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‘’RANDOMIZED COMPARATIVE CLINICAL STUDY BETWEEN THE EFFECT OF MAHATRIPHALADI GHRIT NETRA TARPAN, ABHYANTARPANA AND NETRA TARPAN WITH ABHYANTARPANA IN PRATHAM AND DVITIYA PATALGAT TIMIRA.’’

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ABSTRACT-

Timira is one of the drushtigat roga among four abhyantar netra patal. It occurs in Pratham and Dwitiya patal. Ayurveda Acharya has explained Drushtigat rogas but with some different terminologies and concepts. When Vitiated Doshas Enter into Drushti through/Via Sira dhamani and gets accumulated into patal of drushti and affects it then it is called as Timira[1]. Ayurved granthkara has said that vitiated doshas entering into Pratham and Dwitiya patal as “Timira”, Vitiated doshas entering into Tritiya patal as “Kach” and into Charurth patal as “Lingnash”. Vitiated doshas entering into Pratham and Dwitiya Patal symptoms has closely resemblance with myopia symptoms which is a type of refractive error in which rays of light are focused in front of retina causing blur distant vision.

Modern ophthalmology presently uses aids and refractive surgeries for enhancing the clarity of vision. The inconvenience of use of refractive aids and surgical complication have made the patients to search for other medical management which can be cost effective and easy to follow. The ayurvedic management of disease is on preventing the progression of disease and curing it in early stages[2].

KEYWORDS-

Timira , Netra Tarpan, Mahatriphala Ghrut ,Netra Tarpan, Abhyantarpan, Clinical Study

INTRODUCTION-

Netra is considered to be of most importance.

सर्वेन्द्रियानां नयनम् प्रधानम् | (चाणक्यनीति ९/४)

Timira is one of the Drushtigat roga. Timira is an eye disease, which starts with Avyakta darshana and ends in complete loss of vision i.e. Andhya. Its literal meaning is towards darkness. Timira/ blurring manifests due to the vitiation of 1st and 2nd Akshi Patalas. Doshas get excessively vitiated internally, pervades the Siras (vessels) and gets lodged in the first Patala of Drishti, the patient sees all the objects as blurred. Dalhana opines that the word 'Sira' denotes here 'Rupavaha Sira' and Drishti indicates inner part of the Drishti which safely help us to conclude that the Rupa vaha siras mentioned here are the retinal vessels which are different from normal vessels. The lodgment of Doshas in Patalas further prevents the functional capacity of Patalas and lead to Avyakta Darshana or blurred vision. It further inhibits the nutritional supply by obstructing the channels responsible for it. The further involvement of second and third Patalas leads to further deterioration of Drishti; whereas in 4th Patala affliction terminates into Linganasha or severe field defects. Among four abhyantar netra patal it occurs in pratham and dvitiya patal which closely resembles with Myopia i.e., type of refractive error where rays of light are focused in front of retina causing blur distance vision.

Vataja Timira – The patients suffering from Vataja Timira see objects as if they are moving/ unsteady, hazy like covered with thin cloth, dirty, reddish in colour and appear tortuous in shape(vyaviddha darshana) In Pittaja Timira, the patient sees flashes of sun, glow worm, rainbow and the lightening. He views bluish and blackish colours as variegated as the feathers of peacock. In kaphaja Timira, the person views all the objects glossy and white like the colours of white 'chamara' or white clouds.

Raktaja Timira: A patient of Rakataja Timira views all objects to be variegated colours such as dark greenish, greyish or blackish and smoky all around.

Sannipataja Timira: In Timira due to vitiation of all doshas together, the person views all objects as of variegated colours, scattered (spread out images) and as having double or manifold images all around. All objects appear to possess less or more than normal parts or as luminous.

Parimlayi Timira: Pitta, when associated with Tejasa of Shonita, produces the Timira called Parimalayi, the patient sees the landscape as yellow and visualizes as if the sun is rising. All trees appear to be interspersed with glow worms and flashes of light.

.Acharya Charaka has broadly classified the causes as misuse, overuse and disuse of the senses and has regarded as "Volitional transgression". i.e. excessive gazing at the over brilliant object is excessive use, avoiding looking altogether is disuse and seeing too near, too distant, fierce, frightful, wonderful, disliked, disgusting, deformed and terrifying objects is perverted use of objects. In Sushruta Samhita and other books the following causes for eye diseases, which can further be subdivided into general and specific causes have been described. Myopia is a measure cause of Preventable blindness in modern medicine. There is no specific treatment for myopia. Concave lenses, contact lenses and surgery are used as an aid vision. The prevalence of myopia between 2009 – 2019 in rural india is 6.8% and in urban india is 8.9% during same period. There is an increasing trend of myopia in india over four decades.

Timir roga has been mentioned in detail by our acharyas, from which Pratham and twitiyapatalgat vyadhi should be taken for study our acharya has given many kriyakalpa for treating drushtigat vikara.[3] Tarpan and Abhyantarpan are such methods which nourishes the eye and Mahatriphaladi ghrut is one of them which is beneficial.

