STHANYAJANANA DASHEMANI AND ITS GALACTOGOGUE ACTION – A REVIEW

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ABSTRACT

The health and nutritional status of an infant and its subsequent growth and development throughout childhood solely depend upon successful feeding right from birth. Breast feeding has both nutritional and non-nutritional benefits. Breastfeeding and its importance has been well established since ancient times. Insufficient breastmilk production i.e. sthanyanasa or sthanyakshaya (agalactia and hypogalactia) is a very common issue faced by many mothers. This can be overcome with the possible dietary modifications, changes in daily activities, favourable state of mind and with certain pharmaceutical preparations known as galactogogues. Ayurveda has also explained many galactogogue drugs which can be used safely by a lactating mother. Most important among these is Sthanyajanana dashemani explained by Charaka acharya which is safe effective and acceptable also. This article aims to have an overall view of pharmacological activities, chemical composition and probable mode of action of these drugs on human lactation. It has been concluded than sthanyajanana dashemani drugs in general have action in managing rasadhathukshaya which is the main pathology behind sthanyakshaya.

Keywords: Ayurveda, Sthanyajanana, galactogogue, breastmilk, sthanya

INTRODUCTION

Breast milk has been mentioned as the one and only effective food for infants. Ayurveda Acharyas have quoted the importance of breastfeeding in many instances. There have been some controversial opinions regarding time of initiation of breastfeeding as mentioned by various acharyas. Charaka acharya has instructed to give breast milk from first day of birth onwards. There are several advantages of breast feeding infants viz, it gives all sufficient nutrients to the baby, enhances immunity, lowers risk of other life style disorders later in life, increases mother and child bonding, enhances myelination in brain, thus increasing IQ level of the baby. Mother also gains many benefits on breast feeding. Breastfeeding exerts a contraceptive effect on mother by inhibiting ovulation. Also, it helps mother to regain her pre-pregnancy body weight. Lactation failure is a serious issue which can be due to various causes. In case of non initiation by early suckling, counselling and emotional support should be given to mother. Nutritional deficits if any should be corrected with safe and effective methods. Ayurveda helps in offering such safe methods of enhancing breast milk pro-
duction. Pathological conditions if any have to be given specific treatments accordingly.

**Physiology of lactation**

Mammary gland consists of 15-20 segments converging on the nipple. Each segment consists of clusters of alveoli, collecting sinuses, milk ducts, fat and interstitial tissue. Milk is secreted by the epithelial cells lining the alveoli & is collected in the sinuses. When the infant suckles, nerve impulses reach the posterior pituitary and stimulate it so that the hormone oxytocin is released. Oxytocin acts on the small muscles surrounding the milk producing ducts and helps in the ejection of milk. This is known as ‘Let down reflex’. This reflex is sensitive to emotional and psychological factors. Emotionally, confidence can enhance the milk flow, while anxiety can suppress it. Nipple stimulation is not the only way to initiate the let down reflex. The sight or the sound of the baby or even thought of the baby can initiate the reflex and the flow of milk. Sucking is however the best galactogogue.\(^1\) Formation of breast milk has been attributed to *Kapha dosha* and *Rasa dhathu* by Ayurvedic acharyas.\(^2,3,4\) Milk ejection occurs by sight, touch or by mere thought of the infant. Breast milk pacifies *Vata, Pitta* and *Raktha* vitiation and can be used in the management of *Rakthapitta* and diseases of eyes involving trauma.\(^5\) Charaka has described the features of pure milk to be with normal colour, smell, taste and touch.\(^6\) Susrutha describes pure sthanya to be with *Madhura rasa, kashaya anurasa*, colour resembling that of conch shell, cold, light, free from impurities and should be miscible in pure water.\(^7,8\) As per *Kasyapa*, child feeding on pure milk will have uninterrupted strength, well developed body parts, longevity, will be free from diseases and also, the child and nursing mother will not be having any pain or difficulties.\(^9\)

