

## ***A SINGLE ARM OPEN LABEL CLINICAL STUDY ON DARUHARIDRADI SEKA IN THE MANAGEMENT OF SHUSHKAKSHIPAK W.S.R. TO DRY EYE***

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### **ABSTRACT**

*Shushkakshipaka* is one among the *sarvagata netrarogas* mentioned by both the *Acharyas Sushruta* and *Acharya Vaghbata* under *Sadhya vyadhis* caused due to affliction of *vata* and *pitta doshas*. This condition can be well correlated to Dry eyes in modern parlance. Approximately 8% of world population is suffering with dry eye of which 78% are women. A number of contributory factors affect the severity of dry eye includes anatomical features, environmental surrounding, contact lens use, unmodified life style, chronic inflammation and infections of eye which can lead to complications. Though this is a condition of present day life style, our ancient seers have clearly explained the treatments which are *Vata-pittahara* and *chakshushya* that can easily break the pathogenesis. *Seka* is one such procedure under ocular therapeutics where the affected tissues are benefited directly. Thus *Daruharidradi Seka* was selected to assess the Parameters of dry eyes in terms of clinical features and stability of the treatment. A total number of 20 patients (n=20) were selected in the present study irrespective of religion, sex and occupation. The parameters considered for the study were assessed before after and at follow-up which revealed highly significant p values (p<0.001).

**Keywords:** Dry eyes, *Shushkakshipaka*, *Seka*, *Daruharidradi Ksheera paka*

### **INTRODUCTION**

Dry eye Workshop conducted in 2007 defines dryeye as " Multifactorial ocular surface disease diagnosed by symptoms of discomfort and signs of visual disturbance, tear film

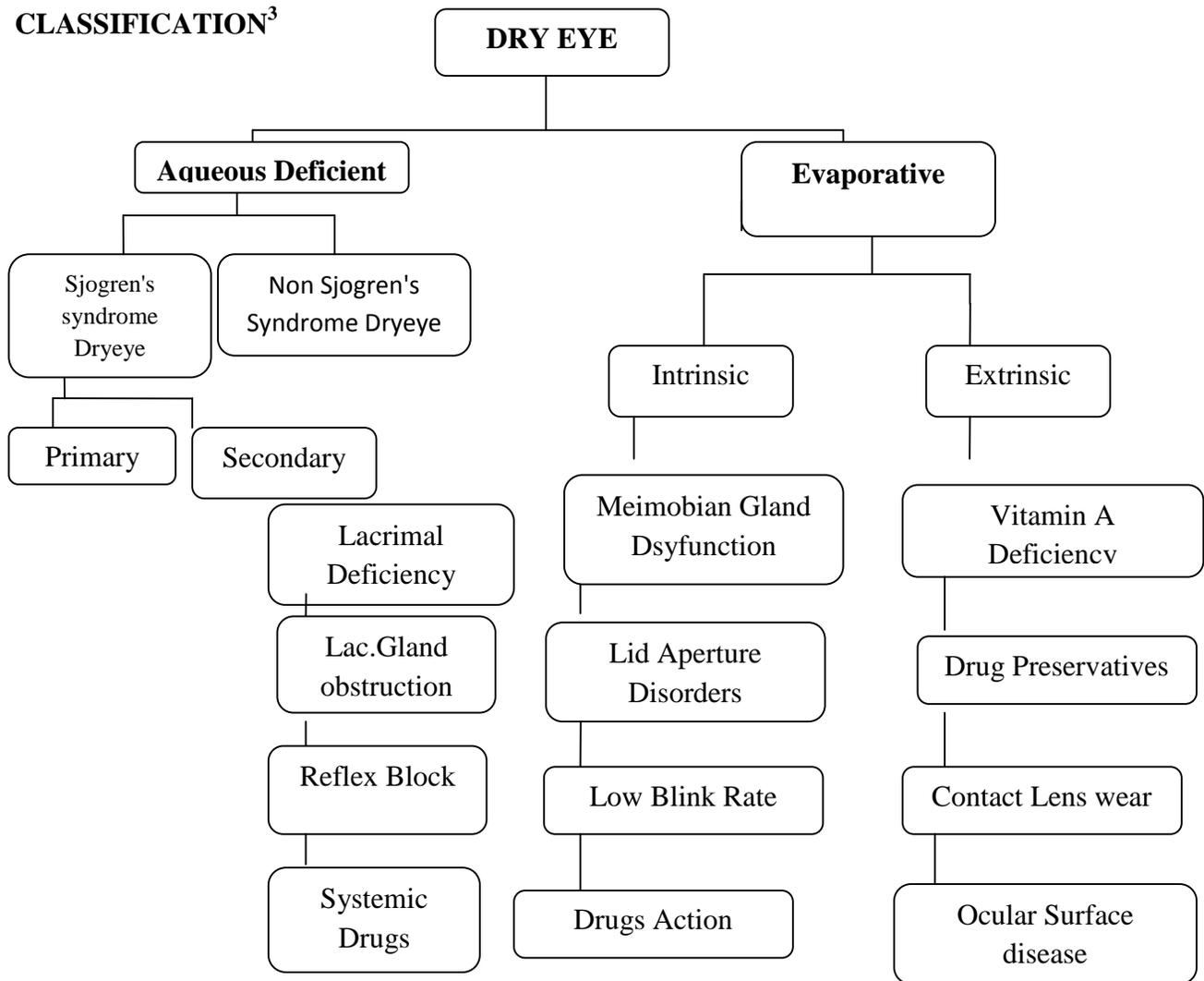
instability and ocular surface damage, accompanied by increased osmolarity of the tear film and ocular surface inflammation"<sup>1</sup>. The prevalence of dry eye ranges from 3.5%

