

Review Article

THE HYPOTHETICAL VIEW: ROLE OF MEDIA IN SNEHA PAKA

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ABSTRACT

Sneha kalpana is one of the best dosage forms of ayurveda pharmaceuticals in practice from vedic period in different forms.

Sneha kalpana provides an idea that sneha kalpas are superior to other dosage forms due to its wider advantages like increased absorption, bioavailability and extraction of fat soluble as well as water soluble active principle at a time in a single formulation. In case of sneha paka, the drava dravyas (media) play an important role. These are facilitating to transfer of the active principles from the solid (kalka dravyas) and later enrich the fluid (sneha) by shifting the active principles.

In this review paper attempt will be made to establish probable pharmacodynamics during sneha paka by ayurvedic as well as modern methodology.

Key words: sneha, liquid media, mass transfer, solvent etc.

INTRODUCTION

The pharmaceuticals of ayurveda was established & day by day it started developing till date. The richness of the medical advancement therefore, has to be judged largely by the richness in its variety as well as the quality of the pharmacopeia & pharmacy. Different dosage forms are introduced to get better therapeutic efficacy to increase palatability, potency and shelf life etc.

Ayurvedic dosage forms are formulated through the transference of active principles by different manufacturing processes. Among these dosage forms, "sneha kalpana" is a unique form in which medicated oil & ghee are prepared. Sneha kalpas are the dosage form which can be administered conveniently both internally as well as externally as per the requirement of physician.

The sneha kalpana comprises of sneha, kalka and drava.¹ Sneha which are glycerides of fatty acids, kalka which contains many potent therapeutically effective bio-constituents, and drava like kwatha, butter milk, kanji etc. which are the prime source of hydroxyl group and also helps in the dissolution of active principles into the sneha by enhancing the therapeutic value beside them Drava itself has high therapeutic importance.

ROLE OF MEDIA

Ayurvedic review

Different types of liquid are used as a media in the preparation of Sneha kalpana. The Sneha can be processed by using various liquids like water, Extracted juice, decoction and many other such liquids.

Quantity of Kalka depends upon media

If the Sneha is processed with only water /extracted juice the paste has to be added in 1/4th quantity while if it is prepared by using the decoction the paste has to be added in 1/6th proportion to Sneha. Similarly when the Sneha prepared by using Mamsarasa the Kalka has to be added in 1/8 proportion to Sneha [2].

Table 1: quantitative ratio of liquid media and kalka.

| Sr.No | Liquid media | Quantity of kalka |
|-------|---|-------------------|
| 1. | Water | 1/4 th |
| 2. | Decoction | 1/6 th |
| 3. | Milk, curd, mamsarasa, butter-milk, swarasa | 1/8 th |

Duration of Sneha Paka depends upon media

The processing of Sneha has to be completed in two nights when the milk has been used as media. In three nights when extracted juice has been used and in five nights when it is being processed along with butter milk, Kanji etc liquids. If the Sneha to be prepared, contains the roots and creepers then Sneha processing has to be completed in twelve days and the Sneha to be prepared, if contains cereals and meat soups the processing of the Sneha should be completed within a day.[3]

Table 2: duration of Sneha paka in different media

| Sr.No. | Liquid media | Duration |
|--------|----------------------------|----------|
| 1. | Mamsa, vasa, vrihi, dhanya | 1 night |
| 2. | Dugdha | 2 night |
| 3. | Swarasa | 3 night |
| 4. | Kwatha, Arnala, Takra | 5 night |
| 5. | Valli, mula | 12 night |

The preparation of medicated Tailas and Ghrita & Guda should not be completed within one a day.[4] Longer duration of preparation more the absorption of fat soluble constituents of the ingredients takes places. Thus the potency of Taila /Ghrita are expected to be enhanced. That means the first day after doing Sneha paka sometime, by giving some intermittent gap, again next day some paka vidhi has to be continued. During intermittent gap Sneha has to be kept as it is in container without any change. Thus facilitates proper fixation of active principles with Sneha. Hence it is advised that sneha has to be prepared more than one day.

