KRIYAKALPA: A REVIEW ON AYURVEDIC OCULAR THERAPEUTICS

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ABSTRACT

Eyes are the most precious gift of the God to the living beings. “Saervendriyanam Nayanam Pradhanam” that means ‘eye’ is the most important sense organ among all the indriyas. If vision is lost merely everything is lost because a blind person though so rich cannot enjoy the beauty of the world.¹ Hence it is very essential to maintain the swasthya and treat the pathology of chakshu indriya. For this, very specific ocular therapeutics is explained in Ayurveda called kriyakalpa which is used to maintain the netra swasthya and cure the netra rogas. Kriyakalpa procedures are classified according to form of the drug, method of administrations, severity of disease and predominance of doshas. There is proper duration for kriyakalpa according to sthansamshraya of disease in different patalas, mandalas and sandhis. It is one of the bahiparimarjan chikitsa for netra rogas. Kriyakalpa is the basis of the ophthalmic disorders as Panchkarma is the basis of Kayachikitsa.²

KEYWORDS: Netra swasthya, Kriyakalpa, Ocular therapeutics, Netra chikitsa.
INTRODUCTION

Shalakya tantra is one among the eight specialities of Ashtang Ayurveda, which deals with Urdhjavatrugata vyadhis. In Ayurvedic samhitas, various local therapeutic procedures for netraroga has been described in the name of kriyakalpa. Kriyakalpa is made up of two words: ‘kriya’ means the special therapeutic procedures and ‘kalpa’ means formulations like swarasa, ghrita, kashaya etc. Eyes are the only organ in the body which receives separate treatment modality like Kriyakalpa as a Bahyaparimarjan Chikitsa. Panchakarma is the foundation for kayachikitsa, similarly netra kriyakalpas are the foundation for netrachikitsa. They are modulated to suit the structural peculiarities and different disease conditions of the eye. These local therapies are unique and each does their function in a different ways.

Benefits of kriyakalpa (topical administration) over oral administration of drugs in ocular disorders.

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Kriyakalpa (Topical administration)</th>
<th>Oral administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The medicines have direct action on the ocular tissues.</td>
<td>There will be no direct action on the ocular tissues.</td>
</tr>
<tr>
<td>2.</td>
<td>The medicine will bypass the systemic metabolism.</td>
<td>The medicines undergo systemic metabolism.</td>
</tr>
<tr>
<td>3.</td>
<td>The contact time between the tissue and the medicine can be monitored.</td>
<td>The tissue contact time of the drugs cannot be monitored.</td>
</tr>
<tr>
<td>4.</td>
<td>The medicines can reach the target tissue more easily because of the direct contact.</td>
<td>Difficulty to cross blood-aqueous, blood-vitreous and blood-retinal barriers to reach the target tissues.</td>
</tr>
<tr>
<td>5.</td>
<td>The bioavailability of drug is high.</td>
<td>The bioavailability of drug is comparatively less.</td>
</tr>
</tbody>
</table>

Thus high concentration of the drug can be achieved by applying medicine topically to the eye for a desired period. Cornea 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. Following factors determines the better penetrations of the drugs through the cornea.

1. Solubility of drugs in both water and fats.
2. Pro drug forms.
3. Wettting agent.

The intra-ocular penetration of systemically administered drugs is possible only if they are able to pass through blood-aqueous barrier. Low molecular weight and lipid solubility influences them.

Classification of Kriyakalpas:

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Acharyas</th>
<th>Types</th>
<th>Kriyakalpa procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Charaka$^5$</td>
<td>3</td>
<td>Bidalaka, Aschyotana &amp; Anjana</td>
</tr>
<tr>
<td>2.</td>
<td>Sushruta$^6$, Vagbhata (A.H.$^7$ &amp; A.S.$^8$)</td>
<td>4</td>
<td>Seka, Aschyotana, Tarpana, Putpaka, Anjana</td>
</tr>
<tr>
<td>3.</td>
<td>Saranghdhara$^9$, Chakradatta$^{10}$, Yoga Ratnakar$^{11}$</td>
<td>7</td>
<td>Seka, Aschyotana, Tarpana, Putpaka, Anjana, Pindi, Bidalaka</td>
</tr>
</tbody>
</table>

Procedure

These procedures are consisting of purvakarma, pradhankarma and paschatkarma.