**Major causes for low breast milk production**

Various factors can cause a low milk supply during breast-feeding, such as waiting too long to start breast-feeding, not breast-feeding often enough, supplementing breastfeeding, an ineffective latch and use of certain medications. Sometimes previous breast surgery affects milk production. Factors such as premature birth, maternal obesity, pregnancy-induced high blood pressure and poorly controlled insulin-dependent diabetes can also affect milk production.\(^10\) *Vaghbhata* has mentioned that emotional factors like anger and grief, lack of affection towards the child can affect lactation. Activities which cause exhaustion, fasting and excessive emaciation of the body also causes of *sthanyanasha* or reduced production of milk.\(^11\) Excessive use of Purificatory therapies, conceiving next child while lactating and some unknown natural causes can also be the causative factors. Intake of dry foods and drinks by the mother can also hamper lactation. Child not receiving proper breastfeeding may show poor weight gain, signs of dehydration (as assessed from the frequency of micturition) and will be deprived of proper sleep and activities.

**Galactogogues**

Lactation failure due to improper feeding practices can be managed in most cases by proper counselling of mother and also by providing proper emotional, mental and physical support to the mother. However, low milk production has to be frequently addressed by physicians by prescribing pharmaceuticals and other products to enhance milk production, namely galactagogues. Galactagogues may be considered when non-pharmacologic interventions are found to be insufficient. Also, the use of galactagogues should be restricted to patients with a no treatable cause of reduced breast milk production. Galactagogues may be synthetic or plant-derived.

Drugs such as domperidone, metoclopramide, Antipsychotics such as risperidone, chlorpromazine and sulpiride and Certain hormones such as oxytocin, growth hormone (GH), thyrotropin-releasing hormone (TRH), and thyroid-stimulating hormone (TSH) acts a synthetic galactagogues. But it has been proven that all these drugs produce unwanted effects in both mother and baby. The notable side effects in mothers are xerostomia (dry mouth syndrome or hyposalivation),
gastrointestinal disorders, cardiac arrhythmia, lethargy, sedation, extrapyramidal symptoms such as hypertension, tremor, tics, facial seborrhea, and hyperhidrosis, and even sudden death. In infants that ingest milk from treated mothers symptoms include intestinal discomfort, lethargy, and sedation. Hence it has been necessary to look for safer methods, i.e. herbal galactogogues.

As per Ayurveda, breast milk of another lactating mother (Dhathri or wet nurse) is the first choice in case if mother is having sthanyakshaya. When there is no possibility of providing human milk to baby, cow’s milk or goat’s milk can be taken as an alternative. Simultaneously, sthanyakshaya in mother has to be managed with effective treatment protocols. Sthanya is the upadhatu of Rasadhathu and all those diets and practices which increases rasadhathu and Kaphadosha has to be followed in case of sthanyakshaya. Many galactogogue formulations has been mentioned by various acharyas. Dietary modifications should be the first line of management of treating reduced milk production. Madhura and lavana rasa foods and drinks are indicated for this purpose. Alcoholic beverages except that made from sugarcane juice, soups made from meat of animals living in marshy areas, milk, plants having latex are to be taken. Pleasant state of mind is also an essential factor.

Different galactogogue preparations have been formulated by our acharyas. In Kashyapa samhitha, there is indication of different kwathas to enhance milk production. Apart from that it is mentioned that, intake of milk, meat juice and wine are good for increasing milk or milk processed with aphrodisiac drugs also increases breast milk. Use of ghritha, oil and enemas is galactogogue. Most significant among the various galactogogue formulations is the sthanyakjanana dashemani mentioned by Charakacharya in Suthrasthana. There are 10 drugs in the formulation which are easily available and has good effect in augmenting lactation. They are: veerana, Sali, shashtika Sali, ikshuvvalika, darbha, kusa, kasa, gundra, itkata and kathruna. It can be safely used by the lactating mother. It can produce better result if taken in the form of ksheerapaka and in the dosage of kwatha.

