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Research Article

A CLINICAL STUDY ON THE ROLE OF *CHANDRAPRABHA VARTI* AND *SHRESHTHADI KWATH* IN *TIMIRA* (IMMATURE SENILE CATARACT)

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ABSTRACT

Cataract is one of the progressive conditions which has similar progressive nature as that of *Timira*. Based on the clinical characteristic described in classics *Pratham, Dwitiya* and *Tritiya Patalagata Timira* can be corelated with Immature Senile Cataract. Cataract surgery has its own limitations. Instead, surgical process some treatment protocols for cataract has been instructed in authentic Ayurvedic literature '*Sushruta* Samhita'. *Anjana* is mentioned as an effective measure of treatment. In total 40 patients were registered as per the inclusion and exclusion criteria. The trial period was 2 months (60 days) with single follow up of 1 month was done after completion of trial. *Chandraprabha Varti* and *Shreshthadi Kwath* had shown significant results ($p<0.05$) on blurred vision, black spots in front of eyes, coloured halos around light, difficulty in day and night vision, poor near vision, best corrected visual acuity, pin hole, blurred near vision and cortical cataract. Statistically insignificant results ($p>0.05$) were found in diplopia/polyopia, nuclear cataract and posterior subcapsular cataract. By the action of *Rasa*, *Guna*, *Veerya*, *Vipaka*, *Chaksushya*, *Rasayana*, *Shothhara*, *Lekhaniya* properties of selected drugs positively affected the reduction in opacification of lens and thus improving vision. The study concludes that the combined effect of *Chandraprabha Varti* and *Shreshthadi Kwath* were found effective to reduce and control the progress of immature senile cataract.

INTRODUCTION

Shalakya-Tantra provides substantially the science of sight and explore the disorders of the eye with minute details as well as loss of vision partial or complete has been described vividly under *Drishti Rogas*-disorders of vision. Among these *Rogas* there is "*Timira*" which possesses great threat to the vision, starts with simple visual disturbance and it may ultimately destroy the eyesight completely (*Lingnasha*).

The clinical features of *Timira* in different *Patalas* has resemblance with different ocular ailments mentioned in modern ophthalmology. But cataract is one of the progressive diseases which has similar progressive nature as that of *Timira*. Cataract is the common cause of blindness and usually commences as an age-related problem. Cataract is defined as opacity within the transparent lens of the eye that limits the amount of incoming light and produces deterioration of vision as a result of altered physiological process within its substance. The earlier symptoms are disturbances, diminution and finally loss of vision. In parallel, almost all of the *Acharyas* in Ayurveda have given prime importance to disease *Timira*. The very fact that subjects being under study from the days of *Acharya Sushruta* denotes its importance. Although the study of cataract is as old as the days of Hippocrates, the final treatment of cataract is not yet obtained. Research works throughout the world are occurring to know the remedies for the ailment *Timira*- cataract, but the ultimate answer is still awaited.

As countries progress on spectrum of socioeconomic development and life expectancies as a result of an increase, non-communicable diseases are

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now bearing a greater burden of disease and age-related conditions. The blinding ophthalmic conditions that are manifesting in this epidemiological transitions include age related cataract[1].

According to the World Health Organization (WHO) report on vision impairment, there are at least 1 billion individuals worldwide have preventable moderate to severe distance vision impairment or blindness, including 94 million caused by cataracts[3]. Cataract has been shown to be most significant cause of bilateral blindness, both in India (50-80%) and globally. The annual incidence of cataract blindness in India is about 3.8 million, which affects 100 million eyes and causes a vision of 6/60[4].

Several studies have indicated that the long - term visual outcome of cataract surgery is often far from optimal because it is not pocket friendly and having early surgical complications (like iris prolapse, endopthalmitis, IOL malposition), inadequate optical correction, long term complications (like cystoid macular oedema, posterior ocular opacity, glaring, light sensitivity, ocular HTN). Reports say that all cataract surgeries in India are not sight-restoring[5]. Consequently, there is a search for pharmacological intervention that will maintain transparency of lens[6].

In Ayurvedic classics, various treatment modalities like use of *Chaksushya Dravyas, Nasya, Ghritapana, Anjana* and most importantly "*Kriyakalpas*" have been mentioned for the treatment of *Netra Rogas* including *Timira. Netrakriyakalpa* have very fast action to the target tissues including posterior segment of the eye[7]. These are various method of application of medicines in the eye. Out of which *Anjana* is foremost procedure which drains out *Doshas* from *Vartamgata Siras*, *Srotas* and *Shringataka Marma* through mouth, nostrils and eyes[8].

Chandraprabha Varti is an Ayurvedic topical formulation mentioned in Ayurvedic classic. According to *Acharya Yogratnakar* this *Varti* is used to eliminate *Timira*. Almost all drugs of this *Anjana* have *Rasayana* and *Chaksushya* properties. *Charaka* in *Sutrasthana* mentioned that *Shleshma* is dangerous for eyes/*Drishti*, should be prevented by it. As a result, the drug having *Kaphashamaka* property was selected. As *Anjana* provides more contact time for absorption of the drug and nourishes the eye with *Lekhana Karma*. The *Kaphahara* and *Tridoshashamaka* properties enhance the quality of *Tarpaka Kapha* and *Alochaka Pitta* which resides in the *Chakshu* reducing the disturbance related to them.