1. Purvakarma: It includes proper shodhana of body and head by panchakarma like vaman, virechana, raktamokshana, basti and nasya as well as collection of all medications required for the procedure.

2. Pradhankarma: It includes actual procedure of kriyakalpa.

3. Paschatkarma: It includes pariharakaal and sansarjana karma.

Kriyakalpa Kaksha (theatre)

Kriyakalpa theatre should have proper ventilation but devoid of excessive blowing wind, sunrays and dust. There should be javanika (curtains) of pleasant colours like blue or green. It should be equipped with materials and medications for the treatment of atiyoga, mithyayoga and hinayoga.

Mode of action of these Kriyakalpas

The medicines are absorbed through akshikosha, eyelids, orbit, sandhi, sira, shringatakama marma, ghraha, asya, strotas and reach up to the target region which expels vitiated doshas.

1. TARPANA

It is a procedure in which medicated ghrita is kept over eyes for a specific period of time. It is also named as ‘Netra basti’. It gives nourishment to the eyes & cures Vata- Pitta predominant netra rogas. Beside ghrita, vasa, majja and ghrita manda are also used by special arrangement made around eyes with Mashapali or Tarpana goggle. The duration and matra kala to retain the medicine are as follows.
On the basis of Doshas | Duration (Sushruta) | On the basis of sthanaika Rogas
--- | --- | ---
Swastha | 500 matra | Sandhyagata | 300 matra
Kaphaja roga | 600 matra | Vartmagata | 100 matra
Pittaja roga | 800 matra | Shuklagata | 500 matra
Vataja roga | 1000 matra | Krishnagata | 700 matra

Indication: Timira, abhisyanda, adhimantha, arjuna, sabranasukra, sushakshipaka squint, eyelash falling, reduced tear, etc.

Contraindication: Cloudy day, tiredness, giddiness, excessive hot & cold climate, not suitable for nasya and snehapana.

Samyaka Lakshana: Sound sleep, pleasant awakening, symptoms reduced, clear vision and tolerance to bright light.

Atiyoga Lakshana: Eye heaviness, blurriness of vision, slinitness in eyes, itching, excess lacrimation, discharge aggravation of doshas and kaphajanya rogas.

Hinayoga lakshana: Dryness of eyes, blurriness of vision, excessive lacrimation, intolerance to light, aggravation of disease, vataja symptoms increased.

Chikitsa:
- For atiyoga: Dhuma, nasya, anjana and seka with snigdha dravyas.
- For hinayoga: Same procedures as above but with ruksa dravya

Tarpanayogya common drugs: Triphaladi ghrta, Patoladi ghrta, Shatavaryadi ghrta, Mahatriphaladi ghrta, Jivantyadi ghrta, Saptamrita ghrta, etc.

2. PUTAPAKA

Putapaka is one among kriyakalpa done after tarpana. The indications & procedure of Putapaka is like Tarpana but the medicine preparation of medicine, ingredients and duration are different. The materials used are 2 pala Mamsa (≈100gms), 1 pala Dravya (≈50gms) and 8 pala Drava (≈400ml) are used to prepare the medicine (swaras) by Putapaka Vidhi.13

Types and indication and duration of putapaka

<table>
<thead>
<tr>
<th>Types of Putapaka</th>
<th>Indication</th>
<th>Duration</th>
<th>Matrapakala</th>
</tr>
</thead>
<tbody>
<tr>
<td>Snehana Vaghbhatā15</td>
<td>Snehana</td>
<td>Vataja netra roga</td>
<td>1 day</td>
</tr>
<tr>
<td>Lekhana</td>
<td>Lekhana</td>
<td>Kaphaja netra roga</td>
<td>2 days</td>
</tr>
<tr>
<td>Ropana Prasadana</td>
<td>Pittsburgh &amp; Raktaja netra roga</td>
<td>3 days</td>
<td>300</td>
</tr>
</tbody>
</table>

Indication, contraindication and samyaka lakshana: same as Tarpana.