to approximately 55%. Studies undertaken in the U.S estimate that over 3.2 million women and 1.6 million men aged over 50 years suffer from moderate to severe dryeye<sup>2</sup>.

In *Ayurveda* there are two diseases which exhibits the symptoms of Dry eyes *Krichronmeelana* and *shushkakshipaka*, but the latter is not explained by *Sushrutha* and most research have concluded Dry Eyes as

*Shushkakshipaka*. The probability could be that the condition *krichronmeelana* do not carry all the clinical features of Dry eyes and it is disorder of lid whereas *Shushkakshipaka* is a *Sarvaakshigata roga* where more than one structure of ocular surface is involved. On accumulating the clinical features of both the *Acharyas* most of the clinical features of *Shushkakshipaka* are seen in Dry eyes.

**CLASSIFICATION<sup>3</sup>**



Dry eye is classified mainly into two types

1. Aqueous deficient
2. Evaporative dry eye.

**1. Aqueous Deficient dry eye-** has two major groupings Sjogren's syndrome dry eye and non-Sjogren's syndrome dry eye. Tear deficient dry eye is caused by either a failure in transporting lacrimal fluid to the conjunctival sac (resulting in a decreased amount of tears in the conjunctival sac) or a disorder in lacrimal gland function

**2. Evaporative dry eye-** may be either intrinsic or extrinsic. Intrinsic refers to situations where the regulation of evaporative loss from the tear film is directly affected and extrinsic evaporative dry eye includes those etiologies that increase evaporation by their pathological effects on the ocular surface. Evaporative dry eye can be due to either intrinsic disease factors (affecting lid structures or dynamics) or it may be extrinsic, where ocular surface disease occurs due to some extrinsic factor. Intrinsic factors are further classified into oil deficient (due to meibomian gland disorders), lid related, blink rate related and surface change. Extrinsic factors include ocular surface disorders caused due to vitamin A deficiency, use of topical drugs and effects due to their preservatives, contact lens wear and ocular allergies.

**Etiological Factors:** Menopause, Aging, RA-associated with Sjogren's syndrome, exposure

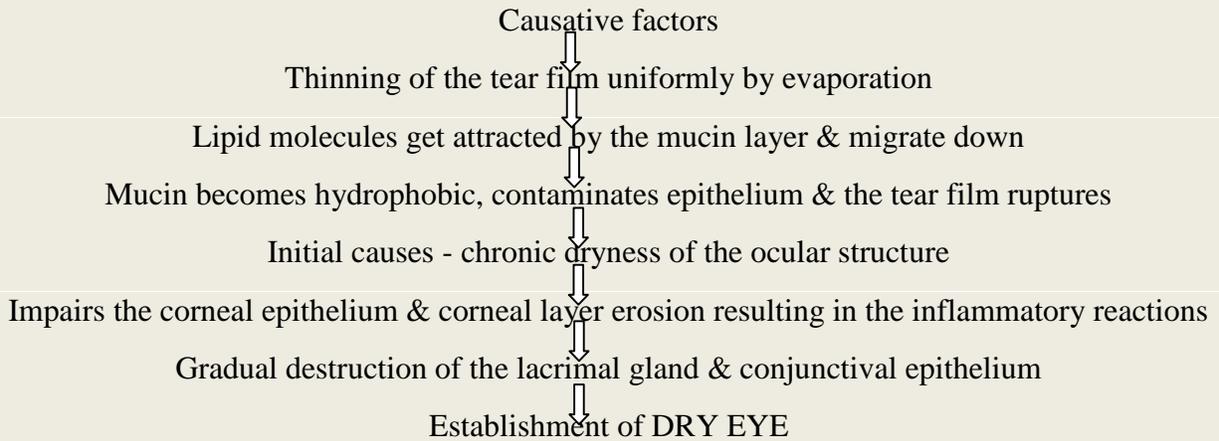
to wind, smoke, heat, allergens, low Humidity, indoor environment like Air conditioned rooms, reduction in blink rate due to Visual Display Terminal (VDT) use, Exposure to various other factors like food habits, daily regimen, seasonal regimen, if not followed properly, hot climates, certain systemic drugs like anti-histamines, antispasmodics, diuretics or steroids and Lifestyle changes<sup>4</sup>.

