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Over all Review on *Netra Kriyakalpa*

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ABSTRACT

Ayurveda is an ancient medical science gifted from old ancient sages. It is not only a system of medicine in the sense of curing disease. It is also a way of life that teaches us how to maintain and protect health. Shalaky Tantra is a branch of *Ashtanga* Ayurveda which deals with study of diseases which occurs above clavicle and treatment. Our eyes are the most important organs in *Urdhwa Jatrugatasthana*. We must protect and take loving care of these delicate organs. *Kriyakalpa* is main therapeutic process for netraroga which is described in *Sushruta Samhita Uttaratantra* chapter 18, Vagbhata in *Sutrasthana*, Caraka in *Chikitsasthana*, Sharangdhar *Samhita* Uttara 13, Chakradatta chapter 76. Different types of *Kriyakalpa*, their indications, classifications, probable mode of action and its importance in *Netraroga* will be discussed in present review article.

Key words: Ayurveda, Shalaky Tantra, Netra Roga, Kriya Kalpa.

INTRODUCTION

Shalaky Tantra is a branch of *Astanga* Ayurveda which deals with study of eye, ear, nose, mouth, head and throat diseases and their treatment.^[1] The importance of *Netra* in all sense organs is mentioned in Ayurveda by “*Sarvendriyanam Madhye Nayanasya Pradhanatavata*”.^[2] *Shalaky Tantra* is one among 8 specialties of *Astanga* Ayurveda, which deals with the diseases occurring above the clavicle (*Urdhwajatrugata Sthana*).^[3] So it mainly deals with the sense organs; diseases affecting them and their management. In Ayurvedic *Samhitas*, the local treatment procedures of *Netra* are explained in the name of *Netra Kriyakalpa*. The word *Kriya* means therapeutic action and *Kalpa* means specific

formulations. *Kriyakalpa* is a *Bahiparimarjana Chikitsa* and has several advantages over oral administration. The theoretical review of the *Kriyakalpa* is explained as follows;

Kriyakalpa

Kriyakalpa are the therapeutic procedures indicated in various ocular conditions. The word *Kriyakalpa* is made up of two words *Kriya* and *Kalpa*. *Kriya* means therapeutic action, *Kalpana* means specific formulations, *Tarpana Putapakadi* ocular therapeutic procedure done with the help of specific formulations.^[4]

Classification

According to *Sushruta* there are 5 types,^[5]

1. *Tarpana*
2. *Putapaka*
3. *Seka*
4. *Ascyotana*
5. *Anjana*

According to *Charaka* there are 3 types.^[6]

1. *Bidalaka*
2. *Ascyotana*
3. *Anjana*

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According to *Sharangdhara* there are 7 types.^[7]

1. *Seka*
2. *Ascyotana*
3. *Pindi*
4. *Vdalaka*
5. *Tarpana*
6. *Putapaka*
7. *Anjana*

Kriyakalpa theatre

Kriyakalpa theatre should have proper ventilation, but devoid of excessively blowing wind, sun rays or dust.^[8] There should be curtains (*Javanika*) of dark colours like blue or yellow.^[9] It should be equipped with materials and medicaments for treatment and to manage complications (like *Mithyayoga*, *Atiyoga* or *Hinayoga*)

Preferred time

For *Tarpana* and *Putapaka*^[8]

Morning and evening are generally suitable.

For *Ascyotana* and *Seka*^[8]

Based on vitiated *Dosha*, done as follows:

- *Kaphaja Roga* : Morning
- *Pittaja Roga* : Noon
- *Vataja Roga* : Evening
- Anytime : when the pain gets aggravated

For *Anjana*^[7]

Morning and evening

Purvakarma^[8]

Kriyakalpa should be done after systemic cleansing of the body and head.

Duration^[7]

Each *Kriyakalpa* is done for a specified time. This time is measured in terms of *Matrakala*.

