STUDY ON AGE RELATED MACULAR DEGENERATION (DRY TYPE) IN CONTEXT TO PITTA VIDAGDHA DRISHTI AND ITS AYURVEDIC MANAGEMENT

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ABSTRACT
Age Related Macular Degeneration (ARMD) is the leading cause of the vision loss and blindness in people above 50 years of age. ARMD is characterised by central vision loss, distorted or blurred vision, decreased visual acuity, Central or para-central blind spot (scotoma). An almost similar clinical condition to ARMD is seen in Pitta Vidagdha Drishti. Dry ARMD is more prevalent (90%) and slower in progress than Wet ARMD. The Ayurvedic management of Pitta Vidagdha Drishti is similar to Pittaja Abhishyanda. With this background a specific line of treatment for the Pitta Vidagdha Drisht in Sushruta Samhita is adopted. In this study, total 22 patients, 12 in group A (Triphala Ghrita, Saptamrita Lauha, Rasayana Churna and Shatavari etc.) & 10 in Group B (Control) were registered. The duration of therapy was of 3 months in both the groups. Group A showed better results on ARMD when compared with that of Group B especially on perception of flashes of light (72.23%) & dim light adaptation problem (45.23%). So ARMD (Dry type) can be better managed by Ayurvedic treatment group than the Modern multivitamin group.

KEYWORDS: Age Related Macular Degeneration, Pitta Vidagdha Drishti, Nasya, Tarpana, Triphala Ghrita.

INTRODUCTION
Age related macular degeneration (ARMD) is a degenerative disease associated with aging that affects the macula and causes gradual loss of central vision, which is needed for seeing objects clearly in day to day activities. The disease is most often clinically apparent after 50 years of age and is considered to be the leading cause of blindness in the developed and developing countries. ARMD is the most common cause of irreversible visual loss which increases with age. The Indian prevalence has been reported as 1.1% from South India and 4.7% in North Indian study. Dry ARMD is more prevalent (90%) and slower in progress than Wet ARMD. The most common causes of ARMD (Dry type) are sun light exposure, arteriosclerosis, smoking, oxidative damage, photic damage, inflammation, High fat intake etc. Drusen is the diagnostic sign and optical coherence tomography is the diagnostic tool for ARMD (Dry type). The diagnosis of ARMD is being increasingly made due to enhanced patient awareness, increased life expectancy, and path-breaking innovation in medical equipment in diagnosis. The challenge therefore lies in preserving and improving existing vision by diagnosing and treating lesion at an even earlier stage. However, since none of the available treatment options are absolute in terms of efficacy and safety and also because of their high cost, it becomes very important to individualize therapy according to the patient and disease profile.

Pitta Vidagdha Drishti is a disease which comes under the Drishtigata Rogas- vision related diseases group of classification in Ayurvedic classics. In this disease, impairement of Drishti manifested as Vidagdhata caused by Vitiated Pitta. The word Vidagdhata in this context means partial destruction reflected as...
functional impairment of visual apparatus / Drishti.2

Tarpana is the foremost procedure for Drishtigata Rogas and provides Vata-Pitta Shamaka properties and nourishment to the eyes and improves visual acuity. Along with oral drugs, Nasya yoga is also described for Pitta Vidagdha Drishti because nose is the gateway of drug administration in case of Urdhwajatragata Rogas. Till now no work on Pitta Vidagdha Drishti in context to ARMD has been done. So, an attempt is made to co-relate, access and manage the symptoms of Pitta Vidagdha Drishti w.s.r. to ARMD (Dry type).

Drug selection

Though the aliment is a consequence of modern invention, Ayurveda, the ancient science of life can be great help in dealing the modern senile ailments by its preventive and therapeutic principles. Considering the Dosha involvement on the basis of symptom, Ayurvedic remedies can be used to treat the condition. Therapeutic measures like Kriyakalpa, Samana Aushadhes, Chakshusya and Rasayana, etc., which improve the homeostasis and ocular strength can be practised. Pitta Vidagdha Drishti can be managed by Ayurvedic Chakshusya and Vata-Pitta pacifying therapies. Triphala Ghrita, Saptamrita Lauha, Rasayana Churna and Shatavari are the formulations which have been extensively used for various eye disease and senile disorder. Triphala Ghrita selected for tarpana and Khirasharpi for Nasya in context to Pittaja Abhisyanda Chikitsa. All the drug are taken from the pharmacy of Gujarat ayurved university, Jamnagar, Gujarat.