Specific *nidanas* for *Shushakakshipaka* has not been mentioned in *samhita*, so *samanya nidana* mentioned for *netra roga* can be taken here which is *Vata Pittakara*:

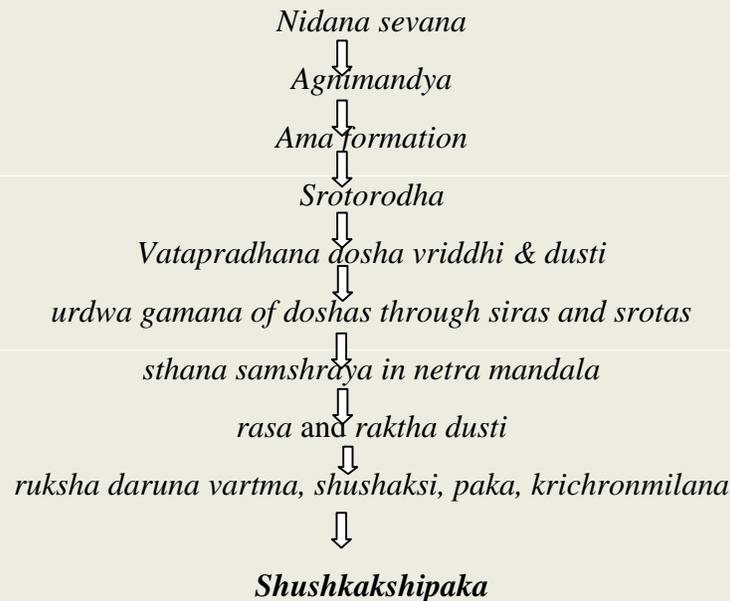
*Vegavinigraha* or suppression of natural urges, that causes *vata* vitiation- *adhovata*, *mala*, *mutra* and *nidra*, *Rajo dhoomanishavana* (inhalation of dust and smoke), *Sookshma nireekshanath*, *Atisheegravyanath*, *Atisheethasevanath*, *Vriddhavastha*. Intake of food predominantly *katu*, *Kashaya*, *tikta rasa*, *Kulatta* (Horsegram) *shuktha*, *amlaandarana*, *Swapnaviparyaya* (altered sleep pattern), *PrasaktaSamrodana* (continuous weeping), *Kopa* and *Shoka* (excessive anger and grief) *Asatmendriyarthasamyoga* especially *athiyoga* and *mithya yoga of chakshur indriya*.<sup>5</sup>

**Pathogenesis:** *Samprapti* in *Ayurveda* can be understood in two ways: Structural (aqueous deficient), Non-Structural (Evaporative)

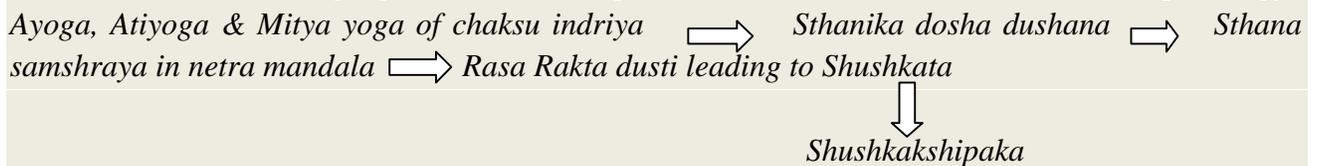
**FLOW CHART NO.1: Pathogenesis of Dry eye**



**FLOW CHART NO.2** *Samprapti* of *Shushkakshipaka* in the involvement of Structural pathology



**FLOW CHART-3:** *Samprapti* of *Shushkakshipaka* in the involvement of Non-structural pathology



**CLINICAL FEATURES:**

The most common clinical features are irritation, a foreign body sensation, burning,

excessive secretion, redness, photophobia, blurred vision, itching, pain and inability to tear in response to irritation or emotions.