The objective of the study is to compare the efficacy of Mahatriphala ghruit in management of Pratham and Dwitiya patalgat Timira and to establish the significance of Mahatripahala ghruit in Netra tarpan, Abhyantarpan and Netra tarpan with Abhyantarpan.

In this study 90 patients of age group from 10yrs to 40yrs are randomly selected and divided into 3 groups with 30 patients in each group.

Group A patients are treated with Mahatriphaladi ghrut Netra tarpan on alternate 2 days for one month. Group B patients are treated with Mahatiphaladi ghrut Abhyantarpan 15ml twice a day for 1 month. Group C patients are treated with Mahatriphaladi ghrut Netra tarpan on alternate 2 days with Abhyantarpan 15ml twice a day for 1 month.

In Subjective parameters like अव्यक्तानी रूपानी (Blurred vision), भृशं विहवल दृष्टी (Increased blurred vision), मक्षिकान पश्यन्ति (Fly like seen), केशांपश्यन्ति (Hair like seen), जालकान पश्यन्ति (Spider web like seen), पताकान पश्यन्ति (Flag like seen) etc and objective parameters like Snellens Chart and Jaegers Chart were adopted[4,5].

AIMS AND OBJECTIVES

Primary Objective:

‘’ To Compare the effect of Mahatriphaladi Ghrit Netra Tarpan, Abhyantarpan and Netra Tarpan with Abhyantarpan in Pratham and Dwitiya patalgat timira.’’

Secondary Objective:

1. To evaluate the efficacy of Mahatriphala Ghrut Netra Tarpan in Pratham and Dwitiya Patalgat Timira.
2. To evaluate the efficacy of Mahatriphala Ghrut Abhyantarpan in Pratham and Dwitiya Patalgat Timira.
3. To evaluate the efficacy of Mahatriphala Ghrut Netra Tarpan with Abhyantarpan in Pratham and Dwitiya Patalgat Timira.
4. To study in detail about Pratham and Dwitiya Patalgat Timira.
5. To observe the side effect of Mahatriphaladi Ghrit Netra Tarpan, Abhyantarpan and Netra Tarpan with Abhyantarpan in Pratham and Dwitiya patalgat timira.

MATERIALS AND METHODS-

DRUG REVIEW [6]

MAHATRIPHALADI GHRITA (महात्रिफलदि घृत) : -

''यष्टिमधुद्विककोलिव्याघ्री कृष्णामृतोत्प्ले: |

पलिकैः रसिताद्रक्षेघृतप्रस्थं पचेत्समेः ||

अजक्षिरवरावासमाअर्कव स्वरसे पृथक् |

महात्रिफल्मित्येत्वरं दृष्तिविकर्जित ||[137]**अ. हृ. उ. १३/१२ – १३ pg 819**

- Kwatha Drugs: Triphala, Bhringaraja, Vasa, Shatavari, Guduchi, Amalaki
- Kalka Drugs: Pippali, Mishri, Draksha, Triphala, Neelakamala, Yashtimadhu, Kshirakakoli, Gambhari,Brahati, Kantakari
- Others: Ghrita.Goat's milk.

INTERVENTIONAL PHASE:

90 patients were randomly selected and divided into 3 groups of 30 each as Group A, Group B and Group C.

GROUP A :- (Sample size 30) Netra Tarpan with Mahatriphaladi ghrit with Alternate 2 days for 1 Month. Total 30 Days.

GROUP B :- (Sample size 30) Abhyantar Snehapana of Mahatriphaladi Ghrit 15 gm in morning and 15 gm in evening (30 gm Each) Daily for 1 month. Total 30 days.

GROUP C :- Netra Tarpan with Mahatriphaladi ghrit Alternat 2 days With Abhyantar Snehapana of Mahatriphaladi Ghrit 15 gm in morning and 15 gm in evening (30 gm Each) Daily for 1 month. Total 30 days.

Follow up period- Observations were done regarding the changes after the treatment once in a month for a period of 3 months i.e., On 30th, 60th and 90th day.

GROUP A :- (Sample size 30) Netra Tarpan with Mahatriphaladi ghrit with Alternate 2 days for 1 Month. Total 30 Days.

Table no.13 Showing Tarpan Treatment Schedule -

Week	S	M	T	W	T	F	S
1st	Tarpan			Tarpan			Tarpan
2nd			Tarpan			Tarpan	
3rd		Tarpan			Tarpan		
4th	Tarpan			Tarpan			Tarpan
5th			Tarpan				

GROUP B :- (Sample size 30) Abhyantar Snehapana of Mahatriphaladi Ghrit 15 gm in morning and 15 gm in evening (30 gm Each) Daily for 1 month. Total 30 days.

