



Review Article

SEKA -A CURTAIN RAISER TO OCULAR THERAPY IN THE MANAGEMENT OF INFLAMMATORY DISEASES OF EYE

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ABSTRACT

Kriyakalpa- Topical Ocular Therapeutic procedures enlisted under *Bahirparimarjana Chikitsa* are boon to treat *Netra vikaras* in present day practice as it carry the advantages such as the structures directly, crossing certain barriers providing more time for bio-availability. *Acharya Sharangadhara* has also highlighted *Kriyakalpa* and also gave a clinical order of application of these procedures. He opined that *Netra Parisheka/Seka* (closed eye irrigation), *Ashchyotana* (Eye drops), *Pindi* (Poultice application), *Bidalaka* (application of medicated paste on lids), these four are applied in *Aamavastha* (inflammatory stage), where as *Tarpana* (Satiation), *Putapaka* (retention of medicinal decoction along with *Mamsa rasa*), *Anjana* (Collyrium/eye ointment) are indicated in *Nira amavastha* (chronic stage) of *Netra roga* (Eye diseases). These are the seven procedures in order of their clinical application. The importance of *Seka* (irrigation) - local ocular therapeutic and its measures in eye care is immense in to the present day in any inflammatory conditions as acute management due to its vast advantages, cost effect, availability of the drugs and procedure. In this area of Presentation a brief overview on *Seka*, its variants, Indications, Clinical applications and rationality of the drugs used which are commonly available and Probable mode of action will be convened to increase the confident level and make more ease to practice *Seka* in different inflammatory conditions as an acute management to achieve success clinically.

KEYWORDS: *Kriyakalpa, Seka, Netra dhara, Pariseka, Netrarogas, Irrigation.*

INTRODUCTION

Shalakya tantra is one of the eight branches of *Ayurveda* which deals with diseases above the clavicle, sense organs (Eye, Ear, Nose, Tongue) and their management. Among all the sense organs eye is said to be the most important and is stated by *Sushruta* "*Sarvendriyanam nayana pradhanam*"¹

A beautiful quote by Barbara Kingsolver "*What you lose in blindness is the space around you, the place where you are, and without that you might not exist, you could be nowhere at all.*" All these clearly indicates the importance of the Eye and henceforth every measure has to be put forth to protect the Eyesight by not neglecting even a simple sign or symptom.

In *Shalakya Tantra*, while dealing with the management of *Netra Rogas*, topical measures are

highlighted and given more prominence and are called as *Kriya Kalpas* (Topical Ocular Therapeutic procedures). It is a type of *Bahir Parimarjana chikitsa* with many advantages over *Antaha parimarjana Chikitsa*.

The term *Kriya kalpa* comprises of two words *Kriya* and *Kalpa* where *Kriya* means procedures used in treating the disease and *Kalpa* means procedure/ formulation. These *Kriyakalpas* (Topical Ocular Therapeutic procedures) have still remained a progressive phase of development and optimization since their inception of *Shalakya Tantra*. Our Seers have specifically designed these ocular therapeutics according to the stage and severity of the disease.

Table 1: Variants of *Kriyakalpas* according to different authors²⁻⁶

Authors	<i>Charaka Samhita</i>	<i>Sushruta Samhita</i>	<i>Ashtanga Sangraha</i>	<i>Sarangadhara Samhitha</i>	<i>Bhava prakasha</i>
References	<i>Chi. sth Ch.26</i>	<i>Ut.ta Ch.18</i>	<i>Su.sth Ch.32</i>	<i>Ut.kh Ch. 7</i>	<i>Netra Adhikara 63</i>
Total	3	5	5	7	7
<i>Aschyotana</i>	+	+	+	+	+
<i>Bidalaka</i>	+	-	-	+	+
<i>Seka</i>	-	+	+	+	+
<i>Anjana</i>	+	+	+	+	+
<i>Tarpana</i>	-	+	+	+	+
<i>Putapaka</i>	-	+	+	+	+
<i>Pindi</i>	-	-	-	+	+

The *Kriyakalpa* Procedure *Seka* is the foremost ocular therapeutic procedure explained by *Sharangadhara* alone and is also termed as *Netra Parisheka* (Ocular irrigation on closed eyes).

