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PHYSIOLOGICAL ASPECTS OF STANYA UPDHATU (LACTATION) : AYURVEDA AND MODERN VIEW

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Abstract:

Along with the joys of motherhood comes the responsibility of nourishing the newborn. For good health of newborn, proper nourishment in form of feeding is extremely important. This nourishment is provided by “Stanya” or Breast milk. The ideal food for human infants is exclusive mother’s breast milk during the first 6 months of life. Breast milk contains all the right ingredients - protein, carbohydrates, fats, vitamins, minerals, and water - in just the right balance. No formula on the planet can make that claim. So it is important to know the concept of Stanya updhatu in Ayurveda as well as the physiology of lactation in modern science in parallel. While managing the inadequate milk supply in lactating mothers, one should have proper knowledge about the properties, formation, benefits and functions of the stanya. Therefore it is important to understand the physiological aspects of Stanya Updhatu (Breast Milk).

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INTRODUCTION:

Ayurveda describes the body as the sum total of doshas, dhatus and malas, "**dosha dhatu mala moolam hi shariram**". All these together keep the body in balance. In addition to Dhatus, Charaka and Vagbhata have described six updhatus viz, stanyam (breast milk), rajah (menstrual fluid), kandaras (tendons), siras(blood vessels & nerves), mamsa-vasa (muscle fat), shad twacha (skin) and snayus (nervous tissues and ligaments). They have stated that updhatu is produced as the prasad (opposed to kitta or waste products) from dhatus. Sushruta is seen,not to have described updhatus but, his commentator-Dalhana is seen to have taken a proper note of them. Updhatus is the important concept of Ayurveda

Stanya as Updhatu:

Stanya is the updhatu (secondary tissue) of Rasa, which is secreted postpartum in the mammary glands of females. Stanya is an excellent food for infants. It nourishes and supports the child. The major condition "stanya" fulfills to be kept under updhatu is that it doesn't undergo any further metabolic transformations¹.

AIM :

To study the concept of Stanya Updhatu in Ayurveda and physiology of lactation as per modern literature.

MATERIALS & METHODS:

Material has been collected from the books & literatures of Ayurveda and Modern medicine. Classical Ayurveda books & articles in relation to the topic are referred.

DEFINITION & SYNONYMS:

Stanya is the updhatu (secondary tissue) of rasa dhatu. For nourishment of baby, the milk which is secreted in the mammary glands is called Stanya. Synonyms are: Payas, Dugdha, Kshira, Goras.

Breast Milk: The most appropriate milk for baby is Mother's milk. The breast milk feeding should be given at regular intervals starting from 6 hours after birth. It should be given generally once in every three hours. Breast milk normally appears on the 3rd or 4th day of delivery.

STANYA UPDHATU IN AYURVEDA:

Breast Development during Pregnancy:

As per Ayurveda Classics, according to Sushruta Acharya- After Conception, orifices of artavavaha (reproductive) srotas of pregnant woman gets obstructed by the foetus and menstrual cycle is ceased hence artava cannot come out of vagina. Obstructed artava takes part in formation of placenta

while remaining part travels in upward direction, reaches the breasts, helps development of lactiferous ducts of breasts and prepares them for the production of stanya. It also turns nipple into darker colour².

Formation of Stanya (breast milk):

Stanya is the vital essence of rasa dhatu. Rasa dhatu is formed by digested food. Rasa dhatu circulates in the whole body, when rasa dhatu reaches breast, stanya or breast milk is formed. A property like sweetness of rasa dhatu is responsible for formation of Rasa Dhatu³.

Ejection of breast milk:

As per Susruta Acharya, the secretion and expulsion of breast milk is stimulated by the touch, sight or even through the thought of child⁴.

Post partum, the excess of vata constricts the artavavaha srotas and dilates the lactiferous ducts of mammary glands and thus the actual secretion of milk takes place on third or fourth day.

Post-partum on the first and second day the mammary glands secretes thick, yellowish, heavy fluid which is called as Piyush.

PHYSIOLOGY OF LACTATION:

Breast Development during Pregnancy:

Breast development is a vital part of a woman's reproduction. Breast development happens in certain stages during a woman's life: first before birth, again at puberty, and later during the pregnancy and child birth.

It is believed that the full development of the breasts takes place in woman after giving birth. Breast changes are one of the earliest signs of pregnancy. This is a result of the hormone progesterone. Due to the high sustained level of progesterone secreted by corpus luteum after conception, the menstrual cycle ceased. Endometrium becomes secretory and prepares itself for implantation and hence no menses occurs during pregnancy. Progesterone is responsible for dark areas of skin around the nipples (the areolas) begin to swell. This is followed by the rapid swelling of the breasts themselves. This is because of the growth of the milk duct system and the formation of many more lobules. Hormones like prolactin, placental hormones, Growth hormones, thyroxine and corticisol enhances overall growth and development of mammary glands in all stages.

By the fifth or sixth month of pregnancy, the breasts are fully capable of producing milk. As in puberty, estrogen controls the growth of the ducts, and progesterone controls the growth of the glandular buds. Many other hormones also play vital roles in milk production. These include follicle-stimulating hormone (FSH), luteinizing hormone (LH), prolactin, oxytocin, and human placental lactogen (HPL).

Lactation⁵ means synthesis, secretion and ejection of milk.

Initiation of milk secretion is known as Lactogenesis. Prolactin. Hormone secreted by anterior part of pituitary is responsible for milk secretion.

Maintenance of Milk Secretion is known Galactopoiesis. Other hormones like growth hormone, thyroxine and cortisol are essential for continuous supply of glucose, amino acids, fatty acids, calcium and other substances necessary for milk production⁵.

Milk Ejection is discharge of milk from the mammary glands. It is neuroendocrine reflex which is responsible for the let down of the milk from alveoli into the ducts. Nipple suckling action of baby generates the stimulus. This sucking stimulus is transferred to hypothalamus, which in turns sends impulse to posterior pituitary to release oxytocin hormone. Oxytocin acts on myo-epithelial cells of breasts to express milk out of breasts⁶.

The substance secreted by breasts during first days is called as colostrum. It is clear to yellowish in colour and watery. **Colostrum** is nutrient rich fluid produced by female immediately after giving birth, is loaded with immune, growth and tissue repair factors. It is rich in immunoglobulins and salts. It contains all components of milk except fat.

CHARACTERISTICS OF SHUDDHA STANYA

Child should be fed with shudha stanya to get nourishment and good health.

Charak Acharya describes the qualities of suddha stanya as: Normal in colour, taste, smell and touch. When added to water gets mixed well⁷.

Sushruta Acharya describes the suddha stanya as: Cold, Clear and thin. Whitish yellow in colour/ like colour of conch. Sweet in taste and free from discoloration. Disperse uniformly in water. Neither floats nