

MONTH: JULY: AUG -2015

VOLUME: 3, ISSUE: 2

ISSN: 2348-1846



Punarna V

TITLE

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**AN INTERNATIONAL PEER REVIEWED AYURVED JOURNAL
ON LINE BI-MONTHLY AYURVED JOURNAL**

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**A CLINICAL STUDY ON THE EFFICACY OF JIVANTYADI GHRITA NETRA
TARPARNA AND CHITRAKADI GHANA VATI IN THE MANAGEMENT OF
VATAJA TIMIRA W.S.R. ASTIGMATISM**

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ABSTRACT:

Astigmatism is a visual defect in which the unequal curvature of one or more refractive media or variable index in different area of a refractive media of the eye, usually the cornea, prevents light rays from focusing clearly at one point on the retina, resulting in blurred vision. In Ayurved Astigmatism is compared with Vataja type of Timira because of its causes, symptoms, pathophysiology and management are almost similar. The present study was carried out on 48 patients, 16 in Group A, 17 in Group B and 15 in Group C. In Group A (Jivantyadi Ghrita was given as Netra Tarpan-topical medication along with the oral medicine Chittrakadi Ghana Vati. In Group B, same schedule had been followed except Go Ghrita is used for Netra Tarpana instead of Jivantyadi Ghrita. In Group C Eye Exercises were practiced by the patients for 30 days. Group A has been proved more effective than Group B and Group B has been more effective than Group C. Statistical significance of results on selected criteria established that given Ayurvedic treatment modality was little more effective in relieving the signs and symptoms of Astigmatism in the included sample of Astigmatic patients. Though disease is not curable, Ayurvedic science can relieve the asthenopic features (which happen even after using the optical correction) better than any other topical/oral medication.

KEY WORDS: Astigmatism, Chittrakadi Ghana Vati, Jivantyadi Ghrita, Timira

INTRODUCTION

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Astigmatism is refractive error of eye in which asymmetrical surface, mostly of cornea leads to focusing of light rays on retina forming a focal line instead of single focal point causes blurred vision for distant as well as near, difficulty in focusing of words and lines, eye strain, eye fatigue, headache, etc. The cause of astigmatism is unknown. It is usually present from birth, and often occurs together with nearsightedness or far sightedness. Sometimes it may occur after an injury or eye surgery.¹ According to epidemiology the prevalence of Astigmatism in India approximately 3% in Andhra Pradesh and 7% in New Delhi.² Approx 1 in 6 or 16.54% or 45 million people in USA having Astigmatism.³ It has been postulated that heredity-a family history of eye disease or disorders, such as Glaucoma; Eye surgery-certain types of eye surgery, such as Cataract; a history of corneal scarring or thinning and a history of excessive nearsightedness and

farsightedness play an important role in the manifestation of Astigmatism.⁴

There is no exact correlation for Astigmatism in Ayurvedic literature. While observing the clinical features, the predominance of *Vata* is obvious and put this disease entity nearer to *Vata* dominant conditions i.e. *Vataja Timira*⁵. Causative factors like inappropriate *Ritu*, *Kshetra*, *Ambu* and *Bija*, *Dauhrida Avamanana* (negligence of urges during *Dauhrida* - stage of pregnant women), presence of *Garbhopaghatkar bhavas*, incompatible *Garbhavriddhikara bhava* and improper following of *Garbhini Paricharya* may have undesirable effect on the fetus in utero structural deformity and lead to astigmatism⁶. More over *Ushnabhitaptsyajalapraveshata* etc. general aetiological factors⁷ for *Timira and* Suppressing of tears⁸, *GrahaniRoga*⁹ (mal-absorption syndrome)etc. are specific causes may play role as causative factor after birth.

Timira if ignored/ left untreated/ improperly treated lands into *linganasha* stage (vision loss)¹⁰ similarly untreated Astigmatism may lead to amblyopia (lazy eye), problems with depth perception, crossed eyes etc. In modern no proven medical treatment for Astigmatism is available, and glasses or contact lenses just work as crutches. Surgery can cure limited

amount of only regular type of Astigmatism which are highly expensive and complicated therapies. Medical research field have failed to find definite cure for the disease. In this Ayurvedic research work an effort has been done to find alternate treatment of astigmatism with Tarpana¹¹ procedure having anti-Timira drugs because the structural deformities in the body is manifested by vitiated vata according to *Ayurveda* and *snehana*(oleation) is the best treatment for *Vatadosha* and further the *Tarpana* is best modality for *snehana* of eye affected by *Vatadosha*. So the hypothesis is made that Tarpana with Timira relieving drug along with anti Timira oral drug can cure the *Vataja Timira – Astigmatism*.

