Pharmacodynamics of *Nasya Karma* & Its Indications in Pediatric Disorders

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Abstract: Panchkarma is an important part of Ayurveda which includes vaman, virechana, basti, nasya and raktamokshana. Panchkarma therapy has preventive and curative approach towards various disorders. Nasya is one of the therapy among panchkarma in which processed drug is administered through nasal route. The synonym for nasya karma are shirovirechana and murdha virechana. Virechana word denotes curative property that's why shirovirechana word is given for nasya karma. Nasya may be used in various conditions where drug is not absorbed orally and when there is requirement of long term therapy its use is convenient. The channel carrying senses in the human body are directly connected to shira (head) just like the sun rays are connected to the sun. Since nasal mucosa is primarily of lipophilic nature and also have some hydrophilic nature, by increasing lipophilicity of drug absorption of drug through nasal mucosa can be enhanced. That’s why sneha processed with different drugs according to vitiated doshas nasya can be used in different disorders of supraclavicular region like nasal diseases, shiro rogas like suryavarta, ardhavbedka, anantvata, greying of hairs, dandruff etc., hoarseness of voice, dryness of mouth, premature wrinkles, avabahika, difficulty in awakening and other disorders of mouth caused by vata and pitta. In this paper we will discuss about the pharmacodynamics of nasya karma and classical indications in pediatric disorders described in different ayurvedic text books.

Keywords: Nasya karma, Shirovirechana, Panchkarma

1. Introduction

Nasya is a therapeutic procedure which is used in various systemic diseases mainly for diseases of urdha bhaga and greeva. In this procedure drug can be used in the form of snehan, decoction, juice, processed milk & medicated fumes. In Ayurveda, shira is considered as uttama marga and seat of priya i.e. life. The state of equilibrium of the body depends upon the shira is compared to root of a tree. The channel carrying senses in the human body are directly connected to the shira (head) just like the sun rays are connected to the sun. The medicine which is put into the nostril moves up to the sringatakarma and spreads to the interior of the head and the junctions where all the channels related to eye, ear, and nose situated together. The olfactory nerves of the nose are connected with the higher centers of brain i.e. limbic system which include amygdaloidal complex, hypothalamus and basal ganglia etc. Thus drugs administered to nostrils directly goes to higher centers of the brain and affects nervous system and endocrine system by controlling doshas. Nasya not only work as a shirovirechana i.e. shodhan and shamana but also play a vital role in nourishing for the panchgyanendraya adhisthan situated in shira.

2. Definition of Nasya-

“ॐष्कम्याभिःविद्वा व भन्ति नासिकभ्यं दृष्टि इति नम्नम्॥”(२५.४०/२९)

Nasya is a therapeutic procedure in which drug or sneha processed with drug is administered through nose.

3. Age at which nasya should be given-

Acharya Vagbhata- 7-80 years
Acharya Sharangdhara- 8-80 years

4. Time of Nasya according to ritu (Acharya Charaka) - Generally nasya is given in pravritta, sharada and basant ritu but in atyayika awastha (emergency condition) it can also be given in hemant, grisma and varsha ritu also. In grisma ritu it should be given in poorvyan (early in the morning), in shita ritu it should be given in madhyaan (mid noon) and in varsha ritu when there are no clouds in the sky.
5. Classification of Nasya-

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<tr>
<th>Acharya Charak</th>
<th>Navan</th>
<th>Snehana, sodhana</th>
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<td>Pratimarsh</td>
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<th>Sirovirechana</th>
<th>Nasya, sirovirechana, pratimarsh, avapida,</th>
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<tr>
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<tr>
<td></td>
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<tr>
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<th>Brimhan/poorana</th>
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<td>Sodhana/karsana</td>
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<th>Acharya Sharangdhara</th>
<th>Rechana/karsana</th>
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<td></td>
<td>Snehana / brihmana</td>
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Acharya Vagbhat- According to dose snehana is of two types-

- **Marsha**- 6 drops (hina bala), 8 drops (madhyam bala), 10 drops (uttama bala) in each nostril.
- **Pratimarsha**- 1 or 2 drops (Astanga Hridaya and Sharangdhara-2 drops in each nostril)

Usually children below 7 years and old persons below 80 years cannot receive nasya but they can receive pratimarsh nasya.

