IMPORTANCE OF KRIYAKALPA IN NETRAROGA WITH MODERN APPROACH

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ABSTRACT

Ayurveda is one of the oldest scientific medical systems. It is not only a system of medicine in the conventional sense of curing disease but also a way of life that teaches us how to maintain & protect health. Eyes are the most precious God’s gift to human being. Our eyes are the important organ in urdhwajatrugata sthana. Urdhajatrugata vyadhis includes the diseases of eyes, ear, nose & throat. Kriyakalpa is the main therapeutic process for netra rogas. Kriyakalpa means the procedures in which various drugs are applied in & around the eye ball as a treatment modality. Tarpanadi procedures are included in kriyakalpas.

Keywords: Kriyakalpa, Urdhwajatrugata vyadhis, netraroga.

INTRODUCTION

Shalakya tantra is one among eight specialities of Ashtang Ayurveda, which deals with Urdhwajatrugata vyadhis. In Ayurvedic samhitas local treatment for netraroga has been described in the name of kriyakalpa. The word kriyakalpa is made up of two words. kriya means therapeutic procedures useful for curing diseases & kalpa means practical. It includes selection of drug for specific procedure, preparation of special drug & finally its application. Eyes are the only organ in the body which receives separate treatment modality like Kriyakalpa as a Bahyaparimarjan Chikitsa & no other organ individually receives the treatment. Modalities like Kriyakalpa on eyes. However Pan-chakarma are the Sarvadehik treatment procedures & stated as Antahparimarjan Chikitsa.

Kriyakalpa procedures need a modern scientific base to develop the branch of Ophthalmology. The application of Ayurvedic ocular therapeutics seems crude in the light of modern Ophthalmology. Despite the available evidences regarding the mode of action, the foremost query about the absorption & therapeutic effect of these measures is obvious. Two views are held in this regard:

1. The potency of the locally administered drug by virtue of its action relieves the disease.
2. Locally applied medication reaches conjunctival sac, fornices, inner & outer canthus, nasal cavity & blood vessels & alleviates the disease both locally as well as systemically.

Achary Charak has mentioned three kriyakalpas in chikitsa sthan i.e Aschyotana, Anjana & Bidalaka. Acharya Sushruta has mentioned five kriyakalpas i.e Tarpana, Putapaka, Seka, Aschyotana & Anjana.¹,² Acharya Sharangadhara has mentioned seven kriyakalpas i.e five of Sushruta & two added Pindi & Bidalaka.³

**KRIYAKALPA-**

Kriyakalpa procedures are administered through Poorvakarma, Pradhankarma & Paschatkarma. Poorvakarma includes the Panchakarma on body to remove vitiated doshas & after that Kriyakalpa procedures are applied to eliminate remaining Doshas as a Bahyaparimarjan chikitsa. Pradhankarma includes the actual Kriyakalpa procedure while Paschatkarma is the Parihar kala.

**1. TARPANA-**

This is one of the Kriyakalpa which gives nourishment to the eyes & cures Vata-Pitta predominant diseases. In this procedure the unctuous substances like Medicated ghee, vasa, majja, ghrita manda is kept in the eye for a specific time by special arrangement made around eyes with Mashapali or Tarpana goggle.⁴

There are different Aushadh Dharana Kala as per diseased part as ⁵

**Table 1:**

<table>
<thead>
<tr>
<th>Diseased part/ Dosha</th>
<th>Aushad Dharan Kala</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sandhigata Roga</td>
<td>300 matra</td>
</tr>
<tr>
<td>Vartmagata Roga</td>
<td>100 matra</td>
</tr>
<tr>
<td>Shuklagata Roga</td>
<td>500 matra</td>
</tr>
<tr>
<td>Krishnagata Roga</td>
<td>700 matra</td>
</tr>
<tr>
<td>Drishtigata Roga</td>
<td>800 or 1000 matra</td>
</tr>
<tr>
<td>Sarvagata Roga</td>
<td>1000 matra</td>
</tr>
<tr>
<td>Vataj Roga</td>
<td>1000 matra – for one day</td>
</tr>
<tr>
<td>Pittaj Roga</td>
<td>800 matra- for three days</td>
</tr>
<tr>
<td>Kaphaj Roga</td>
<td>500 matra – for five days</td>
</tr>
</tbody>
</table>