AIMS AND OBJECTIVES

- i. To study *Vataja Timira* and Astigmatism conceptually.
- ii. To evaluate the role of *Jivantyadi Ghrita Tarpana* and *Chitrakadi Kwatha Ghana Vati* on *Vataja Timira* w.s.r. to Astigmatism.

MATERIALS AND METHODS

A total of 48 patients with signs and symptoms of Astigmatism who attended O.P.D. of Department of *Shalaky Tantra*, I.P.G.T. & R.A. Hospital, Gujarat Ayurved University, Jamnagar were selected for the clinical trial. All the patients had completed the study. Detailed clinical history was taken in the clinical research

proforma based on modern and Ayurvedic parameters.

TYPE OF STUDY

The study was conducted as a randomized, single blind clinical trial.

ETHICAL CLEARANCE:

This study was cleared by the institutional ethics committee with letter no. PGT-A/Ethics 2011-12/2087.

CTRI REGISTRATION NO.:

CTRI/2013/08/003861.

DIAGNOSTIC PHASE

INCLUSION CRITERIA

Patients showing symptoms of *Vataja Timira* and Astigmatism, viz.

1. *Bhramantevaroopa*- Object appears to unstable/moving.
2. *Aaavilaroopa* - objects appear hazy (Diminished visual perception).
3. *Arunaabharoopa*- objects appears reddish.
4. *Vyavidharoopa*- objects appears distorted-tortuous or altered shaped.
5. *Vatadosha* features/**Asthenopic symptoms** viz. frontal/ eyebrow headache/ pain around the eye, early tiredness of eyes, watering from eyes, drowsiness, nausea, migraine, vertigo, fatigue.

6. Patients between the age of 8 to 30 yrs.
7. Patients of Astigmatism with Cylindrical Dioptric value between 0.50 to 7.00 D.

EXCLUSION CRITERIA

1. Patient having any lenticular or corneal opacity and other known ocular pathology for e.g. Vitreous and Retinal diseases (not any degeneration), glaucoma etc will be excluded from the study.
2. Astigmatism due to non-corneal pathology (i.e. Lenticular or Retinal) are excluded from the study.
3. Patients age < 8, > 30 yrs.
4. Patients of Astigmatism with Cylindrical Dioptric value <0.50 D , > 7.00 D.

INFORMED CONSENT:

Before starting the treatment, written and informed consent was taken from the patients.

Grouping: Pts. were randomly divided into three groups i.e.

- (1) Group A: *Netra Tarpana* with *Jivantyadi Ghrita* and orally *Chittrakadi Ghana Vati*.
- (2) Group B: *Netra Tarpana* with Plain *Go-ghrita* and orally *Chittrakadi Ghana Vati*.
- (3) Group C- In this group patients were subjected to eye exercises.

INTERVENTION PHASE:

PREPARATORY PHASE (FOR GROUP A AND B)

Day I to V (*Deepana - Pachana*) – *Hingvashtaka Churna* 5 gm before meal twice a day with luke warm water. And *Aampachana Vati* 2 tab bid after meal with luke warm water. *Erand* and *Bhrishta Haritaki* 3-5 gm at bed time with luke warm water.

Day VI, VII & VIII - *Marsha Nasya* of *Krishnadi Taila* Once a day for three days..

TREATMENT PHASE

GROUP A: After preparatory phase, *Tarpana* with *Jivantyadi Ghrita*¹² (approx. 20 – 20 ml of *Ghrita* for each eye) for 5 days in 3 sittings with a gap of 5 days. Total duration of therapy is 33 days.

Orally, *Chittrakadi Ghana Vati*(2 tab of 250 mg each b.i.d.) is started from the 1st day of *Tarpana* up till completion of the therapy.