Timira or Immature Senile Cataract, is a *Swabhav Balapravritta Vyadhi* which develops as a result of normal ageing process. *Rasayana* are nutritional supplements, rejuvenators, and have significant antioxidant activity. Therefore, have antagonistic actions on the oxidative stress and inhibiting the formation of different free radicals. *Rasayana* is 1000 times more potent than Ascorbic acid, alpha tocopherol and probucol. Therefore, *Shreshthadi Kwath* was selected. Keeping all these points in view a scientific work on *Chandraprabha Varti* along with *Shreshthadi Kwath* have been undertaken to evaluate their efficacy.

AIM AND OBJECTIVES

1. To study conceptual resemblance of *Timira* with Immature Senile Cataract.
2. To evaluate the combined effect of *Chandraprabha Varti* and *Shreshthadi Kwath* in *Timira* (Immature Senile Cataract).

MATERIALS AND METHODS

Patients were selected randomly on the basis of classical features of *Timira* and signs and symptoms of Immature Senile Cataract irrespective of their sex, caste and socioeconomic status attending the OPD and IPD of Shalakya Tantra Department of Rishikul Campus Haridwar (U.K.) India. For this study total 40 patients were selected on the basis of inclusion and exclusion criteria. Informed and written consent were taken from all the patients. Approval was taken from Institutional Ethical Committee (UAU/RC/IEC/2022/1-67 Dated 27-05-2022) prior to patient's enrolment. The trial was registered Rg.no. (CTRI/2022/07/043707) in the Clinical Trial Registry of India before commencement of patient's enrolment.

Inclusion criteria

- Age 45-70 years irrespective of sex, religion, occupation, caste, social and economic status.
- 6/9-6/60 with best corrected visual acuity.
- Patients having signs and symptoms of *Pratham, Dwitiya* and *Tritiya Patalagata Timira* and immature senile cataract.

Exclusion criteria

- Age <45 yrs & >70 yrs.
- Less than 6/60 with best corrected visual acuity.
- Patients having signs and symptoms of mature and hypermature cataract.
- K/C of congenital, developmental, traumatic, complicated and metabolic cataract.
- Patients associated with HTN and diabetes mellitus.
- Patients on chemotherapy, steroids and immunosuppressive drug therapy.
- K/C of uveitis, glaucoma and retinopathies.
- Patients not willing for trial.

Investigation- Hb%, TLC, DLC, blood sugar (fasting and PP) was done.

Type of Study- Open clinical trial/simple open random study.

Plan of Study

Three phases that compromised the clinical study were completed-

1. Diagnostic phase 2. Interventional phase
3. Assessment phase

Diagnostic Phase

The diagnosis of selected patients was confirmed on the basis of extensive and standardized ocular examination including visual acuity testing, autorefractometer reading, subjective refraction, slit lamp biomicroscopy, distant direct and direct fundus examination. Clinical assessment of lens status and the presence of Aphakia or Pseudophakia were determined at the slit lamp. Fundoscopy was done under full mydriasis (tropicamide 1% and phenylephrine hydrochloride 2.5%).

Slit lamp examination taken to grade the degree of nuclear sclerosis and retroillumination under slit lamp examination were taken to determine the presence and severity of cortical and posterior subcapsular Cataract.

Proforma- A special research proforma was prepared comprising Ayurvedic classics parameter and modern parameter which are essential for diagnosis and assessment of cataract.

Informed consent- The purpose of the study, nature of the study drugs, the procedure to be carried out and potential risk and benefits were explained to the patients in details in non-medical terms. Thereafter their written consent was taken before starting the procedure.

Interventional Phase

Sample size (No. of patients)- 40 patients.

Duration of treatment- 2 months (60 days)

Follow up - After completion of 60th day/2 months trial, single follow up of 1 month was done after completion of trial.

Method of Treatment- Intervention

Selected drugs - *Chandraprabha Varti* and *Shreshthadi Kwath.*

Form of Medicine

Chandraprabha Varti- Eye ointment

Shreshthadi Kwath-Vati (tablets)

Dose of Medicine

Chandrprabha Varti (ointment) - 3 *Vidang Matra* (approx 30 mg BD).

Shreshthadi Kwath (*Vati*/tablets)- 1 tab (500 mg BD) with lukewarm water.

Route of Administration

Chandraprabha Varti (ointment)- LA in lower fornix of eye.

Shreshthadi Kwath (*Vati*/tablets)- Orally with lukewarm water.

Procedure

Poorva Karma- *Deepana* and *Pachana Karma* with *Shunthi Churna* 3-5gm BD followed by *Koshtha Shuddhi* was done in all the patients 3-7 days depending upon their *Koshtha* and *Agni*.

Pradhana Karma- 3 *Vidang Matra* (30mg) BD of *Chandraprabha Varti* was applied twice a day in the form of smooth paste (eye ointment) into the conjunctival fornix along with *Shreshthadi Kwath* 1 tab (500mg) BD orally with lukewarm water in the form of *Vati* (tablets)for period of two months.