**PUTAPAKA-**

The indications & procedure of Putapaka is like Tarpana but the medicine preparation is specific. The medicine (swarasa) is extracted by Putapaka Vidhi.⁶ The Putapaka is of three types as Snehana, Ropana & Lekhana Putapaka. Vagbhata mentioned Prasadana putapaka, instead of Ropana Putapaka.⁷

**Table 2**

<table>
<thead>
<tr>
<th>Types of Seka</th>
<th>Dosha Predominant diseases</th>
<th>Kala</th>
</tr>
</thead>
<tbody>
<tr>
<td>Snehana</td>
<td>In Vataj diseases</td>
<td>400 matra</td>
</tr>
<tr>
<td>Ropana</td>
<td>In Pitta &amp; Raktaj diseases</td>
<td>600 matra</td>
</tr>
<tr>
<td>Lekhana</td>
<td>In Kaphaj diseases</td>
<td>300/200 matra</td>
</tr>
</tbody>
</table>

**SEKA-**

Seka procedure is indicated in acute condition of eye diseases. Medicine is poured on closed eyes continuously from four Angul heights for a specific time, according to Doshas.⁸ There are three types of Seka as:⁹
ASCHYOTANA-
Instillation of few drops of medicine into the open eyes from the height of two Angul is called as Aschyotana. Aschyotana is the first line of treatment in all eye diseases. There are three types of Aschyotana as:11,12

<table>
<thead>
<tr>
<th>Types of Aschyotana</th>
<th>Dosha predominant diseases</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lekhana</td>
<td>In kapha diseases</td>
<td>7-8 drops</td>
</tr>
<tr>
<td>Ropana</td>
<td>In pitta &amp; raktaj diseases</td>
<td>12 drops</td>
</tr>
<tr>
<td>Snehana</td>
<td>In Vataj diseases</td>
<td>10 drops</td>
</tr>
</tbody>
</table>

PINDI-
Pindi is the modified procedure of Bidalaka. Instead of direct application of drug paste on eyes, it is kept in cotton or Dosghna leaves & is kept tightly over the eyelids. Pindi relieves the symptoms of Netrabhishyanda, Adhimantha, Sotha, Nettrakandu, Kaphaja Netraroga etc.13

BIDALAKA-
Bidalaka is the application of medicated paste on the outer surface of eyes i.e eyelids. Bidalaka are of three types according to thickness of paste as Uttam, Madhyam & Heena. Bidalaka relieves burning, discharge, excessive tears, swelling, redness, itching etc.14

ANJANA-
Application of medicine to the internal surface of lid margin from Kaninika sandhi to Apanga sandhi with Anjana Shalaka is called as Anjana. Types of Anjana according to action of drugs are as;15

1. Lekhanajana- Used in Kapha predominant diseases of eyes
   - In vata predominant diseases- Amla- Lavana Rasa
   - In Pitta predominant diseases- Tikta-Kashay rasa
   - In Rakta Predominant diseases-Kashaya- Tikta Rasa
2. Ropanajana- Drug is oily & it gives strength & complexion to the eyes.
3. Prasadajana- It is prepared with Madhura & Snigdha medicines.16

MODERN PHARMACOLOGY-
In modern, drug delivery to eyes is through-

- TOPICAL- Drop, ointment, gel
- PERIOCULAR- Subconjunctival, subtenon, peri-bulbar, retrobulbar
- INTRAOCULAR- Intracameral, intravitreal

Topically instilled drugs depends upon time, the drug remain at the precorneal tear film.

Eye ointment increases contact time of drug with ocular surface.

Preocular injection allows drugs to bypass the conjunctival / corneal epithelium.

Its absorption depends upon the permeability of various layers of cornea. Corneal epithelium & endothelium are more lipophilic than stromal layer.

The pharmacology of Kriyakalpa can be explained on the following principles of modern pharmacology:
- Route of administration
- Solubility & Bioavailability
- Absorbing surface
- Vascularity of the absorbing surface
- Physical state of the drug
- Complaisance
- Excretion
1. **Route of Administration**
Mainly mucosal & cutaneous routes are used. Drugs are applied to the conjunctival sac as Drops & ointments which is thin disc of gelatin as in Aschyotana, Seka & Anjana. Mucous membranes are good absorbing surfaces. Drugs applied on mucous membrane of conjunctiva are readily absorbed. The systemic route has limitations because of blood-aqueous barrier. Large sized molecules cannot cross this barrier & do not enter the eye. Absorption of these drugs is proportional to their lipid solubility since epidermis behaves as a lipid barrier. The dermis is freely permeable to many solutes which form the basis for application of Bidalaka & Pindi on the skin surrounding the eyeball.