GROUP C :- Netra Tarpan with Mahatriphaladi ghrit Alternat 2 days With Abhyantar Snehapana of Mahatriphaladi Ghrit 15 gm in morning and 15 gm in evening (30 gm Each) Daily for 1 month. Total 30 days.

Tarpan and Abhyantarpan Treatment Schedule[7,8] -

अभ्यन्तरपान विधि - According to above consideration in this study the dose of abhyantarpan has been taken to 15gm 2 times a day i.e., 15ml.

Week	S	M	T	W	T	F	S
1st	Ghritpan + Tarpan	Ghritpan	Ghritpan	Ghritpan + Tarpan	Ghritpan	Ghritpan	Ghritpan + Tarpan
2nd	Ghritpan	Ghritpan	Ghritpan + Tarpan	Ghritpan	Ghritpan	Ghritpan + Tarpan	Ghritpan
3rd	Ghritpan	Ghritpan + Tarpan	Ghritpan	Ghritpan	Ghritpan + Tarpan	Ghritpan	Ghritpan
4th	Ghritpan + Tarpan	Ghritpan	Ghritpan	Ghritpan + Tarpan	Ghritpan	Ghritpan	Ghritpan + Tarpan
5th	Ghritpan	Ghritpan	Ghritpan + Tarpan				

Clinical: - Total 90 patients has been selected having signs and symptoms of Pratham and Dwitiya Patalgat Timira after approval of IEC and informed consent from them.

Duration of the treatment was 30 days in Group A, Group B and Group C. Then after follow up was taken on 30th,60th, and 90th day.

In age group of 10 to 16 yrs Mahatriphala ghrit has been given according to young's Formula i.e Age of child in

years / Age of Child + 12 × Adult dose.

Objective Criteria –

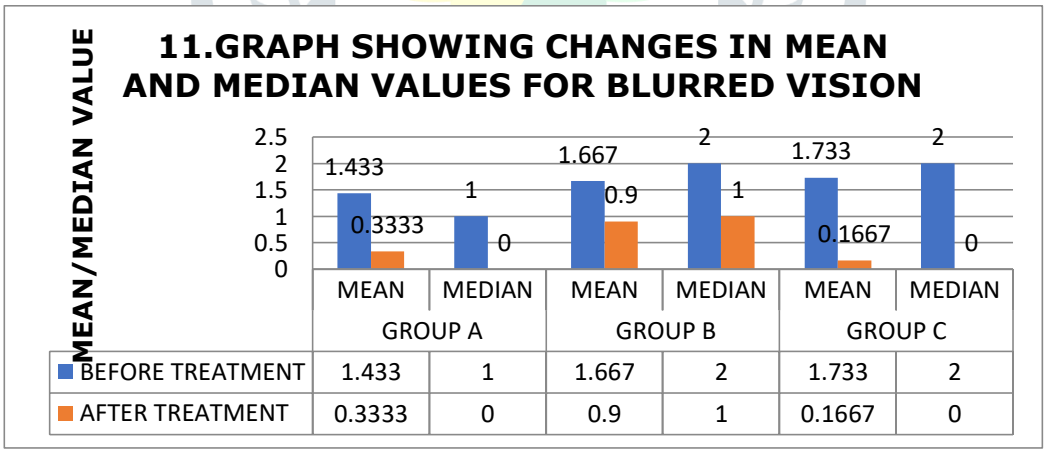
1) Visual Acuity (Snellen's chart and Jaegers's chart)
2) Ophthalmoscopy examination.

Snellen's chart test – 1) Unaided Vision 2) Aided Vision

1) BLURRED VISION

Wilcoxon Signed rank test for BLURRED VISION

		Group A	Group B	Group C
Mean Score	**Before Treatment**	1.433	1.667	1.733
	After Treatment	0.3333	0.9	0.1667
	Difference	1.1	0.7667	1.567
Median Difference		1	1	1.5
Sample Size		30	30	30
Wilcoxon Signed Ranks Test	**T+**	378	253	465
	T-	00	00	00
P - Value		<0.0001	<0.0001	<0.0001
Inference		Extremely Significant	Extremely Significant	Extremely Significant



Comparative Analysis of Groups:

