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REVIEW ARTICLE

CONCEPT OF BASTI FORMULATION.

Anand kumar[1], Shashidhar H Doddamani[2], Rashmi Patil[3],

1. Ex-Senior Research Fellow, Regional Ayurveda Research Institute for Metabolic Disorders, Bangalore.
2. Research Officer (Scientist-2), Regional Ayurveda Research Institute for Metabolic Disorders, Bangalore.
3. Ayurveda Practitioner, Bangalore.

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Corresponding Author

Anandkumar.

Abstract

Basti kalpana[1] typically consists of Kalka dravya (Fine paste), Sneha and Drava dravyas (E.g.Decoctions). Their mode of preparation, in an order, is of prime pharmaceutical importance as it makes each ingredient of kalpana homogenously mixed and dispersed throughout the compound mixture.
The concept of dispersion of the solid or liquid molecules as one phase into another medium or phase is called colloid. The different methods are employed for the stability of a colloid.

Introduction:-

A single drug or a compound formulation (yoga) is formulated from the panchavidhakashayakalpana and its upakalpana. Formulation involves different samskaras like agni (fire), bhavana (trituration), manthanaetc which is designed for its use in different mode of administration like internally, externally, anal route etc. Bastikalpana is one such formulation which involves sneha, kashaya (decoctions), and kalkadravyas, samskara done by manthana (churning) used for anal administration.

Definition: -BastiKalpana (formulation) is atherapeutic measure where medicated substances are introduced into rectum/urethra.

Types:-

1. Niruha / Asthapana - KashayaPradhana. - Decoction enema.
2. Sneha / Anuvasana – SnehaPradhana.-Unctuous enema.

Basic Components:-

Madhu– Honey / Guda
Saindhava– Salt
Sneha– Oil/Fats
Kalka – Paste Of Drugs.
Kashaya – Decoction/Drava Dravya.
AvapaDravya - Go Mutra - Cow's Urine.

Bastidravyamishranavidhi-Preparation of the mixture:-

In the beginning, honey (madhu) and saindhavalavana (salt) are stirred till a homogenous mixture is obtained.
Then to this mixture, fat (ghee & oil) are added little by little and stirring continued.
Thereafter, the paste (kalka) and kashaya (decoction) prepared of drugs are added and homogenously mixed.
The prepared bastidravya is placed in bastiputaka (enema bag).

Concept of formulation:-

Bastikalpana (formulation) consists of a varied nature of drugs i.e., each one substance is immiscible with another as honey, oil, paste, decoction etc.

A technique by which a uniform distribution of each substance into another media is attained, is called disperse system.[2]

Components:-

1. Disperse phase - Solids as particles
   Liquids as droplets
2. Continuous phase – particles dispersed phase.

Classificationof Colloids (Dispersion of one phase into another)

LyoPhillic – solvent liking – similar affinity between disperse phase and continuous phase.
e.g. milk in water.
Lyo Phobic – solvent hating – dissimilar affinity between disperse phase and continuous phase.
e.g. milk in oil.

Method of preparation of Colloid:-

Dispersion Method: -Breakdown of coarse material (larger particles) into particles of colloidal dimensions.
Instruments: - Colloidal Mill
The mill causes dispersion of coarse material by shearing in a narrow gap between a static cone and a rapidly rotating cone.

Condensation Method: -It involves rapid production of super saturated solution of colloidal material under conditions in which it is deposited in dispersion medium as colloid particles and not as precipitate. After that, the particles tend to reunite unless a stabilizing agent / surface active agent is added.

Stabilizing agent: -They are Surface-active agents or Surfactants orAmphilphiles.
It is the agent which reduces the interfacial tension between phases of liquid-liquid or solid-liquid phases etc. It forms a film around the surface of particles or globules in order to scatter them indefinitely in continuous phase, so that a stable colloid is formed.