It is the time taken to,

- Touch the knee joint with tip of the finger
- Open and close the eye (blinking)
- Snapping the finger
- Utter a long vowel

(One hundred *Matrakala* is nearly 32 seconds)

Mode of action^[8]

The medicines are absorbed through *Akshikoshha* (the eye lid and orbit), *Sandhi* (the junctional areas), *Sira* (the blood vessels), *Sringataka Marma* (a vital point), *Ghrana* (the nasal region), *Asya* (oral cavity), *Srotas* (minute channels) and reach the upper region. This absorption of medicine will expel vitiated *Doshas*.

Tarpana

Tarpana is the local procedure of application of *Sneha Dravyas* like *Ghrita* preparations through a specially prepared border over the eye. It is also called as *Netrabasti*, gives *Trupti* (satisfaction)^[7] to the eye. And indicated in visual disturbances, dry eye conditions, allergic conditions, difficulty in the movement of eye ball and eye lids, diseases of *Shukla*, *Krisnamandala* and *Sarvaksi*,^[10] diseases due to injuries. It is contraindicated in very hot, very cold, cloudy weather, general weakness,^[8] associated with *Aamalaksanas* (acute manifestation of eye diseases).^[10] Retention time of *Tarpana* has also been mentioned in classics on the basis of *Dosha* and *Adhistana* like 1000 *Matrakala* in *Vataja Netra Roga*, 600 or 800 in *Pittaja*, 500 or 600 in *Kaphaja*. 100 or 300 in *Vartmagataroga*, 300 in *Sandhigata*, 500 or 600 in *Shuklagata*, 600 or 700 in *Krisnagata*, 700 in *Dristigata* and 1000 *Matrakala* in *Sarvagata Netra Roga*.^[8]

Mode of action

In this process the medicated ghee is made to stand over the eye for a specific time which is in the form of suspension. So its particles do not leave the eye and contact time is more and more drugs are absorbed. It will cross corneal epithelium barrier easily due to its lipophilic property.

Putapaka

The procedure of *Putapaka* is similar to *Tarpana*, but the ingredients, preparation of medicine and durations are different. It can be done after *Tarpana* or independently. Indications and contraindications of *Tarpana* are also applicable to *Putapaka*. There are 3 types of *Putapaka* mentioned in classics like *Snehana*, *Lekhana* and *Ropana*,^[8] but *Vagbhata* has mentioned *Prasadana*^[9] in the place of *Ropana*. Retention time of *Putapaka* is 100 *Matrakala* in *Lekhana*, 200 in *Snehana*, 300 in *Ropana Putapaka*.^[8]

Mode of action- Procedure is same as tarpana but medicine preparation is different as swarasa is extracted by put pakavidhi. Contact time is same as tarpana but absorption is more than tarpana because it is a suspension of fat and water soluble contents so having both lipophilic and hydrophilic property to penetrate cornea.

Pariseka^[7]

Pariseka is the procedure of pouring the liquid medicines slowly to open eye from a height of four *Angula* and indicated in acute conditions. There are 3 types of *Seka* mentioned in our classics like *Snehanapariseka* which is indicated in *Vatajanetraroga* and 400 *Matrakala* duration, *Lekhanapariseka* indicated in *Kaphajanetraroga* and 200 *Matrakala*, *Ropanapariseka* indicated in *Pitta* and *Raktajanetraroga* and 600 *Matrakala* duration.

Mode of action

In this process medicine is poured on closed eye continuously from four inches height for specific time according to *Dosha*. The medicine is absorbed through the skin of eye lids. The active principle is aqueous extract so tissue contact time is very less as it get diluted with tears and drained to naso lacrimal duct.

Aschotana

Instillation of few drops of medicines to the open eye from a height of two *Angula* (inches) is called as *Aschotana*.^[7] It is the first line of treatment in eye diseases and it should be done on the fourth day of disease manifestation or after *Amalaksanas* are

settled down. When *Doshas* are not severely vitiated and the disease is in the early stage, it is beneficial. There are 3 types of *Ascyotana* and quantity mentioned in classics like *Snehana Ascyotana* and 10 drops, *Lekhana* 8 drops, *Ropana* 12 drops.^[8]

Mode of action

Same as like *Seka*.