The etymology of *Seka* goes like *Seka-- sich + ghanch= sechanam* which means sprinkling or watering.⁷

It is indicated in acute condition of the diseases. It can be clearly defined as "Medicine poured on closed eyes (on closed eye lids) continuously from the height of 4 *Angulas*, for a specific time, according to *Doshas*.

In *Monier Williams*, it is mentioned that *Seka* means pouring out, effusion, sprinkling, moistening or watering.⁸

In other words *Seka* also means *Sechanam* (to sprinkle) in the form of *Sukshma dhara* (thin stream) on the lids and is called *Pariseka*. Hence *Seka* is also termed as *Netra Dhara*. *Seka* is mentioned among *Shashti upakrama's* as the *Bahir-parimarjana chikitsa* (External therapies) in *Shotha* (Swelling). The procedure is considered to be *Apatarpana* in nature; hence is a suitable procedure in *Aamavastha* of *Netra roga* for *Pachana* of *Doshas*.

Acharya Charaka says, *Drava sweda* is best in relieving the *Pitta samsrusta vyadhi* which is indirectly called as *Seka*.⁹

Table 2: Types of Seka Mentioned Samitas

TYPES	S.S	A.S	SH.S	B.P	Y.R
<i>Snehana</i>	+	+	+	+	+
<i>Ropana</i>	+	+	+	+	+
<i>Lekhana</i>	+	+	+	+	+

These specific forms having certain attributes that can be understood for different pathological conditions like *Snehana pariseka* for *Vataja netra rogas*, *Ropana pariseka* in *Pittaja* and *Raktaja Netra Roga sand Lekhana Pariseka* in *Kaphaja Netra Rogas*.

Procedure of Seka

Like any other Therapeutic procedure of *Ayurveda*, *Seka* also can be put under three operative

Table 3: Duration of procedure in terms of Matra Kala which are as follows

S.No	Seka Types	Sushruta	Yogratnakara	Sarangadhara	Bhava prakasha
1	<i>Snehana</i>	400	600	600	600
2	<i>Ropana</i>	600	400	400	400
3	<i>Lekhana</i>	200	300	300	300

Samyak yoga, Heena yoga and Atiyoga lakshanas of Seka: All the *Acharyas* have not mentioned any particular *Lakshanas* for *Seka*, but have insisted to follow the *Lakshanas* for *Tarpana* for *Seka* too.

Samyak yoga lakshanas of Seka

Sukha swapna (sound sleep), *Vyshadyam* (Clearness of eyes), *Avabhadatwam* (Blissful awakening), *Varna patavam* (Perfect colour vision /Clarity), *Nivruti* of *Vyadi* (Cure of disease).

Heena yoga lakshanas of Seka

Rukshata (dryness of eyes), *Avilatha* (Visual disturbance), *Adhika netra srava* (excessive tears),

procedures Viz: *Poorva Karma* (Pre-operative), *Pradhana Karma* (Operative) and *Paschat Karma* (Post-operative).

All the *Acharyas* have clearly mentioned that *Tarpana* and *Putapaka* are done in *Purvanha* and *Aparanha*. *Anjana* is done in *Purvaha* or *Aparanha*. *Aschyotana* and *Pariseka* are done according to *Doshic* Predominance. In *Vataja* conditions in *Purvanha*, in *Pittaja* conditions in *Madhyanha* and in *Kaphaja* predominance in *Aparanha*. However in cases of severity it can be started at anytime.