- Triphala Ghrita is used for both local and internal administration in many forms for treating many of the ocular conditions.
- Triphala acts as the best Rasayana and Chakshusya drug without much discomfort.3

Aims and Objectives

The present study has been undertaken with the following aims and objectives -

(1) To study the disease Pitta Vidagdha Drishti and ARMD conceptually and to trace the relation between the two.
(2) To evaluate the efficacy of Ayurvedic treatment in dry type of ARMD.
(3) To assess the toxic/adverse effect of the treatment if any.

MATERIALS AND METHODS

Patients

Patients attending the O.P.D. and I.P.D. of Department of Shalakya (Netra Roga unit), I.P.G.T. & R.A. hospital, G.A.U., Jamnagar with signs and symptoms of Age related macular degeneration (Pitta Vidagdha Drishti) were selected for the present study.

Grouping

In the present study total 22 patients were registered and 21 patients completed the treatment i.e. 11 in group A and 10 in group B. In Group A & Group B, 1-1 patient had only one eye. So, total number of eyes in Group A was 21 and in Group B 19 eyes.

Inclusion criteria

Patients having signs and symptoms of ARMD (Dry type) / Pitta Vidagdha Drishti.

Exclusion criteria

(1) Patients having other ocular pathologies like glaucoma, high myopia, mature cataract, pan retinal degenerations etc. were excluded.
(2) Patients having systemic diseases like hyper-cholesterolemia, renal disorder, liver disorder and other debilitating diseases.

Criteria for diagnosis

Subjective: (Refer Table: 1 for Gradation Index)

(1) Difficulty in day vision
(2) Diminished vision
(3) Distorted vision
(4) Perception of black spots in the field of vision
(5) Perception of flashes of light
(6) Perception of objects as yellowish
(7) Problem for adaptation with dim light

Table 1: Table showing Gradation Index

<table>
<thead>
<tr>
<th>Difficulty in Day Vision</th>
<th>Grade 0</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>No difficulty in day vision.</td>
<td>Difficulty in distance vision but no interference with routine work.</td>
<td>Occasionally interference with day to day working.</td>
<td>Cannot do any work in bright day light.</td>
<td></td>
</tr>
</tbody>
</table>
Diminished Vision
Grade 0: No diminished vision.
Grade 1: Dimness in vision but without imitating (inhibiting) activities.
Grade 2: Sometime difficulty in performing routine work.
Grade 3: Unable to go out independently.

Distorted Vision (This is assessed by using an Amsler’s grid)
Grade 0: No distorted vision.
Grade 1: Lines are crooked or bent.
Grade 2: Boxes appeared different in size and shape from each other.
Grade 3: Boxes and Lines are wavy, missing.

Perception of black spots
Grade 0: No perception of black spot.
Grade 1: Occasionally interfering with routine work.
Grade 2: Regularly interfering with routine work.
Grade 3: Cannot perform routine work.

Dark adaptation
Grade 0: Adaptation to darkness within few seconds.
Grade 1: Slow dark adaptation within 10 seconds.
Grade 2: Slower dark adaptation within 20 seconds.
Grade 3: Slowest dark adaptation after 1 minute.

Xanthopsia: +ve/-ve
Perception of flashes of light: +ve/-ve

Objective
(1) Visual acuity 6/12 or less
(2) Pin hole 6/18 or less
(3) Fundus showing macular degeneration
(4) Amsler’s Grid aberration
(5) Ishihara’s colour vision testing
(6) Optical coherence tomography

Criteria of assessment

Subjective
Improvement in the subjective symptoms.

Objectives
(1) Improvement in distant vision
(2) Improvement in pin hole
(3) Improvement in the fundus changes
(4) Optical Coherence Tomography changes
(5) Amsler’s grid aberration changes

GROUPING
- Group 1- Treatment group - where in Ayurvedic treatment was given.
- Group 2- Control group - where in antioxidant, multivitamin modern drug was given.

The research drug taken as standard control is tablet, which is a combination of vital anti-oxidants, minerals and vitamins. It contains

<table>
<thead>
<tr>
<th>Vitamin C</th>
<th>150mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rutin</td>
<td>50mg</td>
</tr>
<tr>
<td>Zinc oxide equivalents to element Zinc</td>
<td>22 mg</td>
</tr>
<tr>
<td>Vitamin B2</td>
<td>6 mg</td>
</tr>
<tr>
<td>L-Glutathione</td>
<td>5 mg</td>
</tr>
<tr>
<td>Manganese sulphate equivalent to elemental Manganese</td>
<td>5 mg</td>
</tr>
<tr>
<td>Lutein</td>
<td>2.5 mg</td>
</tr>
<tr>
<td>Cupric oxide equivalent to elemental Copper</td>
<td>2 mg</td>
</tr>
<tr>
<td>Zeaxanthin</td>
<td>0.5 mg</td>
</tr>
<tr>
<td>Sodium selenite equivalent to elemental Selenium</td>
<td>55 mg</td>
</tr>
<tr>
<td>Vitamin A (as bête carotene)</td>
<td>6000 IU</td>
</tr>
<tr>
<td>Vitamin E (powder form)</td>
<td>50 IU</td>
</tr>
<tr>
<td>Vitamin D3</td>
<td>200 IU</td>
</tr>
</tbody>
</table>

