1. INTRODUCTION

Timir is a condition affecting the Patal of eye leading to visual symptoms and diminished vision. Amongst the four stages of Timir, dwitiya patalgaat timir is comparable to Presbyopia. Very few studies based on Ayurvedic treatment have been done regarding dwitiya patalgaat timir and Presbyopia. The assessment criteria used in these studies seem to be insufficient to generate objectives and accurate information about the outcome. Hence a literary study was done to find out more effective assessment criteria. On literature review it was concluded that NPA (Near Point of Accommodation) measured by RAF rule (Royal Air Force rule) and soochipash test are the criteria which should be incorporated in the above-mentioned studies.

Keywords: Dwitiya patalgaat timir, Presbyopia, Ayurveda research, RAF rule, Near vision.

1. INTRODUCTION

Timir is a condition in which there is gradual vision loss and other visual symptoms. It has three stages timir (first and second patal affected), kach (third patal affected) & lingnash (fourth patal affected). The second patala here denotes medoshrita patal (Dalhana). The Timira involving second patala is characterised by vihwa darshana and gochara vibhrama. Vihwa darshana (confusing and hazy vision): The patient visualises false images of flies, gnats, hairs, webs, circles, flags, mirage and shiny rings. Patient visualises as if various objects are moving around him. His vision gets reduced further and sees objects as if they are covered by rain and cloud. Gochara vibhrama: The distant object appears to be closer and the near object appears to be at long distance. Soochipasham na pashyate: The patient is unable to locate the eye of needle even after effort.

Acharya Vaghbha has described Dwitiya patalgaat timir based on the site of doshas in patalas, whereas acharya Sushrut has reserved this description for the Tritiya patalgaat timir. The views of acharya Vaghbha is summarised in the following Table No. 1. According to acharya Sushrut the symptom like suchipash na pashyati and according to acharya Vaghbha the symptom like sukshmach na ikshate, these symptoms are related to the symptoms of presbyopia. So, Dwitiya patalgaat timir is correlated with presbyopia. Acharya Sushrut and Acharya Vaghbha both has explained Dwitiya Patalgaat Timir. The symptom of Dwitiya Patalgaat timir i.e suchipash na pashyati and the symptoms of difficulty in threading the needle is the symptoms of presbyopia are similar to each other. According to Vaghbha the symptoms of Dwitiya Patalgaat Timir i.e Sukshmach na ikshate and the symptom of presbyopia i.e., difficulty in near vision both are similar to each other. So, we can correlate Dwitiya Patalgaat Timir with Presbyopia. According to Ashtang Sangrah and Bhavprakash Nighantu vision is also affected gradually as the age progresses, hence

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gradual vision loss also can be considered as manifestation of Jara.

Presbyopia is an insufficiency of accommodation due to which there is progressive fall is observed in near vision, amplitude of accommodation decreases as per age, or increase in punctum proximum is called presbyopia. Commonest symptoms presented by the patients of presbyopia are reduced near vision (<N/6) difficulty in reading books, near work or threading the needle. “Good near vision is important, even among populations who use it for tasks other than reading and writing.” Presbyopia is loss of lens elasticity as age progresses that results in accommodation. As age advances near vision impairment occurs which is physiological change. It starts in fourth decade of life and the symptoms continue till life time. Patients with Presbyopia have to hold objects progressively farther away from eyes, so that they are able to see them clearly. Studies have reported 62% prevalence of Presbyopia with advancing age. The increase in Presbyopia patients is predicted from 1.4 billion by 2020 to 1.8 billion in 2050 globally.

New treatment modalities are under development for Presbyopia. Spectacles are proven effective. LASIK surgery is another option but still further advancement needed. People with Presbyopia may develop glaucoma like threatening conditions in future. In presbyopia patient becomes spectacle dependent for near reading for about 40 to 60 years of life after 40. The alternative surgical treatment is costly and not yet proven completely. Hence many studies are going on to find out non-surgical, topical or oral pharmaceutical treatment for reversal of presbyopia. Anti-presbyopic action of topical use of compounds like Pirenoxine and Lipoic acid (EVO6) are being studied. Oral Antioxidants were also studied for reversal of presbyopia. But till date no oral or topical drug has been proven for reversal of presbyopia. An ayurvedic treatment for presbyopia needs to be explored.