Table 1: Ayurvedic pharmacological properties and actions of the drugs

<table>
<thead>
<tr>
<th>Drug</th>
<th>Rasa</th>
<th>Guna</th>
<th>Veerya</th>
<th>Vipaka</th>
<th>Karma</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veerana</td>
<td>Tiktha, Madhura</td>
<td>Laghu, Snigdha</td>
<td>Seetha</td>
<td>Madhura</td>
<td>Vatashamaka, Pithashamaka, pachana, stambhana, sthanyajanana, dahaklanthihara</td>
</tr>
<tr>
<td>Sali and Shashtikasali (a variety of Sali)</td>
<td>Madhura, Kashaya</td>
<td>Snigdha, guru</td>
<td>seetha</td>
<td>madhura</td>
<td>Tridosahara, sukrala, badhalpavarchasa, brimhana, muthrala, balya, varnakrit, swarya, ruchya, chakshushya, hridya, sthanyajanana</td>
</tr>
<tr>
<td>Ikshuvalika</td>
<td>Madhura, amla, tiktha</td>
<td>Pichila, snidgha</td>
<td>seetha</td>
<td>madhura</td>
<td>Vatapittahara, balya, sukrasodhana, sthanyajanana</td>
</tr>
<tr>
<td>Darbha</td>
<td>Madhura, Kashaya</td>
<td>Laghu, Snigdha</td>
<td>seetha</td>
<td>madhura</td>
<td>Tridosahara, rasayana, muthravirechaniya, sthanyajanana, pipasahara, kushtaghna, dahaprasamana, vamaka</td>
</tr>
<tr>
<td>kusha</td>
<td>Madhura, kashaya</td>
<td>Laghu, snigdha</td>
<td>seetha</td>
<td>madhura</td>
<td>Kaphapittahara, muthrala, sthanyajanana</td>
</tr>
<tr>
<td>kasha</td>
<td>Madhura, tikha</td>
<td>sara</td>
<td>seetha</td>
<td>madhura</td>
<td>Vatapittahara, balya, vrishya, sramahara, ruchya</td>
</tr>
<tr>
<td>Gundra</td>
<td>Kashaya, madhura</td>
<td>guru</td>
<td>seetha</td>
<td>madhura</td>
<td>Vatapittahara, sthanyasodhaka, sthanyakjanana, sukrasodhaka, rajasodhaka,</td>
</tr>
</tbody>
</table>
Table 2: Chemical constituents and pharmacological actions

<table>
<thead>
<tr>
<th>Drug</th>
<th>Botanical name and family</th>
<th>Part used</th>
<th>Chemical constituents</th>
<th>Pharmacological actions/benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veerana</td>
<td>Vetiveria zizanioides, Poaceae</td>
<td>Root</td>
<td>Essential oil containing chemical constituents like Benzoic acid, Furfural, valencene etc.</td>
<td>antibacterial, antifungal, anticataleptic, analgesic and anti-inflammatory, Rheumatism, anti oxidant and anti arthritic</td>
</tr>
<tr>
<td>Sali and Shashtika (a variety of Sali)</td>
<td>Oryza sativa, Poacea</td>
<td>Grains, polishings, roots, rizomes</td>
<td>Vitamin B, fibre, proteins, carbohydrates, fatty acids, antioxidants,flavanoids.</td>
<td>Anti-inflammatory, immunostimulatory, regulates hypercholesterolemia, chemoprotective, antioxidant</td>
</tr>
<tr>
<td>Ikshuvalika</td>
<td>Hygrophylla longifolia, Acanthaceae</td>
<td>Roots, leaves, seeds</td>
<td>phytosterols, fatty acids, minerals, polyphenols, proanthocyanins, mucilage, alkaloids, enzymes, amino acids, carbohydrates, hydrocarbons, flavonoids, terpenoids, vitamins, and glycosides.</td>
<td>antitumor, hypoglycemic, aphrodisiac, antibacterial, free radical scavenging and lipid peroxidation, hepatoprotective and haematopoietic</td>
</tr>
<tr>
<td>Darbha</td>
<td>Imperata cylindrica, Poaceae</td>
<td>Whole plant</td>
<td>Phenylpropanoids,organic acids,phenolic compounds, triterpines, coumarins.</td>
<td>Anti-inflammatory, antitumour, diuretic, anti diarrheal, antiviral, antihapatotoxic, anti-hypertensive, antihistamine and larvicidal activity</td>
</tr>
<tr>
<td>Kusha</td>
<td>Desmostachya bipinnata, Poaceae</td>
<td>Whole plant</td>
<td>Coumarins, carbohydrates, sugars, proteins, alkaloids, tannins, phenolics, flavonoids, triterpenoids, amino acids and glycosides.</td>
<td>antimicrobial, antiinflammatory, analgesic, antipyr etic, gastrointestinal, anticancer, diuretic, anti - urolithiatic, antioxidant, hepatoprotective, antidiabetic, bronchodilitation and antihistaminic effects.</td>
</tr>
<tr>
<td>Kasha</td>
<td>Saccharum spontaneum, Poaceae</td>
<td>Roots, stem</td>
<td>Lignin, reducing sugar, proteins, aminoacids, oxidising enzymes, polyphenolic compounds, alkaloids, tannins.</td>
<td>CNS depressant, anti diarrheal, cardioprotective, antioxidant, antiobesity, anti microbial</td>
</tr>
<tr>
<td>Gundra</td>
<td>Typha australis,</td>
<td>Rhizomes, leaves</td>
<td>Steroids, fatty acids, polysaccharides, flavanoids,</td>
<td>Antioxidant, diuretic</td>
</tr>
</tbody>
</table>
**DISCUSSION**