GROUP B: After preparatory phase, *Tarpana* with Plain *Go Ghrita*¹³ (approx. 20 – 20 ml of *Ghrita* for each eye) for 5 days in 3 sittings with a gap of 5 days. Total duration of therapy is 33 days.

Orally, *Chittrakadi Ghana Vati*(2 tab of 250 mg each b.i.d.) is started from the 1st day of *Tarpana* up till completion of the therapy.

GROUP C: In this group patients were subjected for following eye exercises¹⁴ :

William Horatio Bates (December 23, 1860 – July 10, 1931) an American physician has suggested some exercises to improve the eyesight. In its modified form six exercises are selected for the study :

Eye wash, Sunning, Palming, Shifting, Candle Light Reading and Playing with the ball.

CRITERIA FOR ASSESSMENT

SUBJECTIVE CRITERIA : Signs and symptoms were provided with scoring depending upon their severity and assessed before treatment(BT) and after treatment(AT) :

MAIN SYMPTOMS :

- i. Aavila Roopa (Diminished Vision) is graded in 0,1,2,3,4 and 5 as per visual acuity.
- ii. Vyaaviddha Roopa (Distorted Visual Perception) is graded in 0,1,2 and 3 as per subjective findings.

Asthenopic Symptoms : frontal/ eyebrow headache, pain around the eye, early tiredness of eyes and watering from eyes all are graded in 0,1,2 and 3 as per subjective finding.

OBJECTIVE CRITERIA :

- 1.Snellens Chart Reading for Aavila Roopa (Diminished Vision) : Percent

improvement in vision AT as per method of Keith Lyle et al., 1985.

2.Keratometric Reading: Change in Corneal refraction after treatment.

3.Autorefractometer Reading: Change in dioptric power after treatment.

4.Retinoscopic Examination: Change in retinoscopic reading after treatment.

5.Reduction in Dioptric power of glasses as per BCVA after treatment.

6.Haematological and biochemical investigations, urine analysis before and after treatment.

OVERALL ASSESSMENT:

1. Cured :- 100 % relief in signs & symptoms & no recurrence during follow up study.
2. Marked improvement:- 75 % to 99 % improvement in signs and symptoms.
3. Moderate improvement: - 51 % to 74 % improvement in signs and symptoms.
4. Mild improvement:- 26 % to 50 % improvement in signs and symptoms.
5. Unchanged:-Upto 25 % reduction in signs and symptoms.

Statistical tool applied: Student's paired 't' test.

OBSERVATIONS

Total 48 patients had registered in the present study; 16 patients were registered in

group A, 17 in group B and 15 in group C. All the patients had completed the treatment and the general observations are described as follows:

Maximum number of patients i.e. 27.08 % belonged to age group of 11-15 years, followed by 20.83 % patients of 8-10 years and positive family history was found in 56.25% of the patients.

Among the chief complaints, 100% patients had *Aavila Darshana* (Blurred vision), while 4.17 % patients had *Vyaviddha*

Darshana. No patients were having *Arunabha Darshana*. In the associated symptoms 81.25 % patients had Frontal/Brow Headache, 62.50 % patients were having dull ache and watering from the eye; 60.42 % patients had h/o early tiredness of eyes, 18.75 % patients had drowsiness while 6.25 % patients were having nausea. Among them 26.04 % of eyes (of patients) were reported to have visual acuity of 6/18 and 68.75 % were having dioptric power of 0.00-1.00 D.

RESULTS

In group A, *Jivantyadi Ghrita Netra Tarpana* provided statistically significant relief in *Aavila Darshana* (Blurred vision) (3.17%), Frontal/Brow Headache (50.91%), Dull ache in the eyes (50.00 %), Early tiredness of eyes (47.06 %) and Watering from the eyes (50.00 %). In group B, *Go- Ghrita Netra Tarpana* had provided 6.86% relief in *Aavila Darshana* (Blurred vision), Frontal/Eyebrow Headache (48.44%), Dull ache in the eyes (45.00 %), Early tiredness of eyes (44.44 %) and Watering from the eyes (50.00 %). In Group C Eye exercises had provided 4.11 % relief in *Aavila Darshana* (Blurred vision), Frontal/Eyebrow Headache (45.17 %), Dull ache in the eyes (45.56 %) Early tiredness of eyes (40.00 %) and in Watering from the eyes (42.63 %). Nausea as associate complain is found in 2, 1 and 0 percent patients in group A, B

and C respectively so it was assessed for presence and absence only.