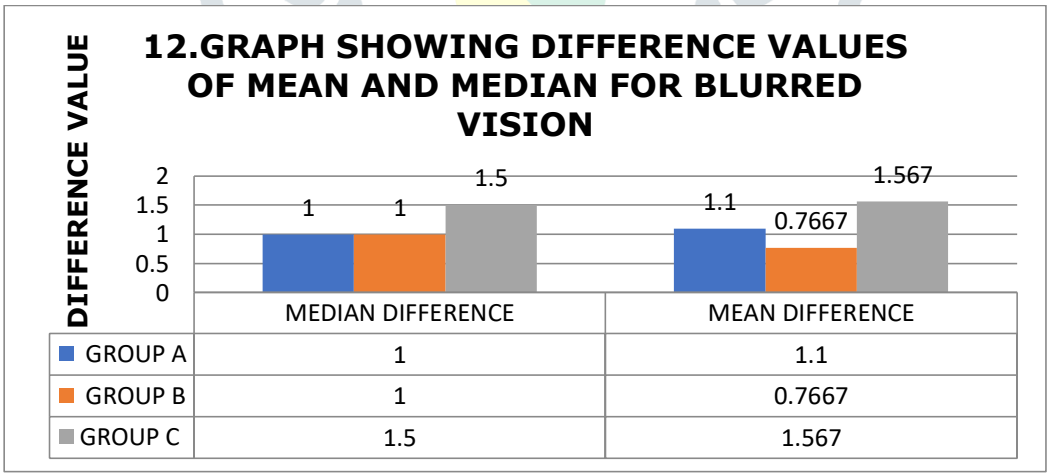
Kruskal Wallis test for BLURRED VISION

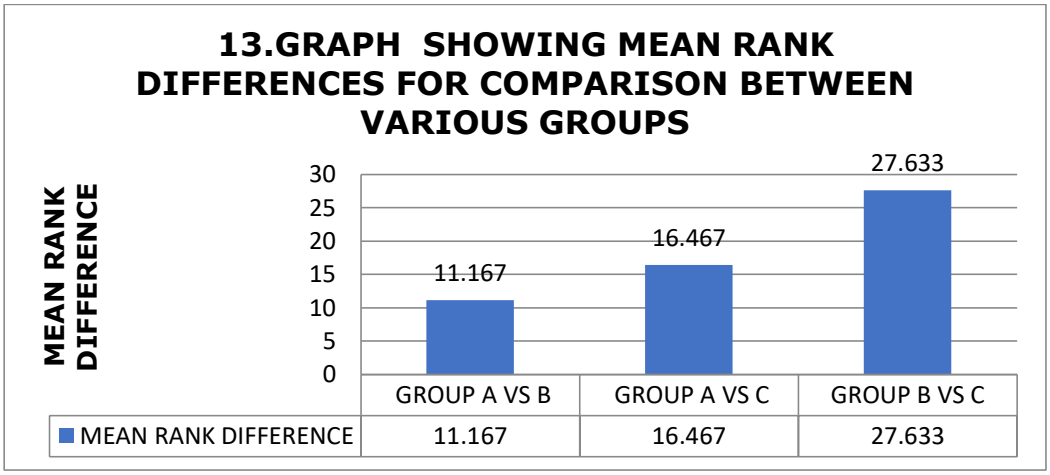
For between the group Analyses, Kruskal Wallis Test with Dunn's Multiple Comparisons Test has been applied at 5% level of significance.

	GROUP A	GROUP B	GROUP C
MEDIAN DIFFERENCE	1	1	1.5
MEAN DIFFERENCE	1.1	0.7667	1.567
SUM OF THE RANKS	1312	977	1806
MEAN OF THE RANKS	43.733	32.567	60.2
Kruskal Wallis Statistics (KW)	23.510		
P - VALUE	<0.0001		
INFERENCE	Extremely Significant		

Dunn's Multiple Comparisons Test

COMPARISON	MEAN RANK DIFFERENCE	P- Value	Significance
GROUP A VS GROUP B	11.167	**p>0.05**	Not Significant
GROUP A VS GROUP C	16.467	**P<0.05**	Significant
GROUP B VS GROUP C	27.633	**P<0.001**	Extremely Significant

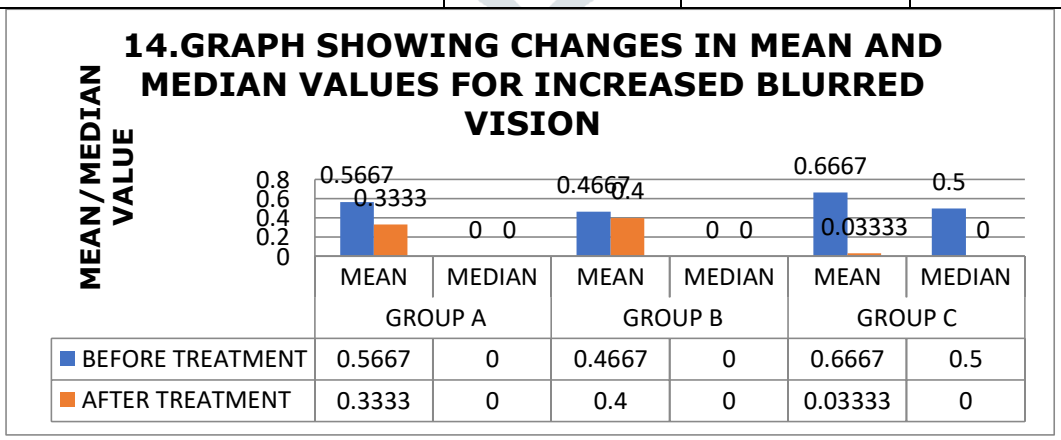




2) INCREASED BLURRED VISION

Wilcoxon Signed rank test for INCREASED BLURRED VISION

		Group A	Group B	Group C
Mean Score	**Before Treatment**	0.5667	0.4667	0.6667
	After Treatment	0.3333	0.4	0.03333
	Difference	0.2333	0.06667	0.6333
Median Difference		00	00	0.5
Sample Size		30	30	30
Wilcoxon Signed Ranks Test	**T+**	28	03	120
	T-	00	00	00
P - Value		0.0156	0.5	<0.0001
Inference		Significant	Not Significant	Extremely Significant