When Sneha processed by using the milk, curd, Swarasa, butter milk as a Medias, then for the proper cooking, four times of water to Sneha has to be added to it before processing.[5]

Clinically different types of liquids have to be used as a media in the processing of Sneha Paka according to its therapeutic value. In Kshirabala Taila Kshira used as a media treating Karshya Roga.[6] (Sahastrayogam) Other example is Agruvadi Taila in which Kanji used as a media treating Jwara.[7] Gomutra used as a media in the processing of Kanakakshiri Taila treating Kustha [8], karpanpatru oil was prepared with three different medias like gomutra, kanji and takra by own author following classical text.[9]

Table shown different types of media which are used to prepared oil

Table 3 different media used in the preparation of different types of Taila:-

| Sr. No. | Name of taila | CH.SAM. | SU.SA. | A.H. | CHAKRADUTTA | SAHSTRAYOGAM | SHA.SA. |
|---------|--------------------------------|---------|--------|---------|-------------|--------------|---------|
| 1 | Kanakakshiri Tailam | Gomutra | -- | -- | -- | -- | -- |
| 2 | Katabhyadi Tailam | Gomutra | -- | -- | -- | -- | -- |
| 3 | Bharangyadi Tailam | Gomutra | -- | -- | -- | -- | -- |
| 4 | Guduchyadi Tailam | Gomutra | -- | -- | -- | -- | -- |
| 5 | Vajraka Tailam | -- | -- | Gomutra | -- | -- | -- |
| 6 | Vidangadi Tailam ¹⁰ | -- | -- | -- | Gomutra | -- | -- |
| 7 | Gunjadya Tailam | -- | -- | -- | Gomutra | -- | -- |
| 8 | Swarjikadya Tailam | -- | -- | -- | Gomutra | -- | Gomutra |
| 9 | Marichadya Tailam | -- | -- | -- | Gomutra | Gomutra | -- |
| 10 | Mahamarich Tailam | -- | -- | -- | Gomutra | -- | -- |
| 11 | Visha Tailam | -- | -- | -- | Gomutra | -- | -- |
| 12 | Karaviradya Tailam | -- | -- | -- | Gomutra | -- | -- |
| 13 | Shweta Karaviradya Tailam | -- | -- | -- | Gomutra | -- | -- |
| 14 | Somaraji Tailam | -- | -- | -- | Gomutra | -- | -- |
| 15 | Kasisadi Tailam | -- | -- | -- | -- | -- | Gomutra |
| 16 | Agurvadi Tailam | Kanji | -- | -- | -- | -- | -- |
| 17 | Saidhavadi Tailam | Kanji | -- | -- | -- | -- | -- |
| 18 | Mulaka Tailam | Kanji | -- | -- | -- | -- | -- |
| 19 | Mulakadya Tailam | Kanji | -- | -- | -- | -- | -- |
| 20 | Mahapadma Tailam | Kanji | -- | -- | -- | -- | -- |
| 21 | Angaraka Tailam | -- | -- | -- | Kanji | -- | Kanji |
| 22 | Drakshadi Tailam | -- | -- | -- | Kanji | -- | -- |
| 23 | Yavachurnadi Tailam | -- | -- | -- | Kanji | -- | -- |
| 24 | Sarja Tailam | -- | -- | -- | Kanji | -- | -- |
| 25 | Ketakyadya Tailam | -- | -- | -- | Kanji | Kanji | -- |
| 26 | ChatuhSneha Tailam | -- | -- | -- | Kanji | Kanji | -- |
| 27 | Kubjaprasarani Tailam | -- | -- | -- | Kanji | -- | Kanji |

Modern review

Extraction:Media plays role as a solvent system in extraction

Extraction can be defined as the removal of soluble material from an insoluble residue either liquid or solid by treatment with liquid solvent.

Two types of extraction process:

- Solid - liquid extraction: according to Ayurveda it can be correlates with extraction of active principle of Kalka to Sneha
- Liquid- liquid extraction - it can be correlates with extraction of active principle of Drava to Sneha.