Drowsiness as associate complain is found in 4, 5 and 0 percent patients in group A, B and C respectively so it was assessed for presence and absence only. In group A has improvement in visual acuity in right eye i.e. 4.76 % and in left eye i.e. 5.76 %. In Group B has improvement in visual acuity in right eye 2.22% and in left eye 2.22 % and 4.42 %. In Group C has improvement in visual acuity in right eye 1.67 % and in left eye 1.89 %. In group A has provided statistically significant improvement in Cylindrical Dioptric power in right eye 7.03 % and in left eye 3.18 %. In Group B has improvement in cylindrical Dioptric power in right eye 1.82 % and in left eye 3.19 %. In Group C provided statistically insignificant improvement in

cylindrical Dioptric power in right eye 1.21 % and in left eye 1.41 %. In group A has provided statistically insignificant improvement in Spherical Dioptric power in right eye 2.22 % and in left eye 2.63 %. In Group B has provided statistically

significant improvement in spherical Dioptric Power in right eye 11.11 % and in left eye 1.06 %. In Group C has provided statistically insignificant improvement in spherical Dioptric Power in right eye 2.13 % and in left eye 2.04 %.

DISCUSSION

Though various works have been carried out on Netra Tarpana, but no attempt has been made to evaluate its efficacy on Astigmatism. So, this work was selected as an initial attempt in this direction. Several indications for Netra Tarpana are mentioned in the texts, but Timira is one of the foremost conditions. Also, previously many works have been carried out on the efficacy of the procedure in Timira w.s.r. to myopia but not in Astigmatism. All efforts should be made to strengthen the eyes by resorting to Nasya, Anjana, Tarpana etc. for once the vision is lost the different kinds of things of the world will all become of one kind- that of darkness. According to Acharya Charaka, Timira is Vata Nanatmaja Vyadhi, so mainly Vata predominant causative factors are responsible for Timira. Sneha (oleation/eye satiation) being the best drug topically the vitiated Vata. Acharya Charaka considered Netra - Tarpana as one of the Sneha – Pravicharna and it provides Vatashamaka effect and nourishment to the eyes thus improves visual acuity.

DISCUSSION ON GENERAL OBSERVATIONS

Majority of the patients were from the school going age group. It is a significant observation that the disease manifests in teenagers since the eyes continue to grow during childhood. In this study most of the patients had divaswapa (sleeping in day time) as causative factor, which is also supportive of the scientific observations regarding the development of Astigmatism. 56.25 % were having Positive family history. This observation supports the genetic theory, which states that genes are the main culprits in the development and progression of Astigmatism. The concept of familial inheritance of the ocular structure, that is black part (cornea) is well documented in Ayurved classics¹⁵. Majority of the patients (53.13%) were having Simple Myopic Astigmatism is scientific observation regarding the typewise more occurrence for Astigmatism. 68.75 % eyes were having dioptric power of 0.00 – 1.00 D, nourished by the modern research states that 95% of

individuals in the world have some astigmatism¹⁶.

OVERALL EFFECT OF THERAPY

In group A, complete remission and marked relief was not observed in any patient (0.00%), moderate relief was observed in 2 eyes (6.25%), mild relief in 27 eyes (84.78%) and no relief was observed in 3 eyes (9.78%). In group B, complete remission was not observed in any eye (0.00%), marked relief was observed in 2 eyes (5.88%), moderate relief was observed in 2 eyes (5.88%), mild relief in 22 eyes (64.71%) and no relief in 8 eyes (23.53%). In group C, complete remission and marked relief was not observed in any patient (0.00%), moderate relief was observed in 1 eye (3.33%), mild relief in 16 eyes (53.33%) and no relief was observed in 13 eyes (43.33%). Overall effect of therapy shows that *Tarpana* with *Jivantyadi Ghrita* (*Group A*) was more effective than *Tarpana* with *Go-Ghrita* (*Group B*) and *Eye Exercises* (*Group C*).