2. **Solubility & Bioavailability**
Absorption depends on solubility of drugs & local condition at the site of absorption. Drugs to be absorbed through mucous membrane should be water & lipid soluble. The main forms of drugs instilled into the eyes are aqueous solutions, Suspensions, ocular inserts & ointments. Each has different influence on drug bioavailability. Solution drug is totally dissolved but the tissue contact time is short as in Aschyotana & Seka. Ointments increases bioavailability of drugs by increasing the tissue contact time & by preventing dilution & drainage of active ingredients as in Anjana. In suspensions the drug is present as small particles kept suspended in an aqueous medium by a dispersing agent. Particles do not leave the eye as quickly as the solutions which increase the tissue contact time as in Tarpana & Putapaka.

3. **Absorbing surface**
Conjunctiva & cornea are main absorbing surfaces. Conjunctival membrane readily absorbs the drug. Absorption through cornea involves transformation of drugs through its different layers. The corneal epithelium & endothelium have 100 times more lipid contents than in the stroma while fat soluble drugs readily penetrates the epithelium & endothelium. However, only water soluble drugs can penetrate the stroma. Thus the drug should have both Lipophilic & hydrophilic character that can penetrate all the layers of cornea. The drug contact time has an effect upon the absorption & penetration of drugs. So specific contact time duration has been mentioned by Acharyas.

4. **Vascularity of absorbing surface**
The drug absorption is directly proportional to the vascularity of absorbing surface. Snehana, swedana done in some Kriyakalpa procedures as a Poorvakarma increases the blood flow to that part. Water soluble drugs are easily absorbed through the vessel wall i.e permeability & vascularity. So in diseases where blood vessels especially external eye are not involved, medicines in the watery form is better. For that Aschyotana & Seka are used. Fat soluble factors easily get absorbed through cornea. So in Vata- Pitta predominant diseases Ghrita is perfect for Tarpana & Aschyotana.

5. **Physical state of drug**
Colloids are more slowly absorbed than crystalloids. Fat soluble substances reach the circulation more slowly than water soluble drug. Thus in Tarpana & Putapaka fat soluble substances are used, which are kept for longer duration than Seka & Aschyotana which contains surplus of water soluble substances. According to Richardson, substances with molecular weight less than 100 can pass readily through cell membrane & those of more than 500 do not. In Tarpana & Putapaka the medicated Ghee or oil is used in the eye & absorption of the drug is on the basis of law of mass action.

6. **Compliance**
The peak serum level time of the drug is the criteria of its dosage schedule which should be maintained by repeating the drug at that interval.
7. Excretion
Topically applied solutions or eye drops as in Aschyotana & Seka, mostly overflows & also gets excreted through the nasolacrimal duct. The absorbed one enters the blood circulation & excreted through the main route of excretion.

CONCLUSION
Kriyakalpas are the boon to Ayurvedic ophthalmology which can be studied through the route of drug administration, absorption, physical state, solubility & bio-availability of drug, compliance & excretion of drug. The aim of any pharmacotherapeutic is to attain an effective concentration at the site of action. As per Ayurveda, various drugs can be selected according to the doshas, type of disease & can be used by various ways as kriya kalpas. In this way it is concluded that kriya kalpa plays an important role in Netra roga chikitsa.

REFERENCES
4. Vagbhata, Ashtang Hridaya with commentary by Arundatta 7 Hemadri, By Dr. A.M.Kunte, Sutrasthana Tarpan-putpaka Vidhi Adhyaya 24, Chaukhamba Sanskrit S Ansthan, Varanasi 2010, p-308
5. Sushruta Samhita with commentary by Dalhanacharya, Uttarantra Kriyakalpa Adhyaya 18, Chaukhamba Sanskrita Sansthan, Varanasi; 2010. P-633
7. Sushruta Samhita with commentary by Dalhanacharya, Uttarantra Kriyakalpa Adhyaya 18, Chaukhamba Sanskrita Sansthan, Varanasi; 2010. P-634
10. Agnivesh, Dridhbala, Charaka, Charaka samhita with commentary by Chakrapanidutta by Jadvji Trikamji Acharya, Chaukhamba Sanskrita Sansthan, Varanasi, 1994 P-610
15. Bhavmishra, bhavprakash with Vidyotini Hindi Commentary by Pandit Brahmashankar Mishra, Madhyamkhanda Netrarogadhikar Adhyaya 63, Chaukhamba Sankrita Sansthan, Varanasi; p-659

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