Theory of Extraction of Drugs

Examination of the extraction process will show that all have certain stages in common

- Suitable size reduction of the drugs.
- Penetration of the drug by the solvent
- Solution of the soluble matter within the cells
- The escape of dissolved material through the cell walls and through the solvent boundary layer surrounding the particles of the drug. Finally separation of the solution and the exhausted drug.
- Properties of solvents used for extracting drugs:

The ideal solvent would be:

- Cheap
- Non toxic

3. Stable

That is chemically and physically inert; this would include properties such as neutral reactions not too volatile and nonflammable.

4. Selective that is to remove the desired active constituents with the minimum amount of the inert materials.

DISCUSSION & CONCLUSION

The sneha kalpana comprises of Sneha, Kalka and Drava. Sneha which are glycerides of fatty acids, Kalka which contains many potent therapeutically effective bioconstituents ,and Drava like Kwatha , butter milk, Kanji etc. which are the prime source of hydroxyl group and also helps in the dissolution of active principles into the Sneha there by enhancing the therapeutic value. Drava itself has high therapeutic importance. Here attempt is made to clear the role of media (drava dravya) during sneha paka by applying probable thermodynamics.

- Soaking of the drug in the Drava results in the softening of the drug due to diffusion of liquid into the Kalka by the phenomenon of osmosis. Due to the presence of the hydroxyl group the Kalka swells which results in the increased diffusion pressure inside the cells which ultimately leads to the bursting of the cell wall. This process is enhanced by the vigorous boiling and agitation during the processing of Sneha paka. The Drava which diffuses into the Kalka dissolves the water soluble active principle and discharges it to the liquid media due to collapse of boundary layer which results in the transfer of active principles from the Kalka to the solvent.
- Due to continuous stirring homogenous distribution of active constituent in the solvent occurs and hence reducing the

concentration gradient and thereby reducing boundary wall thickness. The continuous boiling and circular movement of the liquid decreases the diffusion co-efficient.[11] (carter)

- The Sneha which is basically glycerides of fatty acid interacts with Drava and undergoes hydrolysis forming triacylglycerol which in turns gets hydrolysed to form diacylglycerol fatty acid and monoacylglycerol respectively which finally hydrolysis to fatty acid and glycerol. These formed fatty acids are amphipathic in nature which comprises of a hydrophobic exterior and hydrophilic interior. The fatty acids interact with the Kalka. The water soluble constituent of the Kalka interacts with the hydrophilic end of the fatty acid and the oil soluble constituent interacts with the hydrophobic end. This amphipathic lipid gets oriented at oil water interface with the polar groups in the oil phases. When a critical concentration of these amphipathic lipids is present in an aqueous media, they form micelles.[12](vasudevan)
- The driving force for micelle formation is hydrophobic since the oil end cannot break the hydrogen bonds between water molecules and as a result cluster together in close proximity. The continuous heating and agitation during the Sneha paka enhances the extraction process by weakening the bonds thereby separating the hydrophobic substance from hydrophilic substance. This hydrophobic matter will act as a surface active agent which gets solubilised in fatty material after the evaporation of water. Hence due to micellisation the finished Sneha may contain both active principles oil soluble as well as water soluble.

As described above these phenomenons is happen in the preparation of Sneha kalpana. So the Drava Dravyas (medias) play an important role. These are facilitate to transfer of the active principles from the solid (Kalka Dravyas) and later enrich the fluid (Sneha) by shifting the active principles. These phenomena can be explained by the theory of mass transfer.

The soluble active principles are shifted from the solid (Kalka Dravyas) to the media (Drava Dravya). The transport takes place in two phases. First the active principles move through the boundary layer of the liquid by molecular diffusion. Once the active principles have passed through the boundary layer, mass transfer takes place by bulk movement of the liquid, known as eddy diffusion.

At later transportation of the active principles occur from fluid (Drava Dravyas) to fluid (Sneha) by fluid/fluid mass transfer. This situation occurs when mass transfer takes place between two immiscible fluids. In this case there will be boundary layers of both fluids on each side of interface, where the concentration gradients depends on the diffusion coefficients in the two materials.