MODE OF ACTION OF DRUGS

The *Jivantyaadi Ghrita* was prepared by classical method of *Ghritapaka*. All the ingredients of *Jivantyaadi Ghrita* are available in their authentic forms, having *Chakshushya*, *Rasayana* and *Balya* properties¹⁷. Moreover, *Ghrita* due to its *Sansakaranuvartana* quality i.e. easily

imbibes the properties of other drugs processed with it without leaving its own properties. *Go ghrita* is also having above said properties. *Acharyas* have mentioned these ingredients as *Chakshushya*¹⁸ and very effective in treating the eye disorders. Due to above properties the drug was selected in the form of *Ghrita* to evaluate its efficacy in patients suffering from *Vataja Timira – Astigmatism*. The compound preparation *Jivantyadi Ghrita* and *Plain Ghrita* differs in quality and cost factors; owing to the above facts to evaluate the difference in efficacy if any to make the treatment cost effective a comparative study in two different groups was carried out.

*Chitrakadi Kwatha*¹⁹, *Chakshushya* formulation is indicated in *Timra* containing *Chitraka*, *Haritaki*, *Bibhitaki*, *Aamalaki*, *Patola* and *Indrayava*. *Chitrakadi Kwatha* had been reduced to *Ghana Vati* because of suitability of taking the tablets in comparison to *Kwatha*, lowering the dose and making the drug more potential by concentrated ('*Ghana*') form.

*Krishnadi Taila*¹⁹ has been taken for *Nasya karma* is *doshahara* and is a *snehana* and *shodhana* type of *Nasya*. By its *shodhana* property clears the micro channels (*srotasa*) of supra-clavicular part involving eye and by *snehana* it nourishes the structures of supraclavicular part

including Shirah. Abhyanga and Swedana had been given as a preprocedure measure helps in dislodging the morbid body humours in the micro-channels and make them mobile. Krishnadi Taila instilled in the nasal cavity by its shodhana (irritant) quality removing these mobile body humour and make them potent for absorption of sneha, thus nourishes the supraclavicular organs and pacifies the morbid Vata. The nourishing effect of the Krishnadi Tail Nasya probably nourishes the ocular tissue remoulds its structure which may take a long time. So a long term Marsha/Pratimarsha Nasya with Krishnadi Tail should be tried.

Jivanyadi Ghrita (in Group A) and Go Ghria (in Group B) has been used for *Netra Tarpana* procedure. Lipophilic action of *Ghrita* facilitates drug transportation to a target organ and final delivery inside the cell, because cell membrane also contains lipid. This liphophilic nature of *Ghrita* facilitates entry of drug in eyeball through corneal surface since corneal epithelium is also permeable to lipid soluble substances and lipid soluble substances cross corneal epithelium irrespective of their molecular size. Among different routes employed for therapeutics in eye e.g. *Seka* (closed eye

irrigation), *aschyotana* (medicated eye drops) *netra tarpana* procedure has the longest contact of drug with eye. Ghrita contains vitamin A, D, E, K and carotene in it^[20]. Vitamin A and E are antioxidant and vitamin A also keeps the outer lining of the eyeball moist. Digestion, absorption and delivery to a target organ system are crucial in obtaining the maximum benefit from any formulation. This is facilitated by *ghrita* (lipid substance)^[21], since active ingredients of drugs are mixed with *ghrita* and they are easily absorbed. Moreover *ghrita* preparation used in *tarpana* is in the form of suspension containing different particles of the drugs and the particles do not leave the eye as quick as solution. Tissue contact time and bio availability is more hence therapeutic concentration can be achieved. This facilitates the action of drug by two ways – one by allowing more absorption of the drug by corneal surface and secondly by exerting direct pressure upon the cornea. There may be changes in the refractive index of the cornea causing change in convergence of light rays. The *Jivantyadi Ghrita* having fat soluble contents the drugs e.g. jivanti, daru, etc. are absorbed through trans-corneal route may have action on the refractive media of the eye and eye as a whole more than the plain Go ghrita.