DURATION: 3 months

DRUGS & DOES

Group 1: A 5 days course of Deepana, Pachana, followed by Koshtha Shodhana with Erandabhristha Haritaki and then followed by the treatment.

(1) For Nasya
With Kshirasarpī (Milk cream)-3-3 drops

(2) For Tarpana
With Triphala Ghrita -10ml in each eye x 1 sitting

(3) For internal use
i) Rasayana Churna - 2 gm
   Saptamrita Lauha - 1 gm
   Shatavari Churna - 2 gm
   Along with Madhu at bed time.
ii) Triphala Ghrita - 10ml at bed time with milk

SCHEDULE OF NASYA & TARPANA:

Patient was subjected to undergo 1 sitting of Nasya for 7 days, followed by 7 days of Tarpana in a month, with a gap of 7 days after Nasya and Tarpana. Pratimarsha Nasya was continued in between the post Nasya Karma interval periods and during the Akshi Tarpana karma. Rest six days giving only oral medication.
FOLLOW UP

- 1 month after the course of the treatment.

Statistical Analysis

The obtained data on the basis of observations were subjected to statistical analysis in terms of mean, standard deviation, standard error and 't' test were conceded at the level of p<0.001 as highly significant, p<0.01 as significant, and p<0.05 as insignificant.

CRITERIA FOR OVERALL ASSESSMENT OF EFFECT OF TREATMENT

Assessment was done on the basis of special proforma through following. Scoring pattern and was analyzed statistically with the help of P value.

Cured: 100% relief of the complaints and no recurrence during the follow up.

Marked improvement: 75% and up to 100% relief in the complaints.

Moderate improvement: 50% and up to 75% relief in the complaints.

Mild improvement: 25% and up to 50% relief in the complaints.

Unchanged: less than 25% relief in the complaints.

OBSERVATIONS

In the study, maximum patients i.e. 86.37% were above 50 years of age, 68.18% were males, 77.27% were from urban areas, 50% belonged to lower middle class, 77.27% were vegetarians, 54.55% had regular bowel habit, 77.27% had normal maturation, 63.64% had disturbed sleep, 100% patients were habituated to tea, 45.45% patients had a chronicity of 1-2 years, history of prolonged sunlight exposure and past ocular history could be cited in 59.09% and 36.36% patients respectively. Maximum patients (63.64%) had Vata-Pitta Prakriti. On chief complaints, majority all patients had difficulty in day vision and diminished vision, 88.10% patients had perception of flashes of light, 95.24% had problem for adaptation with dim light, 26.19% had distorted vision and 21.43% patients had perception of black spots in the field of vision.

Maximum patient’s i.e. 21.43% had visual acuity of 6/18 and 6/60 or less, 26.19% and 21.43% patients had visual acuity for pinhole of 6/60 or less and 6/18 respectively. Distant vision and near vision best corrected was found 6/18 (30.95%) and N/8 (59.52%) respectively.

On fundus examination and OCT all patients had pathological changes in the macula and general background (100%). In Amsler’s grid chart maximum i.e. 73.81% patients had normal findings.

DISCUSSION

Effect on Group A-Trial group on chief complaints of 11 patient’s eye of ARMD (Pitta Vidagdha Drishti)

Right eye

- Statistically insignificant results were observed in the relief of difficulty in day vision.
- Insignificant clinical improvement was observed in distorted vision while assessing the effect in 04 eyes (33.33%).
- 22.22% relief was found clinically in perception of black spots in the field of vision in 06 eyes. This value is statistically insignificant at the level p<0.10.
- While assessing the effect in 09 eyes, highly significant clinical improvement was observed in perception of flashes of light (66.67%).
- Statistically results were not applicable in diminished vision & perception of objects as yellowish.

Left eye

- Statistically insignificant results were observed in the relief of difficulty in day vision (18.75%), diminished vision (8.33%), perception of black spots in the field of vision (25.00%) and distorted vision (50.00%).
- Highly significant clinical improvement was observed in perception of flashes of light (77.78%) and problem for adaptation with dim light (45.00%).
- Statistically results were not applicable in perception of objects as yellowish.