Constituents of *Chandraprabha Varti*

Drug name	Botanical name	Family	Part used	Ratio
Rajani	*Curcuma longa*	*Zingiberaceae*	Rhizome	1
Nimba/Neem	*Azadirachta indica*	*Meliaceae*	Leaves	1
Pippali	*Piper longum*	*Piperaceae*	Seed	1
Maricha	*Piper nigrum*	*Piperaceae*	Seed	1
Vidanga	*Embelia ribes*	*Myrsinaceae*	Seed	1
Nagarmotha	*Cyperus scariosus*	*Cyperaceae*	Root	1
Haritaki	*Terminalia chebula*	*Combretaceae*	Fruit	1

Constituents of *Shreshthadi Kwath*

Drug name	Botanical name	Family	Part used	Ratio
Haritaki	*Terminalia chebula*	*Combretaceae*	Fruit	1
Vibhitaki	*Terminalia bellirica*	*Combretaceae*	Fruit	1
Amalaki	*Emblica officinalis*	*Euphorbiaceae*	Fruit	1
Nimba	*Azadirachta indica*	*Meliaceae*	Leaves	1
Patola	*Trichosanthes diocia*	*Cucurbitaceae*	Leaves	1
Musta	*Cyperus rotundus*	*Cyperaceae*	Rhizome	1
Rajani	*Curcuma longa*	*Zingiberaceae*	Rhizome	1

Trymana	*Gentiana kurroo*	*Gentianaceae*	Root	1
Hema/Nagkesar	*Mesua ferrea*	*Guttiferae*	Stigma	1
Amrita/Guduchi /Giloy	*Tinospora cordifolia*	*Menispermiaceae*	Stem	1

Assessment Phase

Criteria for Assessment of Result-Grading and scoring system was adopted for assessing each clinical feature before the commencement of trial and after completion of trial as under.

Subjective Parameters

***Vihavala Darshana* (Blurred Vision)**

Grade 0	No blurring of vision
Grade 1	Occasional blurring of vision
Grade 2	Frequent blurring without disturbing routine work
Grade 3	Frequent blurring with disturbing routine work

***Tamansi Vividhani* (Black Spot in Front of the Eyes)**

Grade 0	No black spots in front of eye
Grade 1	Appearance during primary gaze
Grade 2	Appearance during secondary gaze
Grade 3	Apppearance during all gazes

***Ekam Manyate Dwidha Tridha Bahuda Drishti* (Diplopia/Polyopia)**

Grade 0	No diplopia/polyopia
Grade 1	Occasional diplopia/polyopia
Grade 2	Regular diplopia/polyopia without disturbing routine work
Grade 3	Regular diplopia/polyopia disturbing day to day work

***Chandra Aditya Nakshatra Vidyut Teja Darshana* (Coloured Halos Around Light)**

Grade 0	No coloured halos around light
Grade 1	Coloured halos present only around bright light
Grade 2	Intermittent presence of coloured halos around light
Grade 3	Continuous presence of coloured halos around light

***Divam Na Pashyet* (Difficulty in Day Vision/Glaring)**

Grade 0	No difficulty in daytime
Grade 1	Difficulty only on exposure to sunlight
Grade 2	Occasional difficulty in daylight
Grade 3	Continuous difficulty in daylight

***Raatrou Na Pashyet* (Difficulty in Night Vision/Dim Light)**

Grade 0	No difficulty in night vision
Grade 1	Difficulty only in exposure to bright light like headlights of oncoming vehicles etc.
Grade 2	Difficulty in normal light sometime during night
Grade 3	Continuous difficulty in normal light during night

***Suchee Pasham Na Pashyati* (Poor Near Visual Acuity)**

Grade 0	No feeling of dimness of vision even in dim light
Grade 1	Occasional dimness of vision in dim light
Grade 2	Unable to read in dim light
Grade 3	Unable to read even in day light

Objective Parameters

Visual Acuity (According to Parsons)

100%	6/6
90%	6/9
80%	6/12
60%	6/18
50%	6/24
40%	6/36
20%	6/60

Iris Shadow

0	Present
1	Absent

Iris Shadow-Present-Cortex seen clearly between opacity and Iris and Shadow of Iris falls on opacity in immature Senile Cataract.

Absent-Iris shadow is not seen in opaque lens in Mature Cataract

Cortical Spoking

0	0 to 1/8 of the total area of the lens
1	¼ of the total area of the lens
2	½ of the total area of the lens
3	More than ½ of the total area of the lens

Posterior Subcapsular Cataract

0	No cataract
1	Less than 2 mm
2	2 mm to 3 mm
3	More than 3 mm

Nuclear Cataract

0	No cataract
1	White, greenish yellow nuclear
2	Yellowish nuclear
3	Amber nuclear
4	Brownish nuclear
5	Blackish nuclear

Blurred Near Vision

0	No difficulty in near vision (N6)
1	N6 to N12
2	N18 to N24
3	More than N24

Statistical Analysis

All information on various parameters was gathered and statistical study was carried out in terms of mean values of BT (Before treatment), AT (After treatment), SD (Standard deviation) and SE (Standard Error). The results obtained were considered significant or not significant based on the "p value".

The different tables of scores, obtained before and after treatment was prepared for the comparison and statistical analysis was done using Wilcoxon signed rank test for subjective parameters and Paired t-test for objective parameters.

Finally, results were incorporated in terms of Probability(P) as-

- Statistically Highly Significant (SHS)-$p<0.001$
- Statistically Significant (SS)-$p<0.01$, $p<0.05$
- Statistically not Significant (SNS)-$p>0.05$

Overall Assessment

Overall assessment was done on the basis of improvement of sign and symptoms of "*Timira*" (Immature Senile Cataract)

Cured	<90% relief in sign and symptoms
Markedly improvement	76-90% relief in sign and symptoms
Moderate improvement	51 to 75% relief in sign and symptoms
Mild improvement	26 to 50 %relief in sign and symptoms
No improvement	</=25% relief in sign and symptoms