Comparative Analysis of Groups:

Kruskal Wallis Test for INCREASED BLURRED VISION

For between the group Analyses, Kruskal Wallis Test with Dunn's Multiple Comparisons Test has been applied at 5% level of significance.

	GROUP A	GROUP B	GROUP C
MEDIAN DIFFERENCE	00	00	0.5
MEAN DIFFERENCE	0.2333	0.06667	0.6333
SUM OF THE RANKS	1306	1091	1698
MEAN OF THE RANKS	43.533	36.368	56.6
Kruskal Wallis Statistics (KW)	15.560		
P - VALUE	0.0004		
INFERENCE	Extremely Significant		

Dunn's Multiple Comparisons Test

COMPARISON	MEAN RANK DIFFERENCE	P- Value	Significance
GROUP A VS GROUP B	07.167	**P<0.05**	Significant
GROUP A VS GROUP C	13.067	**P<0.05**	Significant
GROUP B VS GROUP C	20.233	**P<0.001**	Extremely Significant

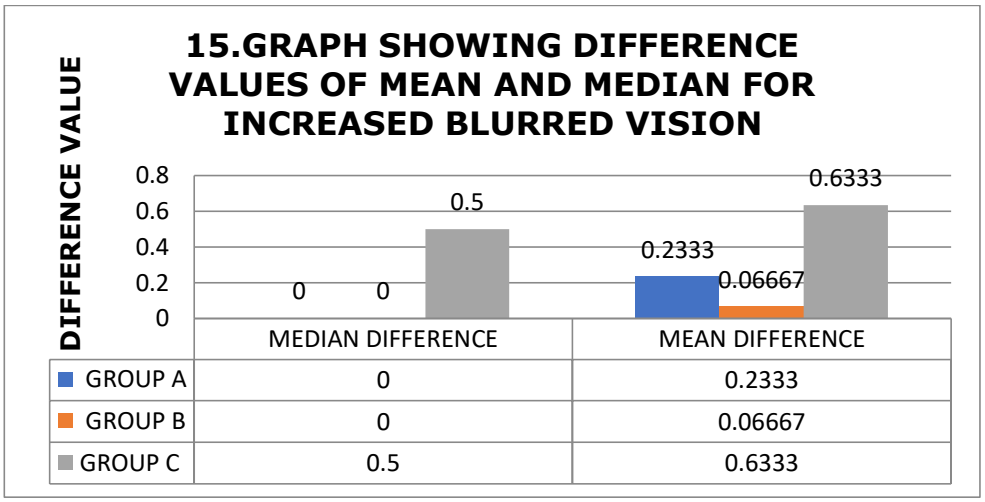
Null hypothesis-Reduction in Increased Blurred Vision scores for Group A, Group B and Group C are equal.

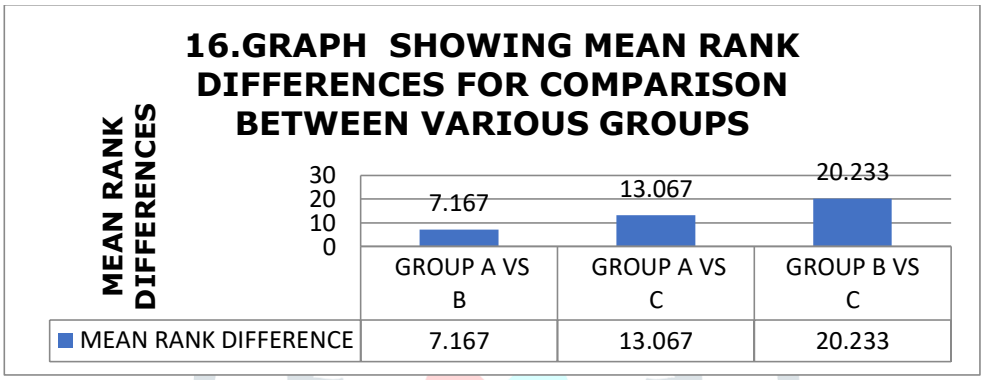
Alternate hypothesis- Reduction in Increased Blurred Vision scores for Group A, Group B and Group C are not equal.

Distribution of "Reduction in Increased Blurred Vision for Group A, Group B and Group C is significantly different. (p- Value=0.0004).

Thus Group A, Group B and Group C treatments have significantly different effect on Increased Blurred Vision at 5% level of significance.