Poorva karma of Seka

Acharya Dalhana, has mentioned *Laghu bhojana* or *Upavasa*, *Abhojana* is also mentioned by some *Acharyas*. In case of *Aama avastha of Netra rogas (attributes of inflammatory changes)*, along with *Apatarpana*, *Dipana*, *Pachana* should be given and *Seka* should be started.

Pradhana Karma of Seka

The person is made to lie on the *Droni*, clean the face & eyes with cotton dipped in warm water, so that no dust can enter into the eyes. The prescribed quantity of medicated decoctions is taken in *Kindi* and medicated drugs are poured on the closed eyes from a height of 4 *Angulas* in a thin and continuous stream for prescribed time.

Duration of the procedure (Dharana Kala or Matra kala):

Acharya Sushruta explicitly mentions duration of *Seka (Dharana kala of Seka)* to be twice to that of *Putapaka dharana kala* or till the *Roga lakshanas* (signs and Symptoms) of the disease are relieved like pain, swelling, redness, discharge or till the aggravated *Doshas* are pacified.

Acharya Chakradatta, *Yogaratanakara*, clearly portrays *Shad ama pachanani viz: Swedana* (Fomentation), *Pralepa* (Medicated application), *Tikta Anna* (Bitter diet), *Netra Seka* (Irrigation on closed eyelids) *Dina chatushtayam* (waiting period of 4 days) and *Langhana* (Fasting for four days).^{10,11}

Aashama rupa darshana (intolerance to light), *Vyadhivridhdhi* (Worsening of the disease).

Atiyoga lakshanas of Seka

Netra guruta (Heaviness of eyes), *Netra avilatha* (Visual disturbances), *Ati snigdhatta* (oiliness of eyes), *Netra asru* (watering of the eyes), *Netra kandu* (Itching sensation of the eyes), *Netropa dehavat* (stickiness due to excessive discharge).

Paschat karma of Seka: Cleaning of eyes with soft cotton cloth and rest to the eyes.