There may be crusting of eyelids and sticking. This is commonly seen in the morning on waking up.

Acharyas have mentioned similar *lakshanas* like *Ruksha daruna vartma* and *akshi* (Dryness), *Garsha* (foreign body sensation), *Toda* (Pricking sensation), *Daha* (Burning sensation), *Raga* (redness )and *Krichronmilana nimilana* (Painful blinking)

## DIAGNOSIS<sup>6</sup>

The tests measure the following parameters: .

- Stability of the tear film (break-up time)
- Tear production (Schirmer's test, Fluorescein clearance and tear osmolarity)
- Ocular surface disease (corneal stains and impression cytology)

**Sadhya Asadhyata:** *Shushkakshipaka* is a *Sadhya Vyadhi*.

**MANAGEMENT OF DRYEYES:** The management in general consists of Drops and gels, Mucolytic agents, Punctal occlusion, Anti-inflammatory agents, Contact lenses. *Ayurvedic* treatment principles consist of *Seka*, *Bidalaka*, *Tarpana*, *Nasya* and *Brimhana*. Hence in the present study the *Daruharidradi seka* is taken up to validate its effect in recent origin cases.

## AIMS AND OBJECTIVES:

1. To evaluate the efficacy of *Daruharidradi seka* in *Shushkakshipaka* W.S.R. to Dry eye

## MATERIALS AND METHODS:

### SOURCE OF DATA

- **Literary source:** All classical *Ayurvedic* text books Contemporary text books and Paramedical books related to Dry

Eye, National and International symposiums, Conferences, Workshops, Journals and Websites to gather the information about the disease and the drug pertaining to the study.

- **Drug source:** The identified raw drugs required for *seka* was purchased from approved vendors. Post purchase the raw drugs were authenticated by the faculty of *Dravya Guna*, SKAMCH & RC, and BENGALURU under the guidance of connoisseurs. The coarse powder required for *seka* was prepared in *Rasa Shastra* and *Bhaishajya Kalpana* department of SKAMCH & RC under the guidance of connoisseurs.

- **Sample source:** Patients with clinical features of *shushkakshipaka* (Dry eye) coming under the inclusion criteria approaching the OPD and IPD of *Shalaky Tantra*, SKAMCH & RC, Bengaluru were selected for the study. The sample collection was initiated with post approval from the Institutional Ethical Committee.

## B. METHOD OF COLLECTION OF DATA

**STUDY DESIGN-** Single arm open label clinical study.

**SAMPLING TECHNIQUE:** The subjects who fulfilled the inclusion and exclusion criteria and complying with the informed consent (IC) were selected.

**SAMPLE SIZE: 20** Patients diagnosed as *Shushkakshipaka* (Dry Eyes) of either sex were subjected for the clinical study.

## DIAGNOSTIC CRITERIA

- Patients with *lakshanas* of *Shushkakshipaka*
- Patients with characteristic features of Dry Eye
- Schirmer's Test less than normal reading, i.e., below 15 mm on the strip's
- Tear Film Break up time, with appearance of Dry spots below normal time of 15 seconds

## INCLUSION CRITERIA

- Patients with *lakshanas* of *Shushkakshipaka*.
- Patients with signs and symptoms of Dry eye.
- Patients aged between 16 to 70 years.

## EXCLUSION CRITERIA

- Patients with *Abhighataja netra roga*.
- Patients with history of systemic disorders that may interfere with the course of the study.
- Congenital Alacrimia.

- Associated with any other inflammatory and infective ocular conditions

## C. INTERVENTION AND DURATION:

The study was intervened for a duration of 15 days which is divided into treatment phase wherein patients were subjected to *Daruharidradi seka*, once in a day, during day time for 7 days and follow up phase where one follow up was done on 8<sup>th</sup> day after completion of the treatment

## CLINICAL STUDY:

### A. Poorva Karma:

**1. General materials required and preparation of Medicine:** Stove, Cotton, Filter, Vessels, Seka patra

**2. Ingredients required for preparation of *Daruharidradi Seka*:** *Ksheera*, *Saindhava lavana*, *Haridra*, *Daruharidra*

Drug	Rasa	Guna	Virya	Vipaka	Chemical constituents	Actions
<i>Daruharidra</i>	Tikta Kashaya	Laghu Ruksha	<i>Ushna</i>	<i>Katu</i>	Barberine, Oxyberberine Berbamine, Armoline, karachine, Palmatine, oxycanthain	Antimicrobial, Anti- inflammatory, Anti trachoma, Local anasthetic, immuno modulator
<i>Haridra</i>	Tikta, <i>Katu</i>	Laghu, Ruksha	<i>Ushna</i>	<i>Katu</i>	Curcumin curcumenon epiprocurucumenol, eugenol, camphene, procurcumenol	Anti bacterial Anti-fungal, Anti inflammatory
<i>Saindhava</i>	Madhura Lavana	Snigda Laghu	Sheeta	Madhura	sodium chloride, Sodium bicarbonate, magnesium chloride, Calcium chloride,	Anti microbial
<i>Paya</i>	Madhura	Guru	<i>Ushna</i>	Madhura	Lactoferrin, lactoperoxidase, lysozyme	antimicrobial antibacterial inflammatory

**3. Method of preparation:** In a clean vessel 500 ml of *ksheera* and 20gms of *Daruharidra*

and *Haridra* each and 10gms of *saindhava lavana* was mixed with 2 litres of water. The

mixture was boiled on a low flame and reduced to 1/4 i.e., to 500ml. This mixture was filtered and used for *seka*.

**4. Preparation of patient:** Instruction about the procedure was explained to the patient.

Patient was made to lie down on supine position and eyes were cleaned with sterile cotton pads

**B. PRADHANA KARMA:** The required quantity of the prepared drug for *Seka* accordingly was taken in *seka patra* and was poured on the closed eyes from a height of 4

*angulas* in a thin and continuous stream for 8-10 minutes.

**C. PASCHAT KARMA:** After the completion of *Seka* eyes were cleaned with cotton and warm water and patients were advised to close their eyes and rest for few minutes.

**Assessment Criteria:** The clinical findings were noted in specially prepared case proforma and assessment was done

Day 1- Before treatment (BT)

Day 8- After treatment (AT) and

Day 15- At follow up (AF) 8 days after the completion of treatment

SUBJECTIVE PARAMETERS	OBJECTIVE PARAMETERS
<ul style="list-style-type: none"> <li>➤ Dryness (<i>Ruksha vartma Akshi</i>)</li> <li>➤ Foreign body sensation (<i>Garsha</i>)</li> <li>➤ Redness (<i>Raga</i>)</li> <li>➤ Pricking sensation of the eyes (<i>Toda</i>)</li> <li>➤ Burning sensation of the eyes (<i>Daha</i>)</li> <li>➤ Painful blinking of eyes (<i>Krichronmilana Krichronimilana</i>)</li> </ul>	<ul style="list-style-type: none"> <li>➤ Schirmer's Test</li> <li>➤ Tear film break up time</li> </ul>

**SCORING INDEX:** The parameters considered for the study were scored from 0-3 for all the parameters for the purpose of statistical analysis.

SCORE	Dryness of the Eyes, Foreign body sensation, Redness, Burning sensation of eyes, Pricking sensation of eyes, Painful blinking of Eyes	
0	Absence of symptom	
1	Occasional/episodic, occurs under environmental stress	
2	Frequent/episodic, with or without environmental stress	
3	Constant without environmental stress	
SCORE	Schirmer's Test	Tear film break up time Test
0	> 15mm	> 15sec's
1	10mm 15mm	10sec & 15sec's
2	5mm 10mm	5sec & 10sec's
3	< 5mm	< 5sec's

### OBSERVATIONS OF DEMOGRAPHIC DATA IN THE CLINICAL STUDY

Variables	Age Groups	Total						
		11-20	21-30	31-40	41-50	51-60	61-70	
Gender	Male	0 (0%)	0 (0%)	2 (10%)	2 (10%)	1 (5%)	0 (0%)	5 (25%)
	Female	1 (5%)	2 (10%)	4 (20%)	4 (20%)	2 (10%)	2 (10%)	15 (75%)
Socio Economic Status	Lower Class	0 (0%)	1 (5%)	2 (10%)	0 (0%)	2 (10%)	0 (0%)	5 (25%)
	Middle Class	0 (0%)	2 (10%)	3 (15%)	3 (15%)	2 (10%)	0 (0%)	10 (50%)
	Upper Class	0 (0%)	0 (0%)	1 (5%)	2 (10%)	2 (10%)	0 (0%)	5 (25%)
Educational Status	Primary	0 (0%)	0 (0%)	2 (10%)	1 (5%)	1 (5%)	0 (0%)	4 (20%)
	Secondary	0 (0%)	2 (10%)	1 (5%)	2 (10%)	1 (5%)	0 (0%)	6 (30%)
	Graduates	0 (0%)	5 (25%)	3 (15%)	1 (5%)	0 (0%)	0 (0%)	9 (45%)
	Post. Graduates	0 (0%)	0 (0%)	0 (0%)	1 (5%)	0 (0%)	0 (0%)	1 (5%)
Occupation	Field work	0 (0%)	3 (15%)	1 (5%)	0 (0%)	0 (0%)	0 (0%)	4 (20%)
	Desktop	0 (0%)	5 (25%)	2 (10%)	0 (0%)	0 (0%)	0 (0%)	7 (35%)
	Student	0 (0%)	2 (10%)	1 (5%)	0 (0%)	0 (0%)	0 (0%)	3 (15%)
	House wife	0 (0%)	0 (0%)	2 (10%)	1 (5%)	2 (10%)	1 (5%)	6 (30%)
Chronicity	< 6Months	0 (0%)	2 (10%)	2 (10%)	1 (5%)	0 (0%)	0 (0%)	5 (25%)
	>6 Months-<1 year	0 (0%)	1 (5%)	3 (15%)	2 (10%)	1 (5%)	1 (5%)	8 (40%)
	>1Year	0 (0%)	1 (5%)	2 (10%)	3 (15%)	1 (5%)	0 (0%)	7 (35%)