Table of" Dunn's Multiple Comparisons Test**"** shows the results for Increased Blurred Vision. The test results showed that there is significant difference found between the effect of Group A and Group B treatment. The test results also showed that there is significant difference found between the effect of Group A and Group C treatments & extremely significant difference found between the effect of Group B and Group C treatments.





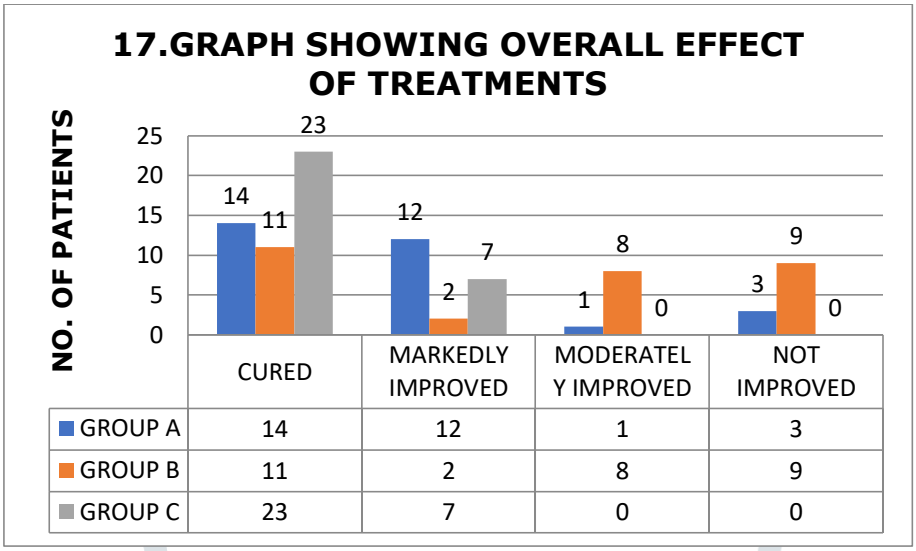
DISTRIBUTION OF PATIENTS ACCORDING TO RELIEF:

OVERALL EFFECT	GROUP A		GROUP B		GROUP C	
	NUMBER OF PATIENTS	%	NUMBER OF PATIENTS	%	NUMBER OF PATIENTS	%
CURED	14	46.67	11	36.67	23	76.67
MARKEDLY IMPROVED	12	40.00	02	06.67	07	23.33
MODERATELY IMPROVED	01	03.33	08	26.67	00	00.00
NOT IMPROVED	03	10.00	09	30.00	00	00.00
TOTAL	**30**	**100**	**30**	**100**	**30**	**100**

In Group A, out of 30 patients 14(46.67%) were totally cured, 12(40%) patients were markedly improved, 01(3.33%) patient showed moderate improvement while 03(10%) patients showed no improvement respectively.

In Group B, out of 30 patients 11(36.67%) were totally cured, 02(06.67%) patients were markedly improved, 08(26.67%) patients showed moderate improvement while 09(30%) patients showed no improvement respectively.

In Group C, out of 30 patients 23(76.67%) were totally cured while 07(23.33%) patients were markedly improved.



DISCUSSION[9-12]

Developmental stage presents with blurred vision and aesthenopic symptoms whereasdegenerative stage presents with degenerative changes in the choroid and sclera. Based on these signs and symptoms with Doorandhya and the important features of changes in dioptric power, progressive blurriness of vision, visualization of floaters can be attributed to the doshas which produce these symptoms when they are present in first and second patala respectively.

DISCUSSION ON RESULTS:

Effect of procedure on parameter in Group A-B-C.

- In Group A, out of 30 patients 14(46.67%) were totally cured, 12(40%) patients were markedly improved, 01(3.33%) patient showed moderate improvement while 03(10%) patients showed no improvement respectively.
- In Group B, out of 30 patients 11(36.67%) were totally cured, 02(06.67%) patients were markedly improved, 08(26.67%) patients showed moderate improvement while 09(30%) patients showed no improvement respectively.
- In Group C, out of 30 patients 23(76.67%) were totally cured while 07(23.33%) patients were markedly improved.
- **Comparison of result between the Groups A, B and C**
- Reduction in Blurred Vision for Group A, Group B and Group C is significantly different. Group

A, Group B and Group C treatments have significantly different effect on Blurred Vision at 5% level of significance.

- Table of" Dunn's Multiple Comparisons Test" shows the results for Blurred Vision.
- The test results showed that there is no significant difference found between the effect of Group A and Group B treatment.
- The test results showed that there is significant difference found between the effect of Group A and Group C treatments.
- The test results also showed that there is extremely significant difference found between the effect of Group B and Group C treatments.