Table 4: Some of the important indications and preparations used for Seka¹²⁻¹⁸

Sushruta samhita		
	Indication	Yogas
1.	<i>Kumbika</i>	➤ <i>Kwatha</i> of <i>Yasti, Dathri</i> and <i>Patola</i>
2.	<i>Atiyoga</i> of <i>Lekhana</i>	➤ <i>Striksheera</i> or <i>Chagalaksheera</i> ➤ <i>Kwatha</i> of <i>Musta</i> and <i>Jangala mamsa rasa</i> ➤ <i>Ksheera</i> with <i>Chandana</i> ➤ <i>Kwatha</i> of <i>Dhatri, Asmantha, Jambupatra</i>
3.	<i>Katina, Utanna pitika</i>	➤ <i>Musta</i> and <i>Jangala mamsa rasa seka</i>
4.	<i>Pitta, Raktotklista</i>	➤ <i>Ksheera</i> ➤ <i>Chandanakashaya</i>
5.	<i>Kukunaka</i>	➤ <i>Kwatha</i> of <i>Dhatri, Asmantha & Jambupatra</i>
6.	<i>Pakshmarodha</i>	➤ <i>Nyagrodhadi kashya</i> with <i>Ksheera</i> ➤ <i>Kwatha</i> prepared of <i>Lekhana dravyas</i>
7.	<i>Arma</i>	➤ <i>Kwatha</i> of <i>Lekhana dravyas</i>
8.	<i>Sirajala</i>	➤ <i>Kwatha</i> of <i>Utpala, Kakoli, Draksa, Yashti, Vidari</i> and <i>Sita</i> ➤ <i>Aja paya</i>
9.	<i>Shudha sukra</i>	➤ <i>Kwatha</i> of <i>Nisa</i> and <i>Sariva</i> ➤ <i>Kwatha</i> of <i>Lodhra, Patoladi dravyas</i>
10.	<i>Vataja abhysanda</i>	➤ <i>Eranda pallava</i> or <i>Mula</i> or <i>Twachiseka</i> ➤ <i>Aja paya</i> ➤ <i>Kantakari mula seka</i>
11.	<i>Pittaja & Raktaja Abhysanda</i> <i>Pitta vidagda drusti</i>	➤ <i>Erakabheda, Gaveduka, Durva, Pashanabheda, Rraktachanadana, Haridra, Utpala, Draksha, Kshaudra, Chandana, Yasti</i> should be kept a night in <i>Vyosita ksheera</i> & used for <i>Seka</i> . ➤ <i>Musta, Haridra, Madhuka, Priyangu, Siddharta, Rodra, Utpala, Sariva Kashaya</i>
12.	<i>Kaphaja abhysanda</i>	➤ <i>Kwatha</i> of <i>Tagara, Tiksnagandha, Nirgundi patra</i>
13.	<i>Shushkakshipaka</i>	➤ <i>Paya saindhava</i>
14.	<i>Pittaja timira</i>	➤ <i>Kwatha</i> of <i>Manjishta, Rajani, Laksha, Draksha, Madhuka, Utpala</i> and <i>Sita</i>
Astanga Hridaya		
	Indications	Yogas
1	<i>Kumbika</i>	➤ <i>Kwatha</i> of <i>Saindhava, Yashti, Dhatri & Patola</i>
2	<i>In Katina, Utanapidika of Vartmarogas</i>	➤ <i>Seka</i> is considered as <i>Paschat Karma</i> after <i>lekhana</i>
3.	<i>Pittotklista</i>	➤ <i>Ksheera, Chandana sadita seka</i>
4	<i>Kukunaka</i>	➤ <i>Kwatha</i> of <i>Dhatri, Asmanta</i> and <i>Jambupatra</i>
5.	<i>Kshatasukra</i>	➤ <i>Kwatha</i> of <i>Utpala, Kakoli, Draksha, Yashti, and Vidari</i> along with <i>Sita & Aja paya</i>
6.	<i>Shushkaksipaka</i>	➤ <i>Saindhava</i> and <i>Paya</i>
7.	<i>Shuddhasukra</i>	➤ <i>Kwatha</i> of <i>Lodhra</i> and <i>Patola</i> ➤ <i>Kwatha</i> of <i>Haridra, Yashti, Sariva, Ambasa</i>
8	<i>Heena chedana</i> of <i>Arma</i>	<i>Lekhana dravya seka</i>
9.	<i>Rakta Pittajit</i>	➤ <i>Kwatha</i> of <i>Manjista, Rajani, Laksha, Draksha, Madhuka, Utpala</i> along with <i>Sarkara</i>
10.	<i>Shulahara</i>	➤ <i>Sweta lodhra</i> fried in <i>Ghrta</i> & powdered and should be tied in <i>Vastra</i> , then done <i>Mardana</i> in <i>Jala</i> & used for <i>Seka</i>
Astanga Sangrha		
	Indications	Yogas
1.	<i>Kumbika, Pittotklista</i>	➤ <i>Kwatha</i> of <i>Patola, Amalaki, and Madhuka</i> ➤ <i>Gritha</i> ➤ <i>Ksheera sadhita chandana</i>
2.	<i>Pothaki</i>	➤ <i>Kwatha</i> of <i>Kadhirasara, Vasa, Shigrupatra,</i> ➤ <i>Kwatha</i> of <i>Triphala, Madhuka, Dwi haridra</i> ➤ <i>Kwatha</i> of <i>Musta, Sarkara, Kapitapatra & Ambu</i>
3.	<i>Utsangini, Anjananamika</i>	➤ <i>Kwatha</i> of <i>Haridra, Madhuka, Patola, Lodhra</i> with <i>Kshudra</i>
4.	<i>Lekhana in Bala</i>	➤ <i>Yashti</i> with <i>Guda, Madhu</i> ➤ <i>Kwatha</i> of <i>Syreyaka, Karpasi, Malathipatra</i>
5.	<i>Vedana of vrana</i>	➤ <i>Vatadi Kashaya</i> along with <i>Ksheera</i>
6.	<i>Atilekhana</i>	➤ <i>Dadimastu</i> in all but only ➤ <i>Kashaya</i> of <i>Musta</i> in <i>Jangala mamsa sevana</i> persons