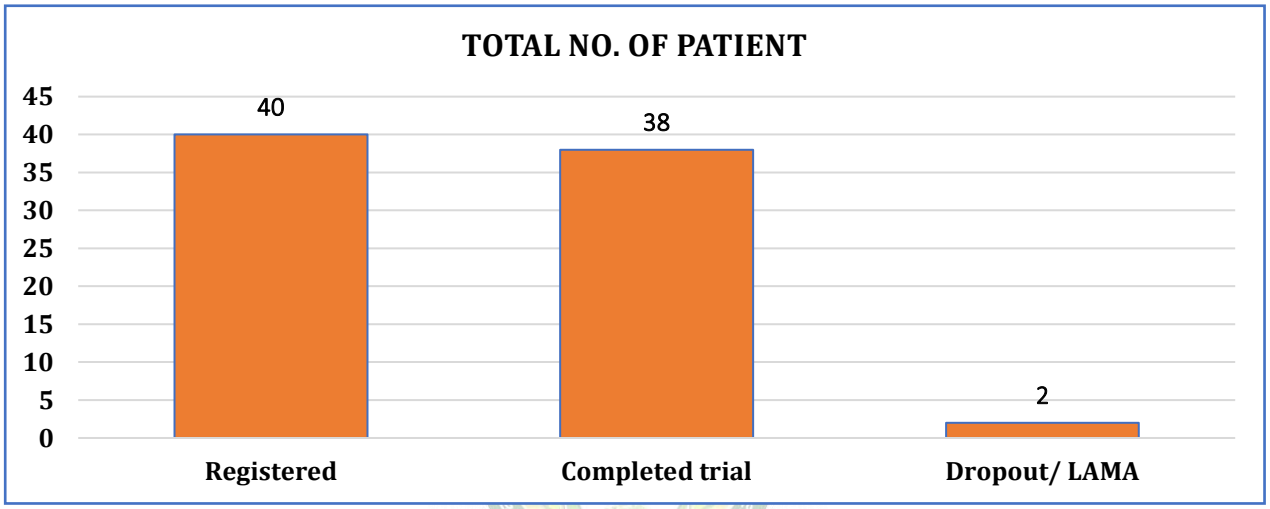
OBSERVATIONS

A total number of 40 patients of *Timira* w.s.r. Immature Senile Cataract fulfilling the inclusion and exclusion criteria were registered for this clinical study. Out of 40 registered patients, 38 patients completed the whole treatment, 2 patients dropped out of the study. Hence all the observations from here included 40 patients. The observations of the present study are elaborated below-

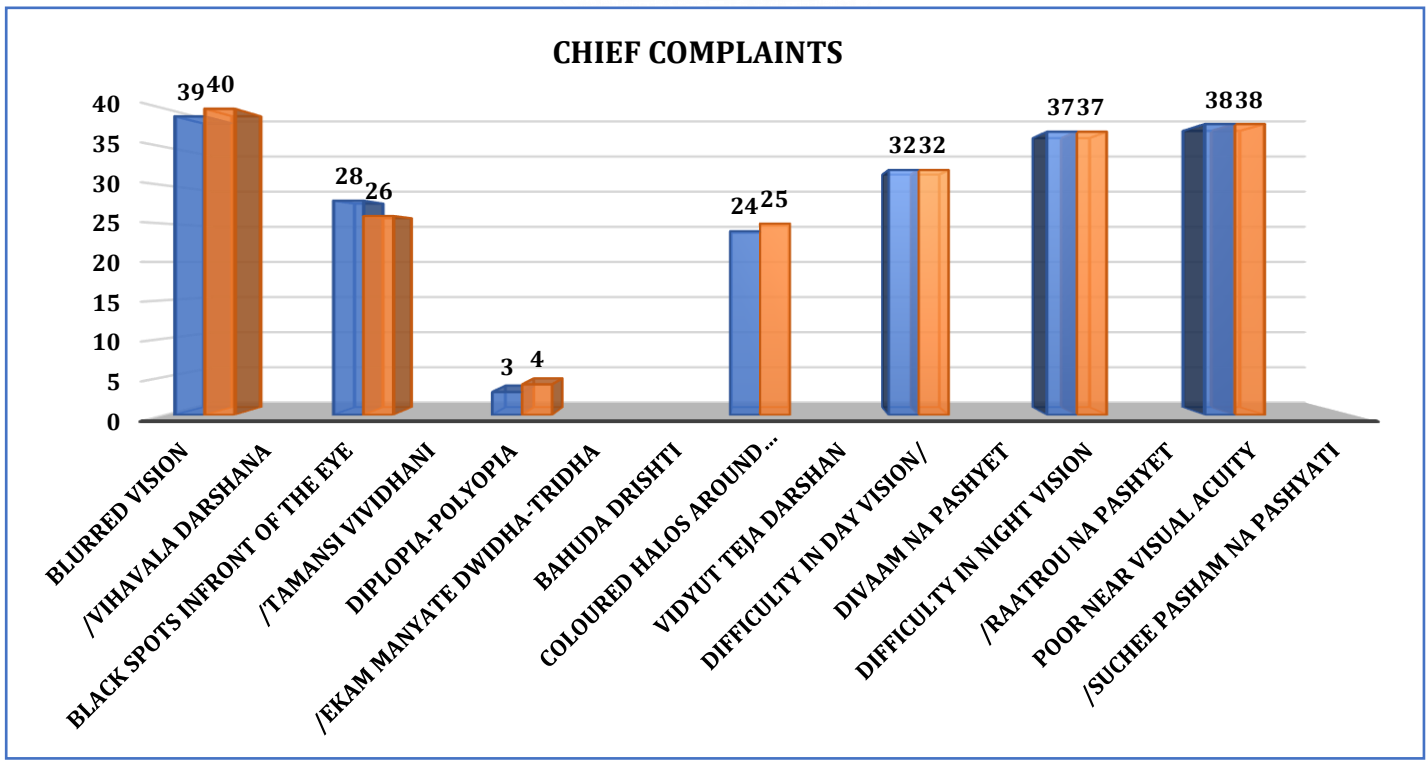
Numbers of patients registered for the study-40

