



Review Article

CRITICAL ANALYSIS OF *PURVA KARMA* PRIOR TO *NASYA* W.S.R. *SNEHA NASYA*

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ABSTRACT

Ayurveda *Panchakarmas* are an all-time big name for both Ayurveda doctors and patients. Their efficacy of targeting the body holistically and evacuating toxins, thereby, addressing most of the problems of an individual makes it a hit. This paper aims at estimating the contribution of *Purva Karma* (procedures prior to instillation of medicine) in the outcome, especially in the context of *Sneha Nasya* (instillation of unctuous medicine). Nasal route of administration may help address the hitches accompanying to poor bioavailability, slow absorption, drug degradation, and possible adverse events in the gastro intestinal tract and avoids the first-pass metabolism in the liver. However, when considering nasal delivery, appropriate measures need to be taken to address the limitations of drug delivery in this region. *Purva Karma* starts with drug preparation and ends with stage of instillation of medicine (8 check points). The role of each of them on overcoming the limitations and delivering the results is reviewed.

**KEYWORDS:** *Nasya*, *Snehana*, *Swedana*, Nasal drug delivery.

INTRODUCTION

Nasal drug delivery keeps up the potential to tackle the illnesses of *Shiras* and few systemic disorders<sup>[1]</sup>. This potency can be put at work only when certain conditions are met. There is detailed description given in the texts on the procedure and guidelines of *Nasya karma*.

In this article, focus lies on *Purva Karma* of *Sneha Nasya*, its importance in the efficiency of combating the etiopathogenesis of the targeted disease. In this article, total eight check points are observed, the first two check points are in connection with method of drug preparation. Third and the fourth one deals with the fitness certificate of an indicated subject. *Abhyanga* (Oleation) of *Urdhwajatru* and *Swedana* (fomentation), fifth and the sixth ones, concluding with posture, and temperature of medicine to be instilled.

MATERIALS AND METHODS

Methodology primarily includes literature review of Ayurveda classics and relevant texts of contemporary science, critically analysed with the tools being journals cited.

DISCUSSION

The prime purpose of the nasal airway is to assist in breathing effectively and to shield the delicate lungs from unsafe exposures. The tapering nasal cavity and triangular nasal structure with its cyclic physiological changes provide efficient

filtration and conditioning of the inspired air, enhance olfaction, and optimize gas exchange and fluid retention during exhalation. The potential hurdles these functional features impose on efficient nasal drug delivery, are probably addressed by the *Purvakarma* performed before instillation. Difficulties imposed by its small dimensions and dynamics; the high sensitivity of the mucosa is very relevant to nasal drug delivery.<sup>[2]</sup> The nasal mucosa consists of non-ciliated squamous epithelium, respiratory, and the olfactory epithelium, among which the latter two are of drug delivery importance.

The region anterior to the nasal valve called the vestibule is lined by non-ciliated squamous epithelium and gradually makes transitions into the ciliated respiratory epithelium posterior to the valve region forming the mucous blanket along with hairs.

Specifically, particles larger than 3–10 $\mu$ m are efficiently filtered out and are trapped by the mucus blanket. Optimum nasal drug delivery can be achieved with the molecules of the drug being less than 1000 Dalton molecular weight<sup>[3]</sup> and less than 1 micrometer molecular size<sup>[4]</sup> and fulfilling hydrophilicity<sup>[5]</sup> and lipophilicity<sup>[6]</sup>. Respiratory epithelium has the capability to deliver systemically and communicates with Cerebro Spinal Fluid through the lymphatics and vessels.<sup>[7]</sup> The olfactory epithelium allows trans-neural absorption through

unmyelinated nerve endings of the olfactory nerve spread over it<sup>[8]</sup>. The following factors establish the importance of *Purva Karma* in this process.

#### 1) Drug preparation – *Taila/Ghruta Pakavidhi*

As a known fact, the ratio of *Kalka* (Medicinal Paste): *Sneha* (Oil/Ghee): *Kwatha* (Herbal decoction) is 1:4:16 for any *Sneha* preparation. *Kwatha* is supposed to be taken 64 times, reduced to  $\frac{1}{4}$  which is to be taken as the 16 parts of *Kwatha*. This method of preparation involves slow constant supply of source of *Agni*, and a great deal of patience. It could result in lowering the molecular density and size, is the hypothetical assumption. Evidently this method is not in practice by many pharmaceutical companies.

Macro-molecules are converted to nano particles by traditional methods such as Sputtering, Electron beam evaporation, Pulsed laser deposition, Vacuum<sup>[9]</sup> etc, and novel methods like pico-second laser ablation technique<sup>[10]</sup>. Study needs to be conducted if application of constant heat over a period reduces the molecular size and weight. Meanwhile however, a study conducted on *Parada* (Mercury) discussed that decreased molecular size was noted every time a *Samskara* was conducted on it<sup>[11]</sup>, banking on the same principle, it is probable that the above mentioned *Sneha vidhi* (Method of preparation of medicated oil/ghee) ratio can be relevant here.

#### 2) *Mrudupaka*

*Sneha Kalpana/Paka* may be defined as “A pharmaceutical process to prepare oleaginous medicaments from the substances like *Kalka* (herbal paste of different parts of botanicals), *Kwatha* (specifically prepared decoction in accordance of Ayurvedic principles) or *Drava Dravya* (any other liquid such as milk, self expressed juices, meat juice, etc.) taken in specific proportion and by subjecting them to unique heating pattern and duration to fulfill certain pharmaceutical parameters, according to the need of therapeutics.<sup>[12]</sup> The completion of medicated oil/ghee preparation has been graded into three stages. *Mrudu Paka* (First of the three stages indicating completeness of preparation) is indicated for *Nasya*.<sup>[13]</sup> The characteristic feature of *Mrudupaka* is the presence of moisture content, nonetheless *Mrudupaka* should not be taken in account for *Amapaka* (uncooked), for it is only the preliminary stage and does not signify crudeness in any manner. Unlike the olfactory epithelium, respiratory epithelium being hydrophilic alone will not be able to absorb *Sneha* of *Madhyama* (second of the three stages indicating completeness of preparation) or

*Kharapaka* (Third of the three stages indicating completeness of preparation), considering this factor, the mention of *Mrudu Paka* for *Nasya Karma* makes it apt for usage.