Probable reason for better effect of Mahatriphala Ghrit in Group C –

In this study we found that Group C which is having Mahatriphaladi Ghrut Tarpan with Abhyantarpan is having extremely significant result on Pratham and Dwitiya patalgat Timira. Reason for extremely significant result of Mahatriphala Ghrit Tarpan may be use of warm medicated ghrut having vasodilatory effect Causing better penetration and absorption. Also lipid nature of medicated drug does not pass through naso lacrimal system leading to increase the bioavailability of drug. On the other hand, we have used Mahatriphaladi Ghrut for Abhyantarpan at hrasiyasi matra which also helps to regulate the vitiated doshas in body maintaining the platue level of drugs action at both local and systemic level resulting better effect on Pratham and Dwitiya patal.

Discussion On Mode Of Action Of Tarpana

Probable mode of action of Tarpana

- Ghee preparations in the form of suspension containing different sized particles of the drugs and the particles do not leave the eye as quick assolution. The viscous nature of Ghee prevents from disposal through nasolacrimal route; hence the desired absorption of the active principles can beobtained.
- Corneal epithelium is lipophilic in nature. Hence drug absorption will bemore.
- Penetration of fat-soluble substances is high
- Tissue contact time and bioavailability is more, hence desired therapeuticeffect can be obtained.
- Local warming produces transient vasodilatation blood rich conjunctiva, so theabsorption of the drugs will also be more.

The clinical condition of Pratham and Dwithiya patalgat Timir is majorly produced due to the vitiated Doshas aggravating in Pratham and Dwitiya patalgat Timir.

Tarpana may produce its action at the level of axis, and corneal curvature probably in two ways:

1) Pressure effect

2) Drug absorption into deeper tissues.

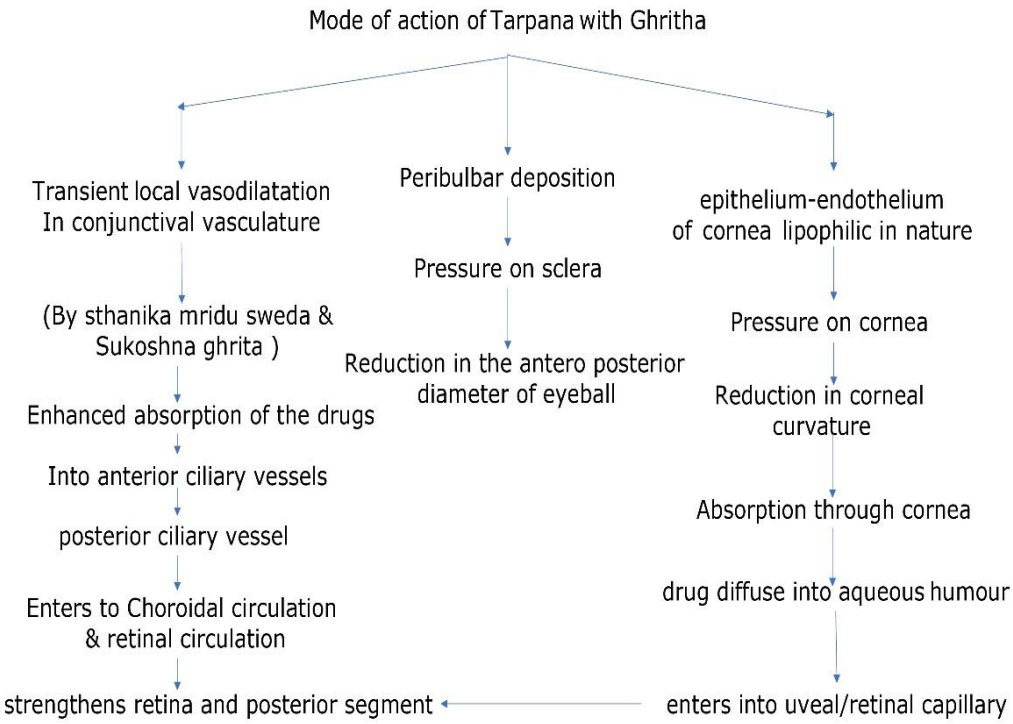
- The medicated Grutha is placed over the eyeball directly for specified time. This may produce pressure on the cornea and reduce its curvature. Similarly, there may be peribulbar deposition of fat exerting pressure upon the sclera and this may be responsible for reducing

the antero posterior axial changes in the eye.

- The sthanika mrudu sveda and warm nature of grutha may cause transient vasodilatation in conjunctival vasculature. This may result in enhanced absorption of the drug into anterior ciliary and posterior ciliary vessels and through it the drug may enters the choroidal and retinal circulation. The absorption of grutha into deeper layers may be responsible for strengthening the retina and posterior segment of eye and thereby may prevent the disease.

- The lipophilic nature of the corneal epithelium may cause easy absorption of the fat-soluble contents of medication. This forms another important route of drug absorption into the eye. Later drug may enter the retinal circulation via retinal capillaries. Desired therapeutic action may be because of the increased bioavailability of the drug. prolonged use of drug.