Numbers of patients completed the study-38

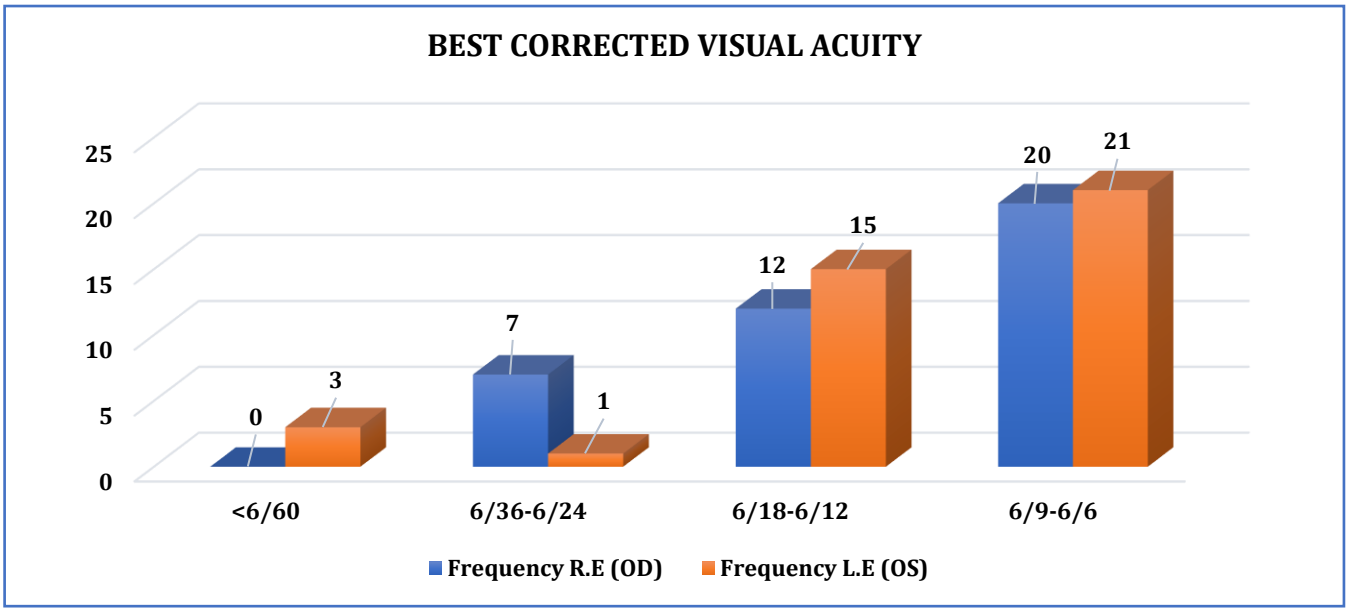
Numbers of patients dropout/LAMA-02



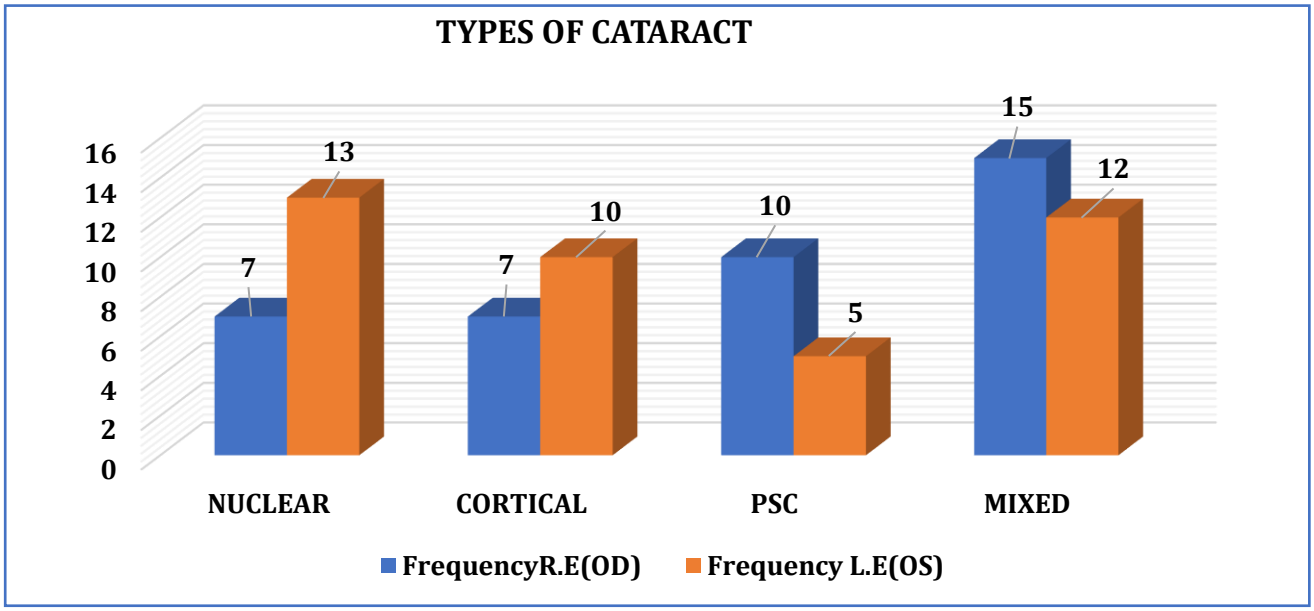
Distribution of total registered patients



