5%</td>
<td>50%</td>
<td>25%</td>
</tr>
<tr>
<td>Gr. I</td>
<td>11.76%</td>
<td>00%</td>
<td>52.94%</td>
<td>17%</td>
</tr>
</tbody>
</table>

- **Avyakta darshana** or blurring of vision symptom occurs in all refractive errors.
- **Vihwala darshana**- visualization of non existing objects occurs due to progressive myopia which results into vitreous degeneration, retinal degeneration and ultimately retinal detachment in advanced stages.
- **Timira** ultimately leads to *linganasha* i.e total loss of blindness, which is also found in cases of very high refractive errors.
- 2nd *Patala gata Timira* also having the symptoms: *yatavanapī suchiparshvama na pashyati...i.e patient is unable to locate/ thread the eye of needle, which occurs due to vitiation of *mansashrita patala* (muscular coat of eye inner to outer *patala*). It is established during description of *patalas* that 2nd *patala* is similar to uveal tract (iris, ciliary body and choroid). Presbyopia is the deficiency of accommodation power, which is related to efficiency of ciliary muscles this symptom of 2nd *Patala Gata Timira* is similar to presbyopia.

**Overall effects of Therapy On distant and near visual efficacy (Table no-20)**

**On distant visual efficacy of Right eye**
Group I)-22.22% patients were improved, 76.66% were unimproved,
Group II)-25% patients were improved while 75%were unimproved,
Group III)-16.66% patients were improved while 83.33% were unimproved.

**On distant visual efficacy of left eye**
Group I)- 14.29% patients were improved,83.33% were unimproved,
Group II)-00% patients were improved while 100%were unimproved,
Group III)-11.11% patients were improved while 88.88% were unimproved.

**Near visual efficacy**-
Group IV)-100% patients were unimproved.

**S.O.P. OF USHIRAADI ANJANA**
- Fresh, well identified raw material of herbal drugs ws taken and dried properly.
- Decoction of *Ushira* was made as per classical text.
• Fine powder of pippali and Saindhava Lavana mixed in decoction and grinded until it was totally absorbed in this.
• Above material was cooked in properly filtered Ghrita.

ANALYTICAL STUDY OF USHIRAADI AJANA-

PROBABLE MODE OF ACTION OF DRUG –
In Ayurvedic texts the action of the drug is based on the Raspanchaka of the drug. Timira roga is Vata predominant, Tridoshaja disease. The formulation under trial has Tridoshshamaka, mainly Vatashamaka properties due to madhura vipaka. And these properties of the drug help to break down the pathogenesis of the disease. Apart from these properties all ingredients are Balya, Brinhana, Chakshushya and Rasayana which all strengthen the patala.

“Ushiraadi Anjana” was expected to strengthen the Netra patala by relieving any pathological abnormality there in. So it seems to be mandatory that the srotas of patala (micro channels or lymphatic channels) must be clear for free circulation of the extra cellular fluid. Sodhana (sarvanga) and Nasya Karma should have been the pre Anjana procedures for the proper absorption, circulation and action of Anjana. This fact only seems to be the possible reason behind poor action of the applied drug.
CONCLUSION

- “Ushiradi Anjana” is significantly effective in relieving the subjective symptoms like Avyakta darshana (blurring of vision), Eye strain, Headache, Nausea and Vomiting, Distortion of objects, Reduced near vision in dim light and in day light.
- “Ushiradi Anjana” is less effective in altering the visual acuity.
- “Ushiradi Anjana” showed no adverse effects/toxic effects. But drawback of this Anjana, were irritation and excessive watering from the eyes which was overcome by advising the patient to keep eyes closed for five minutes after its application. Modifications in the preparation of Anjana at the level of pharmaceutics are also required to overcome this excessive irritation.

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