Atiyoga lakshana: Pain, oedema, nodular swelling, timira, muddy eyes, foreign body sensation, throbbing sensations, etc.

Hinayoga lakshana: Inflammation, excessive lacrimation, recurrence of symptoms and aggravation of Doshas.

Chikitsa: In hina & atiyoga- anjana, aschyotana and swedana are indicated based on vitiated Doshas.

Putapakayogya common drugs:
- Snehana: anupa mamsa, vasa, majja, meda & madhura ausadha
- Lekhana: Jangala mamsa, trikatu, lauha, tamra, shankha, praval, saindhava, etc.
- Ropana: Jangala mamsa, madhu, ghrita, tikta dravyas, etc.
- Prasadana: Madhura dravya, mrig pakshi yakrita, maja, vasa, stanya sadhita ghrita, etc.

3. SEKA

It is the procedure of pouring thin stream of medicines very slowly on the closed eyes from a height of four angulas. It is the purva karma of all kriyakalpas. It is also called as Pariseka.16

Types and duration of treatment by seka:17

<table>
<thead>
<tr>
<th>Seka types</th>
<th>Indications</th>
<th>Matra kala</th>
<th>Preferred time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Snehana</td>
<td>Vataja</td>
<td>400</td>
<td>Evening</td>
</tr>
<tr>
<td>Lekhan</td>
<td>Kaphaja</td>
<td>200</td>
<td>Morning</td>
</tr>
<tr>
<td>Ropana</td>
<td>Pittaja &amp; Raktaja</td>
<td>600</td>
<td>Afternoon</td>
</tr>
</tbody>
</table>

Indication: Pothaki, utasangini, anjanamika, pakshmaprodha, abhisyanda, timira, etc.

Contraindication: same as tarpana.
Samyaka lakshana: Symptoms reduced, getting normal eye colour & function.

Atiyyoga and hinayoga lakshana: same as tarpana.

Chikitsa: with swarasa, kashaya, ksheerapaka based on vitiated doshas.

Sekayogya common drugs:
- Vataja: Eranda panchanga with aja ksheera.
- Pittaja: Kashaya prepared from Shweta lodhra, yastimadhu, chantana, prapaundrika and sariva.

<table>
<thead>
<tr>
<th>Aschyotana types</th>
<th>Indications</th>
<th>Matra</th>
<th>Preferred time</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Snehana</td>
<td>Vataja</td>
<td>10 drops</td>
<td>Evening</td>
<td>100 matra kala</td>
</tr>
<tr>
<td>Lekhan</td>
<td>Kaphaja</td>
<td>8 drops</td>
<td>Morning</td>
<td></td>
</tr>
<tr>
<td>Ropana</td>
<td>Pittaja &amp; Raktaja</td>
<td>12 drops</td>
<td>Afternoon</td>
<td></td>
</tr>
</tbody>
</table>

Aschyotanayogya common drugs:
- Vataja: Erandmula, Jyanti, Brihati, Shigru, Madhu & Panchamulova boiled in water.
- Pittaja: Prithvika, darvi, manjistha, laksha & madhuka boiled in water with sugar.
- Kaphaja: Shunthi, tripahala, musta, nimba, & vasa boiled in water.

5. BIDALAKA
It is the application of medicated paste over eyelids excluding eyelashes. Thickness of Bidalaka is similar to Mukhalepa. Bidalaka relieves burning, discharge, excessive tears, swelling, redness, itching etc. Types and duration of Bidalaka are:

<table>
<thead>
<tr>
<th>Types of Bidalaka</th>
<th>Thickness of Bidalaka</th>
<th>Time of application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doshaghna</td>
<td>1/4th angula</td>
<td>During day time or whenever symptoms manifest.</td>
</tr>
<tr>
<td>Vishaghna</td>
<td>1/3rd angula</td>
<td></td>
</tr>
<tr>
<td>Varnya</td>
<td>½ angula</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pindiyoayoga common drugs:</th>
<th>Paste of-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vataja: Erand panchanga</td>
<td></td>
</tr>
<tr>
<td>Pittaja: Yasti, amalki &amp; mahanimba phala</td>
<td></td>
</tr>
<tr>
<td>Kaphaja: Shigru leaves</td>
<td></td>
</tr>
<tr>
<td>Kapha-pitta: Tripalha</td>
<td></td>
</tr>
</tbody>
</table>

7. ANJANA
It is the application of medicine into the inner aspect of lower eyelid margin from Kaninika sandhi to Apanga sandhi with Anjana Shalaka or finger tip. Types of Anjana according to action of drugs are:

1. Lekhanajana- Used in Kapha predominant diseases of eyes
   - Vata predominant netra roga- Amla- Lavana Rasa
   - Pitta predominant netra roga - Tikta-Kashay rasa
   - Raka Predominant netra roga -Kashaya-Tikta Rasa

2. Ropanajana- Drug is oily & it gives strength & complexion to the eyes.

3. Prasadajana- It is prepared with Madhura & Snigdha medicines.
<table>
<thead>
<tr>
<th>Samhitas</th>
<th>Types of anjana</th>
<th>Anjana kalpana</th>
<th>Matra</th>
<th>Anjana Kala</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sushruta &amp; Ashtanga hridaya</td>
<td>Lekhana, Ropana, Prasadana</td>
<td>Gutikanjana</td>
<td>Gutikanjana &amp; Rasakriyanjana-Lekhana-1 harenu Prasadana-1.5harenu Ropana-2 harenu</td>
<td>Morning And Mahabala of dosha (severe)</td>
<td></td>
</tr>
<tr>
<td>Ashtanga sangraha</td>
<td>Lekhana, Ropana, Prasadana, Snehana</td>
<td>Rasakriyanjana</td>
<td></td>
<td>Evening     Madhyamabala of dosha (moderate)</td>
<td></td>
</tr>
<tr>
<td>Sharangadhara</td>
<td>Lekhana, Ropana, Snehana</td>
<td>Churnanjana</td>
<td>Lekhana-2 shalaka Prasadana-3 shalaka Ropana-4 shalaka</td>
<td>Hinabala of dosha (mild)</td>
<td></td>
</tr>
</tbody>
</table>

**Indication:** Alpa sopha, Itching, Asrusrava, Foreign body sensation, Thick discharge, etc.

**Contraindication:** Udavarta, shrama, weeping, alcoholic, anger, fearful, fever, shiroroga, suppression of natural urges, night, during sleep, noon, extreme heat, fatigued eye, etc.

**Samyakayoga lakshana:** Clarity, lightness, free from discharge and other symptoms.

**Atiyoa lakshana:** Redness of eyes, pain, timira, discharge and swelling.

**Hinayoga lakshana:** aggravation of symptoms, squint, hardness of lid, discoulouration, ptosis, severe dryness and discharge.

**Chikitsa:**
- **For atiyoa:** Vatahara and santarpana chikitsa, aschyotana & pratynajana with shital dravyas,
- **For hinayoga:** Dhooma, nasya, & tikshananjana.

**Anjanayoga common drugs:**
- **Gutikanjana:** Chandrodaya varti, Chandrakala varti, Haridradi varti, Samudrapenadi varti, etc.
- **Rasakriyanjana:** Guduchyadi rasakriyanjana, Baboolapatra rasakriyanjana, etc.
- **Churnanjana:** Marichadi churnanjana and Shirsibjadi churnanjana, etc.

**CONCLUSION**

The kriyakalpa procedures explained in Ayurveda is Bahyaparimarjan Chikitsa and follows the topical treatment protocols for the eye. Various drugs can be selected according to the stage and types of the disease. It has high bio-availability of drugs to the target tissue of eye due to its own pharmacotherapeutic action and tissue contact time. The time duration is under control so any unwanted effects can be easily managed. Kriyakalpa plays very effective role to maintain netra swasthya and netra rogachikitsa.

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