CONCLUSION

Maximum numbers of the patients were from school going age group shows age

wise higher occurrence of this disease and having a habit of sleeping in day time

indicates improper habit of this region. *Tarpana* with *Jivantyaadi Ghrita* provided better results in chief complaint *Aavila Darshana* than the other two groups. *Tarpana* with *Jivantyaadi Ghrita* provided better results in associate complaints (asthenopic symptoms) than the other two groups. In few patients even if no change in clinical refraction was observed, still overall clarity of vision was found to be improved and asthenopic symptoms like *Frontal/Brow headache*, dull ache in eyes, early tiredness of eyes and watering from

the eyes etc. were remarkably reduced. In reduction of dioptric power, *Tarpana* with *Jivantyaadi Ghrita* has shown better results than *Tarpana* with *Go Ghrita* and Eye Exercises. Oral drug *Chitrakadi Ghana Vati* is used in both groups – *Jivantyaadi Ghrita* and *Go Ghrita* with equal dose and duration. Better result of *Jivantyaadi Ghrita* Group suggests the role of oral medicine having no such significance. The duration of the treatment is short hence for reaching at any definite conclusion further long duration studies are needed.

ACKNOWLEDGEMENT

Financial Aid: I.P.G.T. & R.A., Gujarat Ayurved University, Jamnagar

Table 1 : Effect of therapy on chief and associate complaints – Group A

	Group A				
	BT	AT	% Relief	t	P
Aavila Darshana	7.88	7.63	3.17	1.73	< 0.05
Frontal/Brow Headache	4.6	2.25	50.91	11.99	< 0.01
Dull ache in the eyes	3.6	1.8	50.00	6.34	< 0.01
Early tiredness of eyes	3.78	2.00	47.06	10.06	< 0.01
Watering from the eyes	3.64	1.81	50.00	12.06	< 0.01

Table 2 : Effect of therapy on chief and associate complaints – Group B

	Group B				
	BT	AT	% Relief	t	P
Aavila Darshana	6	5.59	6.86	1.55	< 0.05
Frontal/Brow Headache	4.27	2.2	48.44	8.60	< 0.01
Dull ache in the eyes	4	2.2	45	10.8	< 0.01
Early tiredness of eyes	4	2.22	44.44	10.06	< 0.01
Watering from the eyes	3.56	1.78	50	10.67	< 0.01

Table 3 : Effect of therapy on chief and associate complaints – Group C

	Group C				
	BT	AT	% Relief	T	P
AavilaDarshana	4.87	4.67	4.11	1.03	< 0.05
Frontal/Brow Headache	4.33	2.17	45.17	10.83	< 0.01
Dull ache in the eyes	3.6	1.6	45.56	8.49	< 0.01
Early tiredness of eyes	3.64	1.82	40	12.06	< 0.01
Watering from the eyes	3.8	1.8	42.63	-	-

- could not be calculated, SE = 0.