7.	Vedanagham, Daha & Raga	➤ Kashaya of Lodhra, Darvi, Madhuka, Prapoundarika along with Madhu ➤ Sarkara, Streestanya
8.	Pittaja abhisyanda	➤ Kwatha of Darvi, Laksha, Utpala, Draksha, Manjishta, Madhuka, Katvadwaya
9.	Kaphajaabhisyanda	➤ Kwatha of Triphala, Lodhra, Shunti, Vasa, and Nimba
10.	Vatajaabhisyanda	➤ Kwatha of Eranda, Bhruhat Shigru, Panchamoola with Madhu
11.	Sarvajaabhisyanda	➤ Kwatha of Tuttha, Trikatu, Amalaki, Lodhra, Yashti with Kanjhi
Yogaratanakara		
	Indications	Yogas
1.	Kaphajaabhisyanda	➤ Kwatha of Nimba, Arka and Lodhra with Ghritha and Ksheera
2.	Raktaabhisyanda	➤ Kwatha of Triphala, Lodhra, Yashti, Sita and Musta
	Vatajaabhisyanda	➤ Erandatwak/Patra/Mula with Paya
3.	All types of shukra	➤ Kwatha of Dhatriphala, Nimba, Kapitapatra, Yashti, Lodhra, Tila and Khadira
4.	Ajaka	➤ Vataharaghritha for Seka
5.	Aksipakatyaya	➤ Ervaraubija, Pundarika with milk
6.	Sarvanetrasula	➤ Kwatha of Prapoundarika, Yasti, Darvi, Lodra, Chandana, Erandamula ➤ SwetaLodhra, Ghritha, Makshika, Tuttha, Tapy, Pippalichurna
7.	Shuhaksipaka	➤ Paya and Saindhava ➤ Kseerapaka of Rajani, Daru, Saindhava and Paya
Gada Nigraha		
	Indications	Yogas
1.	Vatajaakshiroga	➤ Erandapallava/ Moola/ Twach with Chagapaya ➤ Kantakarimulakashaya
2.	Pittajaakshiroga	➤ Kwatha of Prapoundarika, Yashti, Nisamalaka, Padmaka with Madhu
3.	Shophya	➤ Kseerapaka of Draksha, Madhuka, Manjishta, Jivaniand paya
4.	Raktajaabhisyanda	➤ Lodhra, Triphala, Yashti Sita, Musta and Seethaambu
5.	Shukra, Aksipakatyaya	➤ Kwatha of Datriphala, Nimba, Kapita, Yashti, Lodhra, Tila and Khadira ➤ Nagakeshara with Jala ➤ Shyamakakwatha ➤ Pundarika, Chagaksheera
6.	Sarva Netra roga	➤ Shigrupatraswarasaseka ➤ Kwatha of Prapoundarika, Yasti, Darvi, Lodra, Chandana, Eranda & jala ➤ Kashaya of Darvi & jala
7.	Sarvanetrasula	➤ Sweta lodra fried in Ghrita, powdered & triturated in Ushnajala & Seka is done
8.	Shuktika	➤ Sarpi
Baishyaja Ratnavalli		
	Indications	Yogas
1.	Abhisyanda	➤ Kwatha of Dhatriphalaniryasa, Shigrupatra rasa, Madhu and Saindhava ➤ Shigrupatra rasa with honey. ➤ Kwatha of Erandapallava, Kantakarimoola and Aja dugdha ➤ Kwatha of Prapoundarika, Yashti, Nisamalaka, Padmaka
2.	Raktaja Abhisyanda	➤ Lodhra, Triphala, Yashti, Sarkara, Badra, Mustaka with Seetaambu
Vangasena		
11.	Pittajanetraroga	➤ Kwatha of Chandana, Arishta, Patrani, Yashti, Darvi, and Saindhava ➤ Kwatha of Darvi, Draksha, Chandana and Utpala ➤ Streestanya, Sarkara & Madhu ➤ Kwatha of Padma patram, Yashti, Haridra
12.	Raktaja Abhisyanda	➤ Lodhra, Triphala, Yashti, Sarkara, Badra, Mustaka with Seetaambu ➤ Kwatha of Laksha, Madhuka, Manjista, Lodhra, Sariva and Prapoundarika ➤ Kwatha of Nilotpala, Kantakari, Yashti, Musta, Lodhra and Padmaka with Ghrita ➤ Kwatha of Kaseruka and Madhuka with Aja dughda or Ghrita ➤ Kwatha of Mrunala, Chandana, Usira, Padmaka, Utpala and Yashti