Distribution of patients based on chief complaints



Distribution based on best corrected visual acuity



RESULTS

Effect of therapy on Subjective Parameters

Parameters	Mean		Median		SD		Wilcoxon W	P-Value	% Effect	Result
	BT	AT	BT	AT	BT	AT				
Blurred Vision RE	2.24	1	2	1	0.49	0.23	-5.695[b]	<0.05	55.29	Sig
Blurred Vision LE	2.34	0.95	2	1	0.67	0.4	-5.565[b]	<0.05	59.55	Sig
Black Spot infront of eyes RE	1.08	0.5	1	0	0.85	0.56	-4.690[b]	<0.05	53.66	Sig
Black Spot infront of eyes LE	0.87	0.45	1	0	0.78	0.55	-3.771[b]	<0.05	48.48	Sig
Diplopia/Polyopia RE	0.11	0.03	0	0	0.39	0.16	-1.732[b]	>0.05	75	NS
Diplopia/Polyopia LE	0.21	0.08	0	0	0.58	0.27	-1.236[b]	>0.05	62.5	NS
Coloured Halos RE	1.11	0.63	1	1	0.95	0.59	-4.243[b]	<0.05	42.86	Sig
Coloured Halos LE	1.08	0.55	1	1	0.91	0.5	-4.264[b]	<0.0.5	48.78	Sig

Difficulty in day vision RE	1.71	0.82	2	1	1.11	0.61	-4.919[b]	<0.05	52.31	Sig
Difficulty in day vision LE	1.84	0.82	2	1	1.13	0.61	-5.007[b]	<0.05	55.71	Sig
Difficulty in night vision RE	2.03	0.74	2	1	0.79	0.5	-5.252[b]	<0.05	63.64	Sig
Difficulty in night vision LE	1.95	0.79	2	1	0.87	0.62	-5.332[b]	<0.05	59.46	Sig
Poor Near Vision RE	2.11	0.84	2	1	0.69	0.37	-5.355[b]	<0.05	60	Sig
Poor Near Vision LE	2.08	0.79	2	1	0.82	0.41	-5.341[b]	<0.05	62.03	Sig

BT-Before treatment, AT-After treatment, SD-Standard deviation, RE-Right eye, LE-Left eye

Percentage relief in subjective parameters

Parameters	**% Effect (RE)**	**% Effect (LE)**
Blurred Vision	55.29	59.55
Black Spot Infront of Eyes	53.66	48.48
Diplopia/Polyopia	75.00	62.50
Coloured Halos	42.86	48.78
Difficulty in Day Vision	52.31	55.71
Difficulty in Night Vision	63.64	59.46
Poor Near Visual Acuity	60.00	62.03
Overall Effect	57.53	56.58

RE-Right eye, LE-Left eye

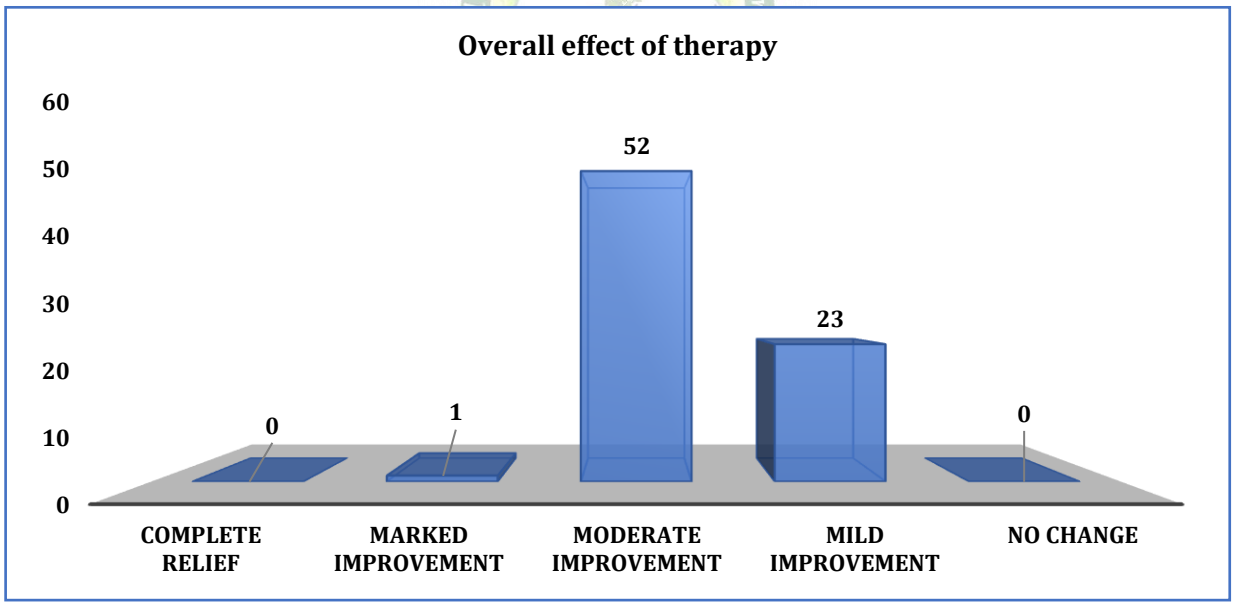
Effect of therapy on Objective Parameters