Visual acuity for near vision

Near vision is tested with the help of near vision chart. This chart is at 35 centimetres distance from eyes. Good illumination of light is kept. Patient is asked to read chart with each eye separately. Commonly used near vision charts are Jaeger’s chart, Roman test types, Snellen’s Near vision test types.

Need of the Study

On studying previous literature, it was found that very few Ayurvedic clinical studies have been conducted on Dwitiya patalgata timir and presbyopia. In these previous studies assessment criteria used for evaluation were Distance vision (by Snellen’s chart) and Near vision (by Near vision chart) and presbyopic correction with lens. Though near vision is considered as objective criteria for presbyopia it is not truly objective and measurable criteria moreover there might be possibility of human error in the distance at which the near chart is held (by examiner or by the subject), hence it calls for truly measuring assessment tool for near vision.

2. CONCEPT REVIEW

On reviewing various optometric and ophthalmology research articles it was found that RAF rule is a useful instrument for measurable objective. The square rule which holds the drum is 50 cm long. The four sides of the square rule are marked differently as

1. A centimetre scale in 1 cm increment
2. A corresponding equivalent dioptric scale
3. Expected age scale
4. Scale indicating the positions of normal and abnormal convergence

The drum of RAF rule has the following sides

1. A reduced Snellen Chart
2. Section of the General Post Office (GPO) telephone directory
3. Times Roman typeface
4. A dot on a line.

In RAF near point rule, at one end, 6 cm long plastic made cheek rest with V-shaped notch for nose is attached. The cheek of patient can be comfortably rested on it. In order to take
accurate measurements, the four-sided cubical drum is designed (Photographs 1 & 2).14

Advantages

♦ The instrument remains steady as it is rested on maxillary areas of the subject
♦ The distance of the near chart can be easily and exactly measured as the rule itself has marking in centimetres.
♦ Standard letter size remains available at every time examination is done. The letter size does not differ as seen in various prints of near chart.
♦ At times patient moves the near chart forward or backward in order to see the letters clearly which may lead to wrong recording of near vision. In RAF rule this error can be completely avoided.
♦ Near point of accommodation (NPA) gives authentic and additional information about near vision and accommodative status of the subject.

Hence, RAF rule assessment criteria is more useful in research study on presbyopia and Dwitiya patalgat timir.

Another test mentioned in text book is suchipash test.15 As mentioned in symptoms of Dwitiya patalgat timir the patient cannot thread the needle even after many efforts. So, asking the patient to thread the needle can be used as assessment of near vision. Secondly the hole of needle is much smaller than the N/5 letter size in the chart thus clearing this test will indicate good near vision (i.e., more than N/5).

3. CONCLUSION

With all this analysis it can be concluded that for the purpose of clinical research on Dwitiya patalgat timir, two additional assessment criteria should be added namely Near point of accommodation (NPA) and suchipash test to make the research more objective standardised and effective.

REFERENCES

4. Ibidem 1, Uttarantra: Chapter 7, Verse 6-10. p. 32-33
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15. Ibidem 2, Section 8, Chapter 103. p. 562.

TABLE

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Nature of Sthanasamsraya</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Doshas lodging in circular manner</td>
<td>Object appear circular</td>
</tr>
<tr>
<td>2</td>
<td>Doshas lodging in the middle of drushti</td>
<td>Objects appear as split</td>
</tr>
<tr>
<td>3</td>
<td>Doshas in the multiple places of drushti</td>
<td>Single object appears as many</td>
</tr>
<tr>
<td>4</td>
<td>Doshas in the innermost part of drushti</td>
<td>Small objects appear big and vice versa</td>
</tr>
<tr>
<td>5</td>
<td>Doshas in the lower part of drushti</td>
<td>Near vision gets blurred</td>
</tr>
<tr>
<td>6</td>
<td>Doshas in the upper part of drushti</td>
<td>Distant vision is lost</td>
</tr>
<tr>
<td>7</td>
<td>Doshas in the sides of drushti</td>
<td>Peripheral vision is lost</td>
</tr>
</tbody>
</table>

PHOTOGRAPhS

Photograph 1: RAF Rule

Photograph 2: Examination with RAF Rule

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