Figure 1: Comparison of the effect on chief complaints

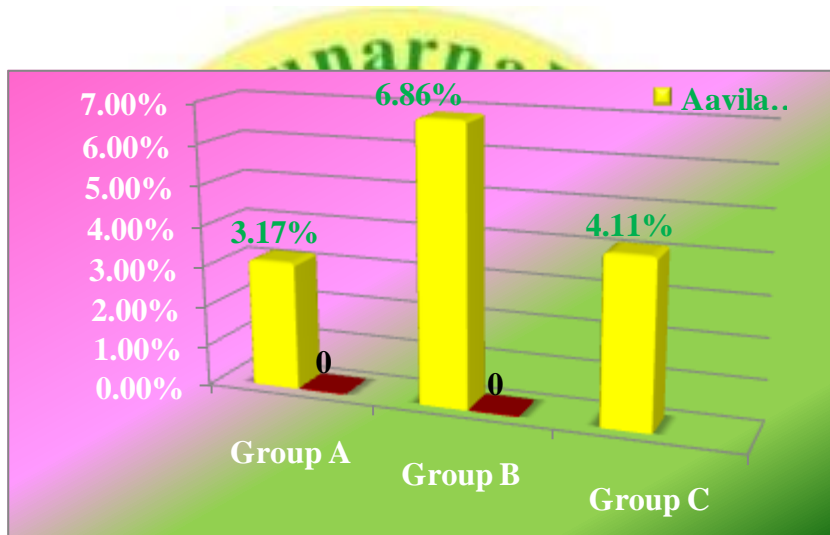


Figure 2: Comparison of the effect on associate complaints



Figure3:Comparison of the effect on visual acuity

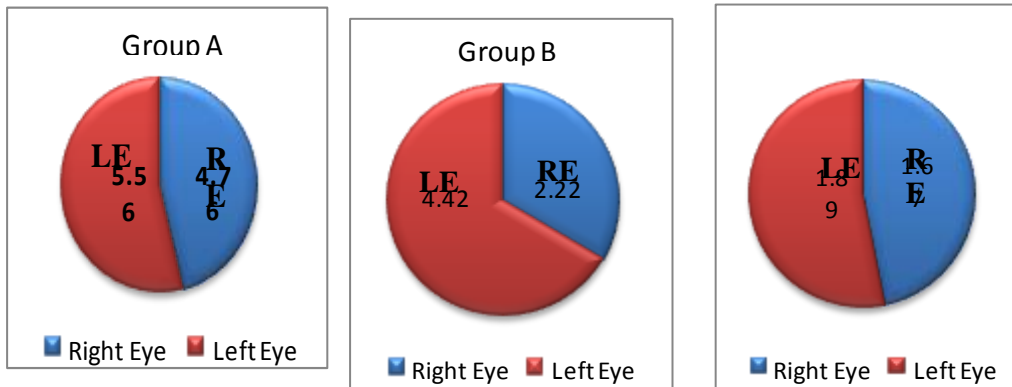


Figure 4:Comparison of the effect on cylindrical dioptric power

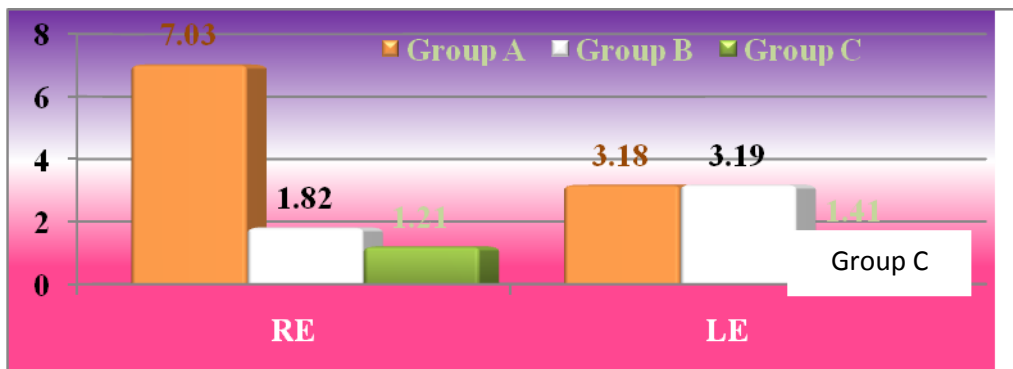
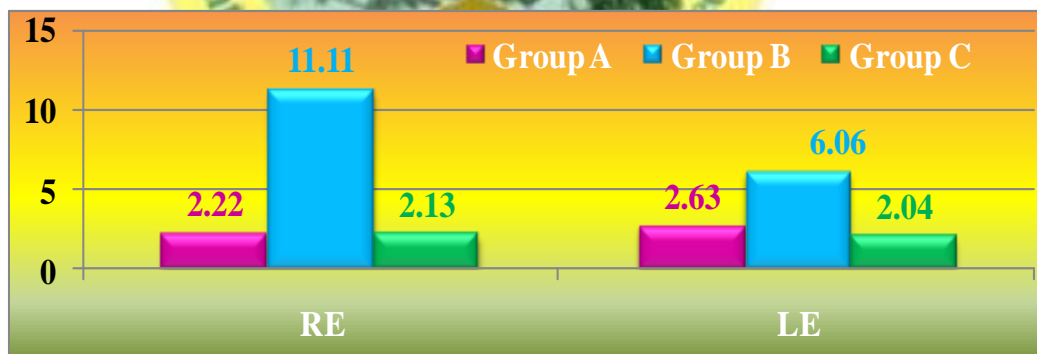


Figure 4: Comparison of the effect on spherical dioptric power



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