Rationality of the Drugs Commonly Used in Seka: ¹⁹⁻²¹

➤ **Triphala:** Triphala with its metabolic stimulant action break the Abhisyandatva of the Srotas by its properties. Triphala contains vitamin A, C, beta sitosterol, Glycine, Cystinne, Glutathiamine which all helps in reformation of cells and Tear film. Also acts as

Anti-inflammatory, Anti-bacterial. Tannin - acts as antimicrobial

➤ **Shatavari:** Rich in Thiamine, Vitamin -A, C and B6 and glutathione makes the drug antioxidant & maintains normal structure of cells.

- **Daruharidra:** A principal constituent Berberine possess anti-oxidant property. Karachine (Alkaloid) and Zinc present in the drug acts as visual enhancer, also acts as Anti-inflammatory when topically instilled in Anterior uveitis and also possesses Anti-bacterial properties.
- **Eranda:** Contains Ricinoleic acid, Oleic acid, Linoleic acid & Stearic acid and are Shown to be effective in preventing the growth of number of species like Viruses and Bacterias.
- **Yastimadhu:** *Yashti* contains flavonoids which acts as anioxidant, It also contains a Terpenoid, Anti-inflammatory and also acts on ciliary muscles inhibiting the succession of myopia.
- **Lodhra:** Chemical constituents of *Lodhra* include triterpenes like Betulin, Betulic acid, Flavonoids, Tannins which strengthen the capillaries & promote adequate nutrition.
- **Rakta chandana:** Acts as anti-oxidant which contains flavonoids, anthocyanins, & phenolic compounds & helps in maintaining vision. Anthocyanins inhibit collagen destruction, helps in increasing blood circulation, reduces pain & relives spasm of the ciliary muscles.
- **Saindhava:** is considered as the best salt due to its *Chakshushya guna*. Before the advent of tear supplements, 6% aqueous solution of NaCl was used for irrigation in dry eyes due to its hypertonic & hyperosmolar property, it entraps water & maintains normal hydration of corneal surface for a longer duration.
- **Vasa:** It has a muscle relaxing property, thrombolytic action and certain chemical constituents has ability to enter posterior segment of eye. By its *Sheeta Virya & Kashaya rasa* it also does *Rakta sthambana* and their by relieves congestion.
- **Nimba:** The presence of Catechins, Quinines by enhancing phagocytosis acts as immune-modulator and their by preventing the invasion of organisms. Bitter principle Nimbodin is effective in reducing blood glucose levels, also the aqueous extract of leaves not only reduce fasting blood glucose level but also improves lipid profile & reverses the Diabetic retinopathy.
- **Draksha:** Fruits contains Tartaric, Malic acids, Sugar, Pectin, Tannin, Flavone, Glycosides which all acts as anti-inflammatory. Anthocyanines reduces capillary permeability.
- **Haridra:** Contains bitasitosterol which helps in reduces chronic inflammations. Vitamin C and E helps in proper functioning of formative cells.
- **Shigru:** Leaves contains heavy Vit.A which helps in formation of retinal cells, Arginine content of *Shigru* helps in repairing damaged tissues, Contains betacarotene, Vitamin A which helps in proper functioning of photoreceptors. Also contains Glycine, Cysteine, Glutamic acid which acts as Anti-oxidant, Promotes cell formation & acts as Anti-inflammatory. Tyrosine helps in transmitting neural impulses.
- **Guduchi:** Contains beta Sitosterol which helps in reducing chronic inflammation. Commonly used in Myopia, Episcleritis & Ptyergium.
- **Kseera:** Milk has several antimicrobial activities. Lactoferrin, lactoperoxidase, lysozyme, and possibly N-acetyl-β-D-glucosaminidase are involved in protecting against bacterial growth. Lactoferrin has biological functions like antibacterial and anti-inflammatory activities. Peroxidase enzymes of Lacto peroxidase can kill bacteria by oxidative mechanisms. It has been identified as an antimicrobial agent in milk and has proven to be both bactericidal and bacteriostatic to a wide variety of microorganisms. It is used as antibacterial agents and also in cosmetics, ophthalmic solutions. The Lysozyme possesses antibacterial activity against a number of bacteria. This enzyme usually functions in association with lactoferrin or immunoglobulin A. Lysozyme's ability to limit the migration of neutrophils to damaged tissue means that it might be used as an anti-inflammatory agent.