Effect on Group B-Control group on chief complaints of 10 patient’s eye of ARMD (Pitta Vidagdha Drishti)

Right eye

- Insignificant clinical improvement was observed in diminished vision while assessing the effect in 10 eyes (6.25%).
• Statistically insignificant results were observed in the relief of perception of flashes of light.
• 6.25% relief was found clinically in problem for adaptation with dim light in 09 eyes. This value is statistically insignificant at the level \( p<0.10 \).
• Statistically results were not applicable in difficulty in day vision, distorted vision, perception of black spots in the field of vision & perception of objects as yellowish.

Left eye
• Statistically insignificant results were observed in the relief of difficulty in day vision (12.50%), diminished vision (14.29%), distorted vision (33.33%), perception of black spots in the field of vision & perception of objects as yellowish.

Effect of Group A
- Trial group on Amsler’s grid chart of 11 patients of ARMD/PVD
  • Statistically insignificant results were observed in the relief of difficulty in day vision (12.50%), diminished vision (14.29%), distorted vision (33.33%), perception of black spots in the field of vision & problem for adaptation with dim light (7.14%).
  • Statistically results were not applicable in perception of objects as yellowish and Perception of black spots in the field of vision.

Effect of Group B
- Control group on Amsler’s grid chart of 10 patients of ARMD/PVD
  • Statistically insignificant result in Lt eye (33.33%) and results were not applicable in Rt eye.

Table 2: Effect of Group A-Trial group on OCT of 11 patients of ARMD/PVD

<table>
<thead>
<tr>
<th>Group A</th>
<th>No. of Eyes</th>
<th>Mean</th>
<th>Mean ± SE</th>
<th>%</th>
<th>S.D.</th>
<th>‘t’</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>BT</td>
<td>AT</td>
<td>MEAN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RE</td>
<td>11</td>
<td>1.00</td>
<td>0.64</td>
<td>0.36 ± 0.15</td>
<td>36.36</td>
<td>0.50</td>
<td>2.39</td>
</tr>
<tr>
<td>LE</td>
<td>10</td>
<td>1.00</td>
<td>0.60</td>
<td>0.40 ± 0.16</td>
<td>40.00</td>
<td>0.52</td>
<td>2.45</td>
</tr>
</tbody>
</table>

• Statistically significant result in Rt eye (36.36%) and Lt eye (40.00%).

Table 3: Effect of Group B-Control group on OCT of 10 patients of ARMD/PVD

<table>
<thead>
<tr>
<th>Group B</th>
<th>No. of Eyes</th>
<th>Mean</th>
<th>Mean ± SE</th>
<th>%</th>
<th>S.D.</th>
<th>‘t’</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>BT</td>
<td>AT</td>
<td>MEAN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RE</td>
<td>10</td>
<td>1.00</td>
<td>1.00</td>
<td>0.00 ± 0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>NA</td>
</tr>
<tr>
<td>LE</td>
<td>09</td>
<td>1.00</td>
<td>1.00</td>
<td>0.00 ± 0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>NA</td>
</tr>
</tbody>
</table>

• Statistically results were not applicable in OCT in control group.

Table 4: Overall effect of therapy Group A

<table>
<thead>
<tr>
<th>No. of Eyes</th>
<th>Mean</th>
<th>Mean ± SE</th>
<th>%</th>
<th>S.D.</th>
<th>‘t’</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BT</td>
<td>AT</td>
<td>MEAN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>23.10</td>
<td>19.43</td>
<td>3.67 ± 0.60</td>
<td>15.88</td>
<td>2.74</td>
<td>6.12</td>
</tr>
</tbody>
</table>

• There was 15.88% of improvement in the symptom with t-value 6.12, which is statistically highly significant at \( p<0.001 \).

Table 5: Overall effect of therapy Group B

<table>
<thead>
<tr>
<th>No. of Eyes</th>
<th>Mean</th>
<th>Mean ± SE</th>
<th>%</th>
<th>S.D.</th>
<th>‘t’</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BT</td>
<td>AT</td>
<td>MEAN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>22.60</td>
<td>21.90</td>
<td>0.70 ± 0.18</td>
<td>3.10</td>
<td>0.80</td>
<td>3.81</td>
</tr>
</tbody>
</table>

• There was 3.10% of improvement in the symptom with t-value 3.81, which is statistically significant at \( p<0.01 \).