“आज्ञम मरणं शस्िं प्रसिमशशस्िु बसस्िवि्” (अा.सि. 20/32)

6. Pratimarsh nasya – It is done by dipping the clean little finger into the oil and 2 drops in each nostril are given. It can be done at every day at any time.

“प्रसिमशो भवेि् स्नेहो सनदोष: उभयार्शकृि |” (ि.सि. 9/92)

According to Acharya Charak it has no complications and can be used as snehan (oleation) as well as shodhan (curative).

“कमन प्रतिमाजूज जनम प्रभृति शस्यिे” (शा. प्र. 6/18)

Acharya Sharangdhara said that vaman and nasya are beneficial for children since birth.

Indications of Pratimarsh nasya-

- It can be used in traumatized person, thirst or mouth diseases, children, old person.
- Prevents from diseases of eye, ear, nose and other supraclavicular disorders.
- □ Prevents early greying of hair, hair fall and wrinkling of skin.
- Strengthens the bones, joints, ligaments and tendons of head.
- □ Strengthens the jaws, teeth, chest, arms etc.
- □ Improves the working power of sense organs
- It is used therapeutically in Peeansa (coryza), Ardhabhdedaka (hemiancia), Manyastambha (torticollis), Shirahshool (headache), Ardita (facial paralysis) etc.

7. Pharmacodynamics of Nasya karma [1]

Mucosal absorption of drug- Nasal cavity is divided into two parts by the nasal septum and it consists of three main regions which are nasal vestibule, olfactory region and respiratory regions. The nasal cavity is covered with a mucous membrane which is divided into two parts- olfactory epithelium and non-olfactory epithelium. Non-olfactory area includes the nasal vestibule which is covered with skin like stratified squamous epithelial cells and respiratory regions have a typical airways epithelium covered with numerous microvilli and forming large surface areas for drug absorption and transportation.

Mechanism of nasal absorption- The first step in absorption of drug is mucosal absorption. The main protein of mucous is mucin which has tendency to bind the different solutes. However there may be structural changes in the mucosal layer due to environmental changes. For this reason various mechanism of nasal absorption were established in which two mechanism have been mainly used, these are-
1. **Paracellular mechanism** - It includes an aqueous route of transport but it is slow and passive. There is an inverse correlation between intranasal absorption and molecular weight of water soluble drug. The molecular weight of greater than 1000 daltons of drug show poor availability.

2. **Transcellular process** - It includes transport of drug through lipoidal route and it is a route for lipophilic drugs and it shows a rate of dependency on their lipophility.

Due to this reason *sneha nasya* has described as best between all types of *nasya* as olfactory mucosa shows the affinity towards lipophilic nature of *sneha nasya* and due to the lipophilic nature of *sneha* it get readily absorbed. The administered drug then shows it’s action by different ways like by passing into systemic circulation through vascular pathways or by stimulating the nerve endings in the mucosa. Thus after getting absorbed through mucosal layer it may take any pathways either vascular path or neural path to show it’s action.

8. **Factors affecting nasal drug absorption**

   **Position** – Head low position with slight elevation of the legs is the right position for *nasya karma*, it help in reaching the medicine deep inside olfactory mucosa and facilitates proper absorption of drug.

   **Lipophilicity** - Nasal mucosa is primarily of lipophilic nature and also has some hydrophilic nature. By increasing lipophilicity of drug absorption of drug through nasal mucosa can be enhanced.

   **Viscosity** - Drugs having higher viscosity increases the absorption of drug by increasing contact time to mucosal layer. Hence, the absorption of *navan nasya* is enhanced by its viscous nature.

   According to *acharya susruta*, *nasya* is that drug or *sneha* processed with drug which is administered through nostrils. This is of two types – *shirovirechana* (head evacuative) and *snehana*. This is again divided into 5 types - *nasya*, *shirovirechana*, *pratimarsh*, *avapida* and *pradhamana*. In these *nasya* and *shirovirechana* are main. *Pratimarsh* is a subtype of *nasya*, similarly *avapida* and *pradhamana* are subtypes of *shirovirechana*.