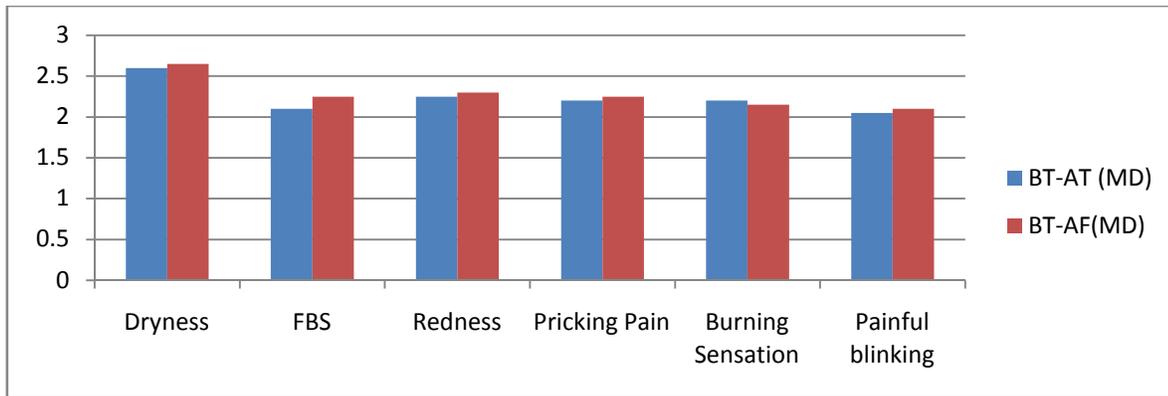
### RESULTS:

The parameters considered for the Clinical study were subjected to Student's paired 't' test to compare the Mean values within the groups.

On assessing the result highly significant differences were observed after treatment and at follow-up on all the parameters considered for the study.

SL. NO	Variables	n	BT-AT (Mean Diff)	BT-AF (Mean Diff)	SD	SE	't' Value	P value
1	Dryness	20	2.6	2.65	0.50	0.11	23.12	<0.001
2	Foreign body sensation	17	2.1	2.25	0.63	0.14	15.74	<0.001
3	Redness	16	2.25	2.3	0.65	0.14	15.64	<0.001
4	Pricking Pain	14	2.2	2.25	0.63	0.14	15.74	<0.001
5	Burning Sensation of eyes	18	2.2	2.15	0.48	0.10	19.63	<0.001
6	Painful Blinking of eye	20	2.05	2.1	0.68	0.15	13.67	<0.001
7	Schirmer's Test	20	2.3	2.2	0.41	0.09	23.96	<0.001
8	TBUT	20	2.2	2.3	0.73	0.16	17.99	<0.001

## Observation Chart



## DISCUSSION

**Demographic data:** In this study, more number of the patients i.e., 60% belonged to the age group of 31-50 yrs, 15% belonged to the age group of 51-60 yrs. Studies reports that there is a decrease in reflex secretion of tears with age, particularly after 40 years of age. The study registered 75% females which could be due to lack of estrogen receptors causing meibomian gland dysfunction and evaporative dry eye in transitional and post-menopausal women<sup>7</sup>, apart from other etiological factors in common. The study had more Hindus i.e., 85% which reflects the geographical representation. Though the married patients were 90% in the study, it could be a part of demographic data as no literatures have established the relation between marital status and dry eyes. About 75% patients were educated and they were more prone to etiological factors like long time usage of Computer screen, reduced blink rates, exposure to AC and polluted air which leads to the evaporation of tear film causing Dry Eyes. No reference regarding the relationship between socio-economic status and Dry eyes, thus nothing can be concluded with the