Flow Chart no. 2



Probable mode of action of Mahatriphaladi ghrita,

- Mahatriphaladi ghrita, there is predominance of madhura, tikta, katu rasa, laghu, ruksha guna and sheeta veerya. Hence it acts as tridosha shamaka.

- Drugs like Ghrita, Amalaki, Haritaka, Yashtimadhu and Shatavari are chakshushya and rasayana. Hence these drugs by the virtue of their gunas restore the normal ocular function.
- The drugs like Amalaki, Vasa, Draksha, Vibhitaki etc are kapha pitta hara. As acharyaCharaka has mentioned, chakshu is tejomaya and is especially susceptible to kapha.

- Hence it should be protected from kapha. The kapha hara properties of these drugs helps to keep the vision clear.

- Drugs like Pippali and Kantakari has deepana action thereby they restore the normal pachakagni in netra.Pippali is a bio availability enhancer.
- Vibhitaki having laghu, ruksha guna, madhura vipaka & kashaya rasa is kaphapitta samaka .Amalaki & Haritaki having lavanavarjita pancharasa, laghu, ruksha guna, madhura vipaka tridoshamaka.
- Shatavari, milk and ghee causes the enrichment of nutritional quality of nutrient plasma i,e poshaka rasa, pippali and kantakari promotes the nutrition by improving the metabolic activity, increases the efficiency of micro-circulatory channels andcause better bio-availibility of nutrients to the tissues.
- Shatavari possesses anabolic properties i.e., growth promotion. Thus, it maintainsnormal structure of fiber cells, normal development and differentiation. It is an adoptogenic agent. Adaptogens are rejuvenating herbs that help body adapt to stress, support its normal functions and restores balance, thus above said all properties are taken care off.
- It is rich in fibers, potassium, thiamine, vit A, C, B6 and glutathione. It is a powerful antioxidant.
- Vitamin A, E, and β carotene of ghee, ascorbic acid of Amalaki and Draksha, ecliptinein Bringaraja etc act as antioxidants, which prevent the formation of oxygen free radicals and are effective free radical scavengers. Studies have shown that amalaki extract promotes pro collagen production. Ellagic acid present in it has antiproliferative and antioxidant properties. Thus maintain the strength and integrityof scleral structure.
- Thus, grutha along with all these above-mentioned constituents enters deep into the ocular tissues and enhances the visual capacity, strengthens the collagenous structure of eye.

CONCLUSION-

➢ Timira is one of the Drushtigat roga. Among four abhyantar netra patal it occurs in pratham and dvitiya patal which closely resembles with Myopia i.e., type of refractive error in where rays of light are focused in front of retina causing blur distance vision. Myopia is a measure cause of Preventable blindness in modern medicine.

➢ The symptoms of myopia can be corelated with symptoms of Pratham and Dwitiya Patalgat Timira. अव्यक्तानी दर्शन (Blurred vision), भृशं विहवल दृष्टी (Increased blurred vision) is mentioned as a symptom in 12 drushtigat vikara when there is vitiation of doshas in Patal of eye.

➢ Owing to the inconvenience of Vision with symptoms of Pratham and Dwitiya Patalgat Timira अव्यक्तानी दर्शन (Blurred vision), भृशं विहवल दृष्टी (Increased blurred vision) it is necessary to find out a modality of treatment which is effective, noninvasive, cost effective and above all improves the quality of vision and checks the progression of disease. Kriyakalpas stand out as the best options forthe above-mentioned requirements of the patients.

➢ The following conclusion is drawn after considering the clinical aspects and theoretical facts.

➢ Avyakta darshana symptom of Timir is seen when the prathama patal is affected by vitiated doshas. When the aggravated doshas of prathama patala heading towards the dweetiya patala produces the symptoms of vihwala darshana, makshika, mashaka darshana etc.This condition are treated with Mahatriphaladi Ghrit in this study. and the results are,

➢ Results of t values of the group A who were treated with Mahatriphala Ghrit Tarpan, 46.67% were totally cured, 40% patients were markedly improved, 3.33% patient showed moderate improvement while 10% patients showed no improvement respectively.

➢ In Group B, 36.67% were totally cured, 06.67% patients were markedly improved, 26.67% patients showed moderate improvement while 30% patients showed no improvement respectively.

➢ In Group C, 76.67% were totally cured while, 23.33% patients were markedly improved.

➢ Tarpana showed good results in almost all parameters especially Snellens chart reading.

➢ After comparing the overall improvement by treatments between the groups AB, BC & AC, it was observed that the difference in the treatments between the groups was statistically significant. However, the overall success rate of improvement by the treatments in the individual groups was 46.67%, 36.67% & 76.67% in Group A, B & C respectively. Group A showed moderate response to the treatment whereas Group B showed mild response to treatment and Group C showed Significant response to the treatment.

➢ As the disease is progressive in nature a long-term assessment and continuous monitoring is essential. A long-term treatment at regular intervals will definitely check the progression and related complications of the disease.

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