			Mean	**SD**	**SE**	**T-Value**	**P-Value**	**% Change**	**Result**
UCVA	RE	BT	6.19	3.05	0.51	6.734	<0.05	33.18	Sig
		AT	4.14	1.57	0.26				
	LE	BT	6.01	3.06	0.51	6.870	<0.05	29.10	Sig
		AT	4.26	2.17	0.36				
BCVA	RE	BT	2.26	1.29	0.21	3.407	<0.05	14.11	Sig
		AT	1.94	0.89	0.15				
	LE	BT	2.54	2.39	0.40	2.182	<0.05	13.66	Sig
		AT	2.19	1.77	0.29				
PIN HOLE	RE	BT	4.46	2.71	0.45	5.250	<0.05	25.55	Sig
		AT	3.32	1.79	0.30				
	LE	BT	4.21	2.85	0.48	4.883	<0.05	25.08	Sig
		AT	3.15	1.99	0.33				

Parameters	Mean		Median		SD		Wilcoxon W	P-Value	% Effect	Result
	BT	AT	BT	AT	BT	AT				
NS RE	1.60	1.53	2.00	2.00	0.51	0.52	-1.000[b]	>0.05	4.17	NS
NS LE	1.72	1.67	2.00	2.00	0.46	0.49	-1.000[b]	>0.05	3.23	NS
Cortical RE	1.80	1.28	2.00	2.00	0.62	0.59	-2.002[b]	<0.05	28.89	Sig
Cortical LE	1.72	1.22	2.00	1.50	0.67	0.62	-2.002[b]	<0.05	29.16	Sig
PSC RE	1.38	1.38	1.00	1.00	0.50	0.50	.000[c]	>0.05	0.00	NS
PSC LE	1.59	1.59	1.00	1.00	0.71	0.71	.000[c]	>0.05	0.00	NS
Near Vision	1.13	0.78	1.00	1.00	0.33	0.42	-3.742[b]	<0.05	31.11	Sig

Overall Effect of Therapy

Overall Effect	Right Eye		Left Eye		Total	
	N	%	N	%	N	%
Complete Relief	0	0.00%	0	0.00%	0	0.00%
Marked Improvement	0	0.00%	1	2.63%	1	1.32%
Moderate Improvement	27	71.05%	25	65.79%	52	68.42%
Mild Improvement	11	28.95%	12	31.58%	23	30.26%
No Improvement	0	0.00%	0	0.00%	0	0.00%
TOTAL	38	100.00%	38	100.00%	76	100.00%



DISCUSSION

Discussion on Conceptual Study

The similarity between *Timira* and Cataract starts from the meaning itself.

Tim Kledane Aadri Bhavahati Yavatha

Increase in watery substance in the eyes.

Pathogenesis of Immature Senile Cataract with *Samprapti* of *Timira*

Cataract is the common cause of blindness and usually commence as an age-related problem in 50-60 yrs of age. The status of *Doshas* in the body in old age being *Vata*. It will be predominant in the body. *Pittakshaya* is very evident from the features like *Jathragnimandya* leading to *Dhatwagnimandya* which results in *Malasanchaya*.

The structure lens is not an exception. The metabolic activity of the lens reduced significantly i.e., the synthesis of protein, glutathione-which is having great role in oxidation reduction mechanism shows

reduction in their action during advancement of age, which is the initial pathological change of lens in old age. There is imbalance between reactive oxygen species production and cellular antioxidant mechanism. Thus, generates free radicals and causes oxidative stress. Free radicals attack lens cells, cross through cell membranes. This action deranges the ratio of water soluble and insoluble ratio.

Most of the soluble proteins changed to insoluble (*Malasanchaya*) with increase in amount of lipid which can be identified macroscopically in later stages of cataract, the elasticity of the capsule reduced and the permeability increased[9].

The *Gati* (passage) of *Pranavayu* component of "humour *Vata*" (which is responsible for perception of sense) is obstructed from coming in contact with the *Indriyartha* (the object of vision) resulting in loss of vision in the later stage of the disease[10]. Now the status of all *Doshas* in old age lens is clear.

There is slight variation in *Samprapti* of different types of cataract.eg in nuclear cataract the role of *Pitta* is minimal but *Kapha* is present as the main pathology, starts as sclerosis or hardening of the nucleus. Marked increase in insoluble protein result in aggregation of cholesterol in the membrane of older nuclear fibres which further affect the transport of nutrients by changing their conformation[11]. In nuclear cataract *Sthira, Kathina, Ruksha Guna Vridhi* of nucleus of the lens occurs and fibres becomes hard *(Kathina)*, firm *(Sthira)* and dehydrated *(Sosha)* i.e., as *Kapha Vata Timira*.

While in Cortical Cataract *Pitta Timira Lakshana* are well developed as it is initiated by difference in ionic transfer, imbibition of water and stagnation of water molecule in between lens fibre owing to swelling of lens[12]. As age increase strength of the epithelium decreases*. Vridhavastha* or increased age (*Ruksha guna*) of *Vata* decreases the *Snighdhaguna* in the lens. The function of *Snighdhaguna* is to provide *Bala* (strength)to a structure. Naturally when *Snighdhaguna* of epithelium decreases, it will result in loss of strength of the ions channels in the anterior epithelium helps in keeping lens dehydrated. This brings in hydration of the lens. This hydration can be compared to *Kledavridhi* in the lens. The lens fibres start getting denatured and getting opacified. As a results transparent fibres turn to dense white opacity.

In consequence, *Srotosanga* after *Aam* formation may exhibit due to aggregation of insoluble protein & cholesterol in nuclear cataract while water imbibition, stagnation in lens fibres in cortical cataract.