observation done on this fact where 35% belonged to the middle class and 40% belonged to lower class. In the present study 30% of the patients were working on desktops, 30% were house wives and 25% were working in field with physical labour. An indoor working environment, Low blink rates particularly in those workers using Visual Display Terminal (VDT) like computer screens, Air conditioned workplaces, and Low humidity, Poor air quality and pollution are the risk factors explained to cause dry eye<sup>8</sup>. Those in Physical labour expose to sunlight and pollution and among the females due to house hold exposure to allergens and heat through domestic gases are some of the attributing factors. More number of patients i.e., 60% was consuming Non vegetarian diet. These type of foods contains high carbohydrates which lacks in vitamin A and Omega 3 fatty acids which are the risk factors for dryeye. 50% of the patients were having disturbed sleep, 5% which leads to provocation of *vata* which causes *ruksha*, *vartma* and *netra*, *garsha* which are *pratyatma lakshanas* of *Shushkakshipaka*. Disturbed and delayed sleep creates a lack of lid closure for prolonged

period of time which makes the corneal surface dry and speckled like sand paper in morning due to lack of moisture.

**Aetiology:**

**AharajaNidana:** 70% patients were indulging in *Amla, ushna* and *tiksna ahara sevana*, 60% were having *ruksha ahara* and 45% were indulging in *Vishamashana* which leads to vitiation of *Vata* and *Pitta* the main *doshas* to cause Dry eyes.

**ViharajaNidana:** 35% were indulging in *mithya yoga* of *indriya*, 45% in *vega dharana*, 35% were exposed *sheeta vata sthana*, 35% were exposed to *rajo* and *dhuma* which are contributing factors for provocation of *Vata*.

**Clinical features:** In the clinical study, the entire patient's i.e. 100% of the patients had *Ruksha vartma/netra*, 75% of patients had *Garsha*, 60% of patients had *Toda*, 75% of patients had *raga*, 100% of patients had *Daha*, 85% had *krichronmilana nimilana*. *Ruksha Vartma Netra, Krichronmilana* and *nimilana* denotes the dominancy of *Vata* in pathogenesis. *Raga, Toda, Garsha, Daha lakshanas* are due to vitiation of *ushna, tikshna guna* of *pitta* along with the *laghu guna* of *vata*

Increase in *ruksha* and *khara guna* of *vata* along with the *tikshna guna* of *pitta*, results in *ruksha* and *daruna vartma* and *akshi, Toda* which in turn results in *garsha*. Due to increased *Vata* the *chala guna* of *vartma* will be affected resulting in *Krichronmilana nimilana*. The increase in *ushna, tikshna* and *sara guna* of *pitta*, leads to *abhisyandi raktavaha srotas* as *rakta* and *pitta* are *ashraya* and *ashrayi* and establishes *netra ragata* and *Daha*.

Decreased tear production either due to insufficiency or excessive tear evaporation follows on tear hyperosmolarity that leads to ocular damage and discomfort. Hyperosmolarity of tear film stimulates a setting in of inflammatory events in the epithelial surface cells involving the generation of inflammatory cytokines and MMPs over the ocular surface that involves both soluble and cellular mediators causing dryness of eyes. Due to this the moistness is lost leading to friction during closing and opening of eyes which is presented as painful blinking of the eyes and pricking sensation of the eyes. The inflammatory events lead to death of surface epithelial cells, including goblet cell loss which may be directly related to the effects of chronic inflammation which is perceived as redness and burning sensation of the eyes. Dryness also leads to the lipid contamination and mucins (particles and debris) to accumulate over the ocular surface which moves with each blink resulting in foreign body sensation and the friction due to this contributes as additional factor for inflammatory changes. Due to all these factors there causes irritation on ocular surface, an indicative of ocular surface damage in and possible damage to the ocular surface epithelium.