   The word *nasya* particularly denotes *sneha* which is administered to those with vacant head for promoting strength also in neck, shoulder, chest or improving vision. That should be given with *sneha* processed with drug pacifying *vata* and *pitta* when head is overcome by *vata* and in falling of teeth, hair and beards and moustaches, dandruff, earache, tinnitus, defect of vision, hoarseness of voice, nasal diseases, dryness of mouth, *avabahuka*, premature wrinkles and greying of hairs, difficult awakening and other disorders of mouth caused by *vata* and *pitta*.

   *Sneha* - Fatty medium - *ghee*, *oil*, fat and marrow these processed with drug pacifying *vata* and *pitta* for respective disorders. Oil used as *nasya* pacifies *vata* and *kapha* while milk and *ghee* pacify *pitta* and *rakta*.

9. **Classical indications in pediatric disorders**

   **Acharya Kashyap**

   "*नस्य कार्य में वाटलाम रूपमार्ग विशेषः। क्रांतित्रक्षित सुधा वा सैण्डहासिदितः।"* (क.सि. य.)

   Acharya kashyap said that *nasya* of *katu taila* or *saindhav misrit ghrit* should be used in *ksheerap*.

   **Acharya Susruta**

   **Snehika nasya** - Dant, kesa and smasru paat, karnashoola, karnachveda ,timira, swarbheda, nasa roga, mukh sosh, avabahuka, akal vali-palitya, khalitiya and other vata-pitta janya rogas.

   1. **Shirovirechana** –Siro-shoola, sivo-gaurava, pinasa , ardhabhedaka, krimi, pratisyay, apasmar, gandh gyan naas and other urdhvajatrugata kaphaj rogas.

   **Acharya vaghbat**

   1. **Virechana** – Urdhvajatrugata gaurav, sopha, updeha, kandu, stambh, abhisyanda, srava, praseka, vairasya, aruchi, swarabheda, krimi, pratisyay, apasmar, gandh gyan, granthi, arbuda, kotha and other kaphaj rogas.

   2. **Brihmana nasya** - Suryavarta, ardhabhedaka, timira, manya roga, apatanaka, avabahuka, nidranas and other kaphaj rogas.

   3. **Samana nasya** - Akala vali-palitya, khalitiya, vyanga, neelika and other rakta-piitaj rogas.
10. Indications and contraindications of nasya in pediatric disorders

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<tr>
<th>Indications</th>
<th>Contraindications</th>
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<tr>
<td>Pakshaghata</td>
<td>Nava pinasa (acute rhinitis)</td>
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<tr>
<td>Ardita (facial palsy)</td>
<td>Kasa (cough)</td>
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<td>Vata rogas (delayed mile stones)</td>
<td>Immediately after taking meal, water</td>
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<tr>
<td>Vyanga (hyperpigmentation)</td>
<td>After blood letting</td>
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<tr>
<td>Shirasvahula (headache)</td>
<td>Shwas (bronchial asthma)</td>
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<tr>
<td>Urdhwa jatragata rogas (E.N.T.disorders)</td>
<td>Ajeerna (indigestion)</td>
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11. Research advancement in Nasya related to pediatric disorders–


12. Conclusion-

The different forms of nasya e.g. churna, sneha, kvātha e.t.c. acts through various mechanisms i.e. by vascular and neural pathway in the body. The mechanism of action of nasya karma mentioned by different acharyas in ayurvedic classics thousands of years ago can also be demonstrated in the present scenario with the help of modern scientific parameters. Acharya Charak quoted that “Dwaram hi shirso nasa” and shira is considered as uttamanga hence any drug instilled into the nostril will have direct effect on the brain, due to this reason any disease related to supraclavicular region like cerebral palsy, facial palsy, hemiplegia, epilepsy, ADHD, nasal polyp, rhinitis in children etc. can be treated with nasya effectively. Nasal drug absorption depends not only on the physicochemical properties of the drug but also depends on physiological condition of the nose. Acharyas have considered the various factors which affect the nasal drug absorption like dose, duration and time of administration and described the nasya vidhi for maximum absorption of nasal drug. Standardization of the nasya karma with āyurveda and modern scientific parameters and it’s validation of facts with proper documentation is the need of the hour.

References