Anjana

Anjana is a procedure of applying medicinal pastes or powders to the inner side of lower lid from inner canthus to outer canthus or vice versa, either by fingertip or with an applicator (*Anjana Shalaka*). It is indicated when *Doshas* are fully manifested and are located in the eye.^[8] There are 3 types of *Anjana* mentioned in classics like *Lekhana*, *Ropana* and *Prasadana* but *Astanga Sangraha* added *Snehana* as 4th *Upakrama*.^[9] *Anjana* mainly have *Lekhana* properties.

Mode of action

Bioavailability is more due to more tissue contact time.

Pindi

Pindi is the procedure of medicated paste is kept in a fresh thin cloth applied on eye. It is the modification of *Vidalaka*. It is also called as *Avaguntana*.^[11] It is useful in the early stages of all eye diseases in general and *Abhisyanda* in particular.

Mode of action

Medicine is absorbed through skin of eye lid and due to heat of poultics local temperature is increased resulting in local vasodilatation.

Vidalaka

Vidalaka is the application of medicated paste to the outer surface of the eye lids except at eye lashes.^[7] It is indicated in *Daha*, *Upadeha*, *Asru*, *Sopha*, *Raga*, *Toda*, *Bheda*, *Kandu*, *Gharsa*.^[6] Thickness of the paste in *Bidalaka* is similar to that of *Mukhalepa* like *Dosagna Vidalaka* is 4 *Angula*, *Visagna* is 2 *Angula*, *Varnya* is ½ *Angula*.^[7]

Mode of action

Medicine is absorbed through skin as in *Pindi* and *Seka*. Mechanical effect of pressure helps in reducing IOP by vasodilatation and aqueous drainage.

Ocular Pharmacology^[12]

Ocular pharmacotherapeutics can be delivered by four methods.

1. Topical instillation into conjunctival sac as in the form of drops, ointment, gel and ocuserts.
2. Peri ocular injection - includes subconjunctival, subtenon, retro bulbar and peri bulbar injection.
3. Intra ocular route - intracameral injection (into anterior chamber), intravitreal injection.
4. Systemic administration - in the form of antibiotics and steroids.
 - Eye drops are the simplest and more convenient method of topical application. It is instilled in two forms i.e. aqueous solution and aqueous suspension.
 - In solution drugs are totally dissolved but its quickly diluted by tears and drains into NLD. So tissue contact is less. In suspension tissue contact time is more than solution because the drug is presents as small particles and kept suspended in aqueous medium.
 - Ointments and gels increases bioavailability of drugs by increasing the tissue contact time and by preventing dilution and drainage of active ingredients.
 - Ocuserts form a system of drug delivery through membrane. These can be placed in upper or lower fornix for a week. The corneal epithelial tight junction provides mechanical and chemical barrier for the drug absorption. The lipophilic and hydrophilic substance can be effectively delivered. Permeability across the sclera depends on size and weight of molecules.

DISCUSSION

Kriyakalpas are the boon to Ayurvedic ophthalmology and forms the basis of ocular therapeutics in Ayurveda. Various ocular procedures done in *Kriyakalpa* has its own mode of action which helps in

treating eye disease. The aim of *Kriyakalpa* procedures are seems to be tissue oriented where the therapeutic concentration of the drug can be achieved by concentration of drug, tissue contact time, molecular weight of drug, absorption of drug, bio-availability of drug. In *Kriyakalpa*, various drugs can be selected as per vitiated dosa and types of diseases for the procedures. The procedures of medications are modulated to ensure maximum absorption of drug.

CONCLUSION

In this review article, information about *Netrakriyakalpa* has enlightened by definition, indication, contraindication, types, duration, dosage and mode of action. And it is being tried to correlate the Ayurvedic ocular therapeutics i.e. *Kriyakalpa* on the basis of modern pharmaco-therapeutics. The main aim of any pharmaco-therapeutics is to get the proper response of the drug by attaining the effective concentration at the site of action for sufficient period. In day-to-day practice all *Kriyakalpas* are found to be therapeutically effective. In the light of above fundamentals of modern pharmacology, all the Ayurvedic *Netra Kriyakalpas* are relevant as such.

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