When tear production lowers to a certain point, the eyes can become dry and easily irritated and inflamed which can be objectively assessed with Schirmer's strip, which do not moisten and reading of the strip shows below normal limits. The Pre-corneal tear film is inherently unstable and blinking action of lids is necessary for its periodic

resurfacing. Any break in the integrity of the lid or its close opposition to the ocular surface can produce areas of dryness. The reduction in the function of glands leads to the reduction in formation and function of lipid layer which results in quicker evaporation of tears, leading to the formation of Dry spots on the corneal surface which is evaluated through tear film break-up time (TBUT)

Among the registered patients for the present clinical study 45% of the patients had photophobia and 35% of patients had blurriness of vision as associated complaints. Punctate epithelial erosions of the conjunctiva and cornea will result in photophobia. Transient blurriness of Vision is due to excessive, improper use of eyes leads to eye strain which in turn leads to transient blurriness of vision

**Mode of Action:** The *snigdha*, *prenana*, *brimhanaguna* and *Vatapittahara karma* of *ksheera* and *tridosahara guna* of *saindhava* helps to balance normalcy of *Vata* and *pitta*. The *vishyanda guna* of *saindhava* when used in combination facilitates cellular absorption and metabolism. The *pittahara* and *Vatahara* properties of *daruharidra* & *haridra* helps in relieving *ruksha*, *toda*, *raga*, and *daha*. The *ushna virya* of *Daruharidra*, *Haridra* helps to pacify the *Vata dosha* making way for *samprapti vighatana* and reliving *Krichronmilana nimilana*.

*Seka* being considered as *Mrudu Sweda* helps in *pachana of doshas* and balancing the functions of impaired *dhatwagni*, thereby by increasing the metabolic activity of the glands to enhance the formation of tear film. The drugs used in the *seka* comes in direct contact with cornea and conjunctiva through palpebral

aperture which are lipophilic in nature and paving for absorption. The procedure also helps in washing away the lipid contaminated mucin debris along with formation of tear film reducing *gharsha*. The duration of the contact time of *dravyas* of *seka* with *Vartma*, *Netra sandhi* and *siras* of *netra* increases the metabolic activity with the help of *Bhrajaka pitta*, removes *sroto sanga* and relieving the occlusions of glands. *Seka* also helps in mitigating *samsrushta pitta* as mentioned by *Acharya Charaka* and hence helps relieving the inflammation. *Seka* is mainly indicated in *amavastha* of *netrarogas* and *netra ragata* being, the procedure and the potency of the drugs helps in reliving this clinical feature. *Acharya Sushruta* says it is the *virya*, *Karma* and *Prabhava* of the drugs which acts in *Bahirparimarjana chikitsa*. By the quality of the drugs and the therapy *Pachana* and *Shamana* of *netra gata dosa* can be attained. Cow's milk contains proteins which possesses Muco-adhesive properties, resembling tear mucus glycoprotein and the lipid content in the milk maintains the longer lubrication of the ocular surface thereby relieving dryness, painful blinking of the eyes and foreign body sensation. *Saindhava* having hypertonic property maintains the corneal hydration. *Daruharidra* and *Haridra* are having wound healing property helps in healing epithelium of cornea and formation of tear film.

The presence of Peroxidase enzymes and immunoglobulin A in the milk, by its oxidative mechanism inhibits the release of prostaglandin and leukotrienes and thus acts as anti inflammatory. The bio active constituent Berberine present in *Daruharidra* also blocks

the release of cytokines and the Curcumin in *Haridra* inhibits the release of the pro-inflammatory cytokine TNF- $\alpha$ . Jatrorhizine in *daruharidra*, Curcumerone in *Haridra*, Lactoferrin in milk respectively acts as anti-inflammatory agents who inhibit the production of inflammatory mediators like Cytokines, T-cell activators, leukotrienes, matrix metalloproteinase. Thereby the combination of these drugs helps in reducing the symptom of redness and burning sensation and re-epithelisation of cornea, which is disturbed due to inflammatory response over the ocular surface. They also help in increasing the blood flow and reduce oxidative stress and Demethoxycurcumin in *Haridra* helps in increasing the functionality by acting as superoxide radical scavenger and thus improving the normal functions like stability of tear film, functions of the glands of eyelids which can be justified with relieving the pain on blinking of the eyes

The virtues of the properties of the drugs and the procedure which has helped in breaking the pathogenesis as explained for subjective parameters will gradually help in improving the readings on Schirmer's strip and tear film break-up time.

## CONCLUSION

Dry eyes a tear film disorder has a close resemblance with the clinical entity of *Shushkakshipaka*. Dry eye is the most common disease in the present days because of its recurrence, chronicity and lack of potential treatment in contemporary science. *Seka*, *Tarpana*, *Nasya*, *Anjana*, and *Sarpi pana* are the treatment modalities explained as

*vishesha chikitsa* for *shushkakshipaka*. *Seka* is one such procedure to combat the local tissue pathology by virtue of its attributes and mobilizes the toxins and eliminates from affected tissues. It is cost effective, Non vigorous procedure, easily adoptable at clinical level, no adverse effects and can be administered periodically to provide long term effect and avoid complications.

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