Table 6: Comparative overall effect of Group A and Group B

<table>
<thead>
<tr>
<th>No. Of Eyes</th>
<th>% relief</th>
<th>Diff of means</th>
<th>‘t’</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Group A</td>
<td>Group B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>15.88</td>
<td>3.10</td>
<td>3.035</td>
<td>4.656</td>
</tr>
</tbody>
</table>

• Group A showed better results on ARMD when compared with that of Group B. The difference was statistically highly significant with the ‘t’ 4.656. (\( p<0.001 \))
Pitta Vidagdha Drishti has drawn attention of ancient physicians which is evident from the fact that its description, symptomatology and management are available in literature. Even though the disease Pitta Vidagdha Drishti has been considered as a curable disease if the treatment is given well in time otherwise the disease results in further deterioration and ultimately blindness ensues.

The mode of action of the drug can be understood based on the inherent properties of all the drugs.

The clinical trial drugs have predominance of Madhura (81.81%), Kashaya (63.63%), Tikta (45.45%) and Katu Rasa (27.27%), Ruksa Guna (45.45%), Guru Guna (36.36%), Laghu Guna (36.36%) and Snigdha Guna (36.36%), Sheeta Virya (63.63%) & Ushna Veerya (36.36%) and Madhura Vipaka (100%).

Considering the Doshakarma, the trial drugs are Tridosha Shamaka (45.45%), Pitta Shamaka (18.18%), Kapha Shamaka (27.27%), Vata-Pitta Shamaka (9.09 %) and Rakta-Pitta Samaka (9.09%) by virtue of its Rasa, Guna, Virya and Vipaka. Thus, the overall effect of the compound drug is Tridosha Shamaka and hence it disintegrates the pathology of the disease Pitta Vidagdha Drishti, which is Pitta-Vata dominant in its manifestation.

Most of the drugs of Triphala Ghrta, Rasayana Churana, Saptamrita Lauha, Satawari are Anti-oxidant, immunomodulatory, Free radical scavenging effect, hypoglycaemic, adaptogenic, hypcholesterolaemic, capillary strengthening, anti-atherosclerotic effect. So, it is direct effect on disease pathology and relieves the symptoms. As a result of the action of the drug, it is assumed that the drug is effective in breaking down the aetiopathogenesis of the disease.

CONCLUSION

Incidence of disease is common in Geriatric patients i.e. Vriddhavastha. Vata – Pitta Prakopaka Nidana has a vital role in disease pathogenesis of Pitta Vidagdha Drishti. Dhumanishevanat (smoking) & Ushnaahbitaptasya /Atapa sevana /Baskara darshana (excessive sunlight exposure) play a major role as a risk factor in ARMD/ Pitta Vidagdha Drishti. Kopa, Shoka Manasika Bhavas also play a important role in causing & progression of ARMD/ Pitta Vidagdha Drishti. Excessive exposure to sunlight may be the reason for Drishti Vidagdhata. Drusen is a pathognomic sign for ARMD (Dry type).

According to literature, the pathogenesis of ARMD (Dry type) and Pitta Vidagdha Drishti is almost similar. Features of 3rd Patalagata Timira are also related with retinal disorders. Divam na pashyati, Drishti Peeta varnani, Nisham cha pashyati - these features are strongly in co-relation with the symptoms and signs of ARMD (Dry type). But, we can also say that ARMD is a part of Pitta Vidagdha Drishti. Sharira - VP prakriti and Rajashika Mansa prakriti contributes a major role for the disease pathology. Vidaha / degeneration of Drishti (Retina/Macula) is suggestive of Pitta- Vata pathology at Alohaka Pitta site. Age and Risk factors are main causes. So, only external medicine is not sufficient to cure ARMD (Dry type). On observing the effect of therapy in symptoms like perception of flashes of light (72.23%) & dim light adaptation problem (45.23%) in ARMD (Dry type) can be better managed by Ayurvedic treatment group than the Modern multivitamin group. Modern ophthalmology does not have FDA approved treatment modality till date whereas Ayurveda has elaborated on treatment principle and therapeutic procedures of Pitta Vidagdha Drishti thousands of years back. Patient who had 6/60 DVA, did not improve with pin hole after giving best correction. It suggests that in advanced stages of ARMD (Dry type) bringing back vision normalcy is not possible. It reflects that the degenerative process in initial phase only can be reversed to some extent by Ayurvedic treatment. Effect of therapy may be due to Dipana and Koshta Shodhana followed by Shamana therapy with Kshirasarpi Nasya & Tarpana with Triphala Ghrta (Urdhvanga Snehana) which is Pitta Shamaka, Brimhana and Rasayana. Maximum result is not only due to internal use of drugs, Triphala Ghrta, Saptamrita Lauha, and Rasayana Churna, but topical use of Tarpana with Triphala Ghrta & Nasya with Kshirasarpi has major role to reverse the pathology of ARMD (Dry type) to some extent.

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