Mode of action of Seka (Karmukatha)

For the procedure of Seka procedure *kashaya*, *Ksheera* or *Ghritha* are used. It is the *Virya*, *Karma* and *Prabhava* of the drugs which acts, when comes in to contact with the Skin of the eyelids (*Netra vartma*), *Netra sandhi* and *Siras* of *Netra*. By these quality of the drugs *Pachana* and *Shamana* of *Netra gata dosa* can be attained, as *Seka* is mainly indicated in *Amavastha* of *Netra rogas* along with other measures depicted by *Chakradatta*. Certain Basic principles of Pharmacology have necessitated to understand the mode of action of *Seka* which are:²³

Routes of administration of drugs: There are several methods of achieving therapeutic drug concentrations within the eye and its surrounding structures. By far the most common is topical administration to achieve higher absorption rate and contact time and *Seka* is one such procedure.

Compliance: When drugs are administered systemically, many of the drugs can't cross the blood aqueous, blood vitreous & blood retinal barrier. This may be the reason more formulations on different *Kriyakalpa* are emphasized in our classics. Practically following the procedure appropriately after analyzing and optimizing, proper explanation to the patient about the procedure along with *Pathya* to be followed helps to reduce non-compliances.

Absorption: Main barriers for drug absorption directly over the Eyes are:

- Principally Corneal epithelium which is lipophilic and Stroma which is hydrophilic and the drugs used in this procedure are *Sneha's* in the form of *Ghritha* or *Kashaya*. when they are mixed with *Sneha's* or when they use *Kashyas* alone one or the other drug contains an oil constituent which can be justified for *Sneha* and act as lipidophilic which is must to act (Eg: Liquorice in *Yashtimadhu*, Ricinoleic acid in *Ernada* and Arginine in *Shigru*).

- Absorption through Conjunctiva also occurs when the drug is hydrophilic. *Seka* in any form has this media and accomplishes the criteria of hydrophilic.
- Agents that reduce the surface tension increase the corneal wetting and therefore present more drug for absorption. *Seka* performed on closed Eyes definitely reduces the surface tension so that corneal wetting is increased. This could be the prudence that our *Acharyas* have told to perform the procedure on closed Eyes.
- Small quantity of the drug which has high concentration is sufficient in the form of thin stream to provide more drug delivery to cornea. Normal tear volume restores drug for 2-3 min after instillation. When irrigation is done on closed eye only small amount of the drug enters to ocular surface through fissure which is exactly required for the absorption from Cornea and this could be the reason at best justified why our authors have explained the procedure so.
- The lacrimation increases the dilution of the drug and reduces the potency. So procedure of *Seka* on closed eyes avoids irritation of ocular structures, thereby helps to maintain the concentration level of the drug for required time.