Discussion on Selection of Trial Drug

Among the formulations prescribed for the treatment of *Timira* (Immature Senile Cataract) by different *Acharyas, Chandraprabha Varti* and *Shreshthadi Kwath* was selected. As *Timira* (Immature Senile Cataract) is a *Kala Svabhavaja Vyadhi*- Degenerative disorder so pathology of this condition can be checked by certain drug having *Chaksushya* and *Rasayana* properties. In this regard, *Chandraprabha Varti* (ointment) from *Yogratnakar* and *Shreshthadi Kwath* (tablet) from *Yogchintamani* were selected as most of the ingredients of these two *Yogas* have *Chaksushya, Balya, Rasayana* properties.

Chandraprabha Varti

The Ayurvedic drugs potency depends upon *Rasa, Guna, Veerya, Vipaka* and *Prabhava*. Apart from respective *Guna-Karma* of the drugs, biological action of a drug depends upon the combined effect of its composition. *Acharyas* have also referred to this as the drug's *Prabhava*.

The selected drug for the study containing *Haridra, Nimba, Pippali, Maricha, Vidanga, Musta* and *Abhaya* having *Lekhana, Chedaniya, Kaphahara* properties, *Katu Rasa* having *Ushna, Kaphahara* properties. *Kledopashoshana, Shlesmopashoshana* properties are possessed by *Tikta Rasa* which may participate in the *Samprapti Vighatana* of Immature Senile Cataract. *Anjana* has unique therapeutic efficacy over all *Kriyakalpas* procedures indicated when *Doshas* are fully manifested and are localized in the eye[13]. The properties of drugs mentioned in drug review reveals that *Chandraprabha Varti* has predominance of *Laghu guna* (100%), *Ruksha guna* (42.8%), *Katu rasa* (71.4%), *Tikta rasa* (42.8 %), *Kashaya rasa* (42.8%), *Katu Vipaka* (71.4 %), *Ushna Virya* (57.1%) and *Sheeta Virya* (42.8 %) properties. These properties of the drug helps in breaking the pathogenesis.

Shreshthadi Kwath

The mechanism of action of any drug mainly depends upon its properties as well as its molecular structure & other associated factor. *Shreshthadi Kwath*, there is predominance of *Laghu, Ruksha, Guna, Madhura Vipaka, Tridoshashamaka* properties. *Shreshthadi Kwath* contains *Chaksushya, Rasayana, Balya* drugs. *Triphala* acts as best *Rasayana* and *Chaksushya Dravya. Rasayana* is normally advised during the degenerative phase which starts from around 45 years. *Rasayana* promotes nutrition by direct enrichment of the nutritional quality of *Rasa* means nutritional blood and by promoting nutrition through improving *Agni* means digestion, metabolism and by promoting competence of *Srotas* means microchannel in the body. Free radicals is the end product of the oxidative reaction in body. In Ayurveda, free radicals can be corelated with *Ama*. Wherever *Ama* goes and settles it produces disease also.

Triphala being *Kaphapittaghana, Chaksushya, Rasayana* helps to nourish the *Chaksurendriya*. Being antioxidant, it acts as free radical scavanger which is helpful in maintaining transparency of the lens fibres. To increase shelf life, easy palatability, convenient

form of dispensing converted to tablet form. So, for present study a combination of *Chandraprabha Varti* and *Shreshthadi Kwath* were selected as topical and oral drug for the clinical trial.

CONCLUSION

Based upon the detailed conceptual description, it can be concluded that *Timira* and Immature Senile Cataract both are nearly same entities. *Chandraprabha Varti* and *Shreshthadi Kwath* had shown significant results on blurred vision, black spots in front of eyes, coloured halos around light, difficulty in day and night vision, poor near vision, best corrected visual acuity, pin hole, blurred near vision and cortical cataract. Insignificant results were found in diplopia/polyopia, nuclear cataract and posterior subcapsular cataract. No adverse effect or unfavorable symptom was observed in patients during the trial, after completion of trial and while follow up.

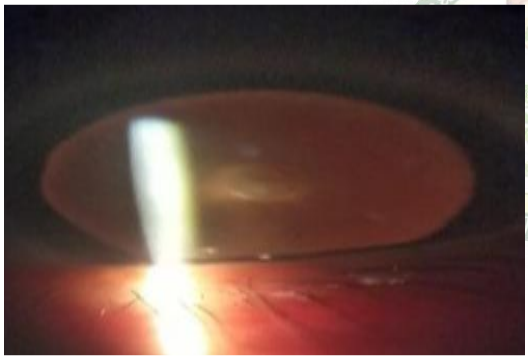
Hence, it can be concluded that combination of both the medicine is cost effective in improving vision, reduce and control the progression of *Timira*/Immature Senile Cataract.

Nuclear Cataract

LE BT NS=2

LE AT NS=2

Posterior Subcapsular Cataract

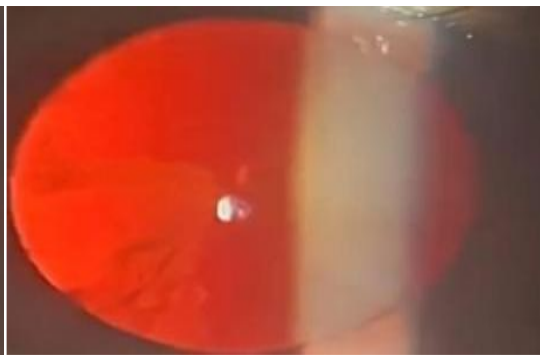


LE BT PSC=2

LE AT PSC=2

Cortical Cataract

LE BT CORTICAL=2



LE AT CORTICAL=2

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