#### 3) *Koshta Shudhi*

The requirement of *Shudha Koshta* (anatomical and physiological normalcy of gastrointestinal system) prior to *Nasya* is an essential. On keen observation, we can appreciate in the contraindications mentioned for *Nasya* that disapproval of subjects with abnormalcy of the Gastro-intestinal apparatus is desired.<sup>[14]</sup> Also, it is stated that *Pachana* (Digestive) and *Deepana* (Carminative) are the fundamental steps essential as a prerequisite for any kind of *Shodhana* (Detoxification)<sup>[15]</sup>. Contemplating on the concept that *Dhatwagni* (factor responsible for tissue level metabolism) is dependent on the *Jatharagni* (Digestive enzymes), *Agnimandya* (indigestion) can result in improper absorption and consequent desired action in the body. Previous diet of subject plays a pivotal role in this regard, therefore with due importance, instructions must be given to ensure no compromise on efficiency of *Jatharagni*.

#### 4) Mental preparation

Any fore load of emotional stress or anxiety related to the disease condition or treatment procedure should be counteracted in advance. The erectile tissues of the septal and lateral walls of nasal cavity and the turbinates respond to a variety of stimuli including physical and emotional states that can modify and override the basic cyclic rhythm<sup>[16]</sup>. Reciprocally, changes brought about by emotions in autonomic nervous system will affect the epithelium, thereby affecting absorption.

#### 5) *Abhyanga – Urdhwajatra*

Nasal epithelium consists of tightly packed cell line. Locally, it opens the tight junction between the cells allowing better passage of drug. It has also been discussed that *Abhyanga* results in facial efferent stimulation in turn reflecting as 22% dilation in capillaries which is benefitting by 150% increase in blood flow<sup>[17]</sup>. Also, all the references suggest *Abhyanga* is to be done for the *Urdhwajatra* and not just *Mukha* (face).

#### 6) *Swedana*

*Swedana* preceded by *Abhyanga* may trigger counter Cushing's reaction resulting in evacuation of toxins into the cerebrospinal fluid efficiently, which is the resultant effect following local vaso-dilation which temporarily increases intra cranial pressure<sup>[18]</sup> to a small extent.<sup>[19]</sup>

Thereby felicitating expulsion of *Doshas* (toxins) once drug is administered.

7) Posture

The required posture includes *Ruju Deha* (Straight), *Prasarita Pani Pada* (Relaxed hands and foot), *Kinchit Unnata Pada* (Slightly raised legs), *Kinchit namita shiras* (Slightly Abducted). The olfactory epithelium lies in the roof of the nasal cavity, this area has a rich supply of bare nerve endings of olfactory nerve, the key component of nose to brain lipophilic drug delivery. To ensure *Sneha* reaches this area, and for its retention this posture is helpful. This arrangement also contributes to greater blood supply to the head by the virtue of gravity.

8) *Ushnambutaptam bhaishajyam*

*Ushnambutaptam bhaishajyam* (Indirectly heating medicine) is important to get to grips with sensitivity. The role of the high sensitivity of the nasal mucosa as a natural nasal defence is too often neglected when the potential of nasal drug delivery is discussed. Sensory, motor, and parasympathetic nerves are involved in several nasal reflexes. Once reflexes are generated, the medicine instilled gets drained off along with the secretions. Lesser temperature, direct tactile stimuli, may cause irritation, secretion, tearing, itching, sneezing, and sometimes pain<sup>[20]</sup>. Average mucosal temperature ranges from 30.2 +/- 1.7 degrees to 34.4 +/- 1.1 degrees Celsius<sup>[21]</sup>. Accordingly, medicine should be made warm to be within the temperature range of the nasal mucosa.

**CONCLUSION**

The nose offers quick access to a substantial mucosal surface well suited for drug delivery. However, factors related to the nasal anatomy, physiology and aerodynamics that can severely limit this potential, have been made easy to address by *Purva Karma* guidelines laid by our *Acharyas*.

In case of *Pratimarsha Nasya* (Type of *Nasya* wherein 2 drops are instilled with no procedures before or after), objective is not evacuation of *Mala/Dosha*, rather it is for *Brumhana* and always given for longer period of time or advised to be followed routinely with a minimal dose, therefore absence of *Purva Karma* will not affect its efficacy. The *Sneha* therein present will get absorbed by the olfactory receptors directly.

*Purva karma* of *Nasya* sets the stage for optimum absorption of the drug instilled. First two factors ensure that substance to be instilled is fit to reach and act desired zone effectively. Third, may play a role in maintaining the patency of channels.

Care about the emotional disturbances maintains favourable conditions for absorption. The transport of the drug amidst difficult conditions like tight junctions in the epithelium, muco-ciliary clearance, narrow nasal valve and the complex convoluted nasal geometry is achieved by *Abhyanga* and *Sweda*. Fulfilling requirements of necessary posture are to be maintained, and range of temperature of the drug instilled make way for the drug to be reasonably received. *Nasya* done without following these procedures may result in malabsorption, therefore failure in achieving objectives of the treatment.

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