Characteristic of surfactant is having two distinct regions in their chemical nature i.e., hydrophilic and hydrophobic. They have a tendency to accumulate at the boundary between two immiscible phases. Adsorption at the interface between different phases occurs in such a way that hydrophobic group is in solution in non-aqueous phase, leaving hydrophilic group in contact with aqueous solution.

Method of colloid preparation[3]:-

- Consists of head which is covered with fine meshed stainless steel sieve.
- Head consist of a number of blades which rotate at a very high speed in order to produce a powerful shearing action. The blades are rotated by using an electric motor fitted at the top.
- Head is placed in a vessel containing immiscible liquids in such a way that it should get dipped into it.
- When the motor is started, liquids are sucked through the fine holes and oil or solid is reduced into fine globules or particles due to rotation of blades.
- So a fine colloid is produced which is then expelled out. The intake and expulsion of mixture set up a pattern of circulation.

Colloidal systems:-

Suspension is a biphasic liquid, in which finely divided solid particles are dispersed in a liquid or semi-solid vehicle.
Stabilizer – suspending agent.
Emulsion is a biphasic liquid, containing two immiscible liquids, one of which is dispersed as minute globules into the other.

Types - Oil in water – o/w.
Water in oil – w/o.
Stabilizer –emulsification agent.

Stability of colloid:-
A colloid is said to be stable if it remains as such after its preparation i.e., the dispersed phase is uniformly distributed throughout the dispersion medium during its storage.

Unstable colloid features are Sedimentation, Cracking, Creaming, Phase inversion.

Reasoning behind orderly mixing of drugs in basti kalpana[4]:-
- Honey being auspicious is first of all poured for the preparation.
- Salt by its sharpness, disintegrates the sliminess (picchila), denseness (bahulata), astringtness (kashaya rasa) present in the honey.
- This results in the compound formation, which is the reason why after honey, salt is poured. Then, when oil (sneha) is added, it brings about uniformity i.e., the content are properly mixed together.
- The paste(Kalka) added gets mingled quickly.
- The decoction (kashaya) brings about homogeneity.
- In this oleaginous(sneha) substance, paste(kalka) and decoction(kwatha) mixed together.
- The urine (mutra) poured to this brings sharpness and increases the potency.
- In this way an orderlybastidravyasare mixed which helps in attaining homogeneity and the other way will not.
- Properly mixture will not have any demarcation between any of its phases.
- The whole mixture should be in warm stage.

Rationality behind in mixing of bastidravya- a modern view:-
- In the preparation of niruhabastidravya, madhu and lavana are mixed together vigorously to form a stabilizing agent. Soapingwhich gives stability to the solution.
- Next snehadravya should be added because it is a dispersed liquid
- (It gets distributed in small globules throughout the body of kwatha or liquids)
- Now the mixture is once again subjected for vigorous churning process till the dispersed liquid gets mixed properly with the stabillizer.
- Next kalka should be added, at the end kwatha should be added .
- Here snehadravya gets equally distributed throughout the body of kwathadravya with the help of an stabilizer which makes the colloid stable.

Need for basti formulation:-
- A highly effective measure for therapeutic value administered through rectal route.
- Simultaneous administration of multiple drugs of varied nature.
- Difficulty / impractical to use kalka, saindhavalavana as basti.
- Uniform distribution of fine molecules of sneha andkalkadravyas throughout the kashaya medium is possible.
- The formulation makes dispersed particles into very fine molecules for faster and better absorption.

Conclusion:-
- Basti formulation – a colloid system, a general but more approprite as it contains kashaya, sneha and kalkadravyas.
- A stabilizing agent is required to suspend all ingredientsof formulation/ kalpanahomogenously.
- Uniform distribution of drugs makes it available to lumen of intestine, which provides maximum absorption.
- Kalka provides a more viscosity which helps in long time retention of drugs into the koshtha.
- Warm stage of basti also makes it more stable and better absorption.

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