Study of literature concerned about the Ayurvedic pharmacological principles of these drugs showed that most of the drugs possess attributes like madhura rasa, madhura vipaka and seetha veerya. These properties make the drugs Kapha vardhaka, which is essential in the management of Rasadhathukshaya, the prime factor behind sthanyakshaya. Ayurveda principles indicate that the drugs possessing physical qualities and pharmacological attributes similar to body elements or tissues are responsible for growth, development or augmentation of respective components of the body (sarvada sarva bhavanam samanyamvriddhi karanam, Samanyam ekatvakaram, tulyarthata samanyam) these drugs have attributes which are analogous to that of breastmilk. Most of the plants belong to Thrinavarga and also some latex secreting plants which enhances sthanya production. The last drug in the dashemani is having rooksha, theekshna and laghu guna, katu tiktha rasa, katu vipaka and ushna veerya. These properties help it to act as a good deepana pachana dravya. Proper functioning of agni – both jataragni and dhathwagni is essential for proper formation of dhathus and upadhathus. It also removes obstruction if any in the sthanyavaha srothas. In this way the drug contributes in enhancing breast milk production.

While considering pharmacological actions (karma), most drugs pacify vata and Pitta dushti and thus promote proper nourishment of all dhathus. Most of them have deepana and pachana action which helps in proper metabolism and assimilation of metabolites so that the quality as well as quantity of breast milk can be ensured. Besides that brimhana, balya and sthanyakshana properties in specific, makes the drugs to have more nourishing action on the body. Certain metabolites of the drugs make them good galactogogues. Alkaloids, polyphenols, proteins, reducing sugars, isoflavones etc helps in enhancing milk production as well as in improving quality of milk.
CONCLUSION
Keeping in view of the importance of breast feeding, many steps are being taken worldwide and nationwide to promote breast feeding. Also, steps are taken to enhance quality as well as quantity of breast milk. Various such methods are mentioned in Ayurvedic texts. Drugs included in Sthanyajanana dashemani has been reviewed thoroughly and it has been evidenced that the drugs have pharmacological properties and actions which makes them effective galactogogues and acts by managing rasadhathukshaya. The drugs can be used safely in lactating mothers. Also, it helps the mother to attain stability of dhathus which is usually affected during pregnancy and labor. Systematic studies are to be conducted on preclinical and clinical basis so that the efficacy of these drugs can be proved. In this era of modern lifestyle, where breast milk production has been affected qualitatively and quantitatively, such practices can be of great blessing, ones the formulation and dosage have been effectively fixed.

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