In context of duration of sneha paka ratri (night) word is mentioned which indicates the solubility of active principles needs certain duration. Due to intermittent heating the contact of drug with sneha and drava will be more, which will facilitate the extraction of maximum active principles from the drug to the sneha. Due to increased drug to drug contact, the extraction of active principles will be more.

The rationality behind allotment of duration depends mainly on the nature of Kalka Dravya used, nature of the Drava, concentration of Drava etc.

Processing of Sneha with milk must be done in 2 nights:

Rationality behind this maybe:

- It is dilute media when compared to mamsarasa or rice water etc.drava dravyas, but its concentration is more when compared to the former.
- Milk, a colloid of proteins gets spoiled within a day or two.
- For providing sufficient drug to drug contact and for maximum extraction of active ingredient.

Processing of Sneha with juices of herbs should be completed within in 3 nights

- Swarasa is thicker media when compared to former and heavy in property.
- The chance of decay is less due to intermittent heating.

Processing of Sneha with Kwatha, Arnala,Takra should be completed in 5 nights

- Probably their nature to impart chemical constituents may take longer time period.

Processing of Sneha with climbers should be completed in 12 nights

- They are often dried and hard substance, so longer duration of heating is necessary for acquisition of therapeutically potent principle to the oleaginous media.

The rate of mass transfer depends on some factors like agitation, Regards the Sneha paka “lrr~ nohZ vo?kV~V;u~”. [13] That means continuous stirring should be done. We can correlate it with agitation which reduces the thickness of the boundary layers and disperses any local concentration of solution, and increasing the concentration gradient; that is why during the preparation of Sneha Kalpana continuous stirring is performed.

REFERENCES:

1. Acharya agnivesh, charak sanhita hindi commentary vidhyotini teeka, pandit kashinath shastri, edition 2012,chaukhambha bharti academy,Varanasi,2 part, kalpa sthan, chepter 12th, pg.no. 957
2. Pandit parshuram shastri, Shrangdhar samhita, Madhyam khand, samskrita commentary, Gudartha Deepika,6th edition, Chaukhambha Orientalia, Varanasi ,2005, 212,213,215
3. Acharya Siddhinandan mishra, Bhaishajya kalpana-vigyan, chaukhambha surbharti prakashan, edition 2006, pg.no. 228
4. Pandit parshuram shastri, Shrangdhar samhita, Madhyam khand, samskrita commentary, Gudartha Deepika,6th edition, Chaukhambha Orientalia, Varanasi ,2005, 212,213,215
5. Pandit parshuram shastri, Shrangdhar samhita, Madhyam khand, samskrita commentary, Gudartha Deepika,6th edition, Chaukhambha Orientalia, Varanasi ,2005, 212,213,215
6. Sahstrayogam dr.Ramnivas Sharma, 3rd edition, chaukhambha samskrita pratishthan, new delhi pg.no.75
7. Acharya agnivesh, charak sanhita hindi commentary vidhyotini teeka, pandit kashinath shastri, edition 2012,chaukhambha bharti academy,Varanasi,2nd part, chikitsa sthan, chepter 3rd, 161
8. Acharya agnivesh, charak sanhita Hindi commentary vidhyotini teeka, pandit kashinath shastri, edition 2012, chaukhambha bharti academy, Varanasi, 2nd part, chikitsa sthan, chepter 7th, pg.no. 266.
9. Manisha goyal ‘A pharmaceutico -clinical study of karpanpatru oil prepared with different Medias wsr to its effect on switra.”
10. Acharya chakra pani, chakradatt, hindi commentary “vaidhprabha”indradev tripathi, edition 2012, chaukhambha samskrit bhavan, Varanasi, pg.no.78
11. Carter SJ, Cooper and Gunn’s Tutorial Pharmacy, 6th ed., CBS Publishers &Distributors, New Delhi, 2000, 162-163
12. Text book of biochemistry, D.M.vasudevan, 3rd edition, Jaypee brotherschap.12, pg.11
13. Acharya agnivesh, charak sanhita hindi commentary vidhyotini teeka, pandit kashinath shastri, edition 2013, chaukhambha bharti academy, Varanasi, 1st part, viman sthan, chepter 7th, pg.no. 733.