Disposal: The disposal rate is more as the procedure is pouring the medicine in thin stream over the closed eye. Though the disposal rate is very high it satisfies all the criteria required for absorption of the drug and validate its potential action.

Bioavailability: Acharya have specified different times for different types of *Seka*, which shows that bioavailability varies and it is more when compared to *Aschyotana*, *Pindi* or *Bidalaka*. The moderate drug eye contact is achieved from the duration specified (2-6 minute) and the procedure is done till the relief of symptoms.

Drug vehicles: *Seka* is the main form of aqueous solutions poured directly on the closed lids. The solutions used are mainly *Kashayas*, *Ksheera* and *Ghritha* which carry certain amount of hydrophilic and lipidophilic action to provide absorption through Cornea and Conjunctiva.

On Summarizing duration of contact, Temperature, Quantity & Quality of the drugs used in our Science plays an important role in relieving the signs and symptoms of a disease.

- ♣ Duration of contact time of *Dravyas* of *Seka* with *Vartma* increases the *Rakta sanchara* in *Netra siras* and removes *Sroto sanga*.
- ♣ As *Acharya Sushruta* says it is the *Virya* of the drug which acts in *Bahirparimarjana Chikitsa*, the *Virya* (Potency) of the drugs when comes in contact with *Bhrajaka pitta* present in the skin of the eyelids undergoes *Paka* to manifest its actions, also some amount of the drug gets absorbed through the hair follicles of Eye lashes.
- ♣ When the drug comes in contact with the ocular surface it will be the turn of Cornea and Conjunctiva to respond.
- ♣ Cornea also determines the intra-ocular penetration of the drugs used in *Kriyakalpa*. The corneal layer stroma

allows rapid passage of the drug through endothelium into anterior chamber. The factors determines the better penetrations of the drugs through the cornea are Solubility of drugs in both water and fats, Pro drug forms and Wetting agent and all these are achieved by the procedure *Seka* and the drugs used in it.

- ♣ Thus *Seka* can be used in many of the disorders of the Eye pertaining to Anterior Segment.
- ♣ Speaking about the sagacity of the drugs used in *Seka* they modify the local tissue pathology by virtue (desirable quality) of its attributes and mobilize the toxins and are eliminated from the affected tissue.
- ♣ Practically *Seka* is more suggested to manage *Amavastha* i.e., inflammatory conditions which can be specified in particular as majority of inflammatory diseases of the Eye be infectious or allergic will have any of the clinical features like *Netra Raga* (Redness), *Gharsha* (Gritty feeling), *Toda* (Pricking Sensation), *Shula* (Pain) and *Srava* (Discharge). Apart it is also helpful in other conditions like Dry Eyes due to where pathogenesis lies in glands of Eyelids and pre-corneal surface.

CONCLUSION

Kriyakalpa has several advantages over oral administration. The affected tissue are targeted directly than from the systemic absorption and always give quick results. They can be selected depending upon stage and severity of diseases so that tissue contact time of drug can be reduced and achieve higher bioavailability. *Seka* is one such procedure indicated in *Amavastha* which can be considered as inflammatory conditions of the eye though cannot be specify the disorders. Main aim of *Seka* is to attain an effective absorption at site of action for sufficient period of time to elicit response. This is one of the method of achieving therapeutic drug concentration within the eye and surrounding structures and can also be considered as first line of treatment in inflammatory changes within the eye and adnexa. Various drugs can be selected according to stage and type of eye diseases and can combat the pathologies of those inflammatory changes which are mainly dependent on Antibiotic & Steroid therapies for long run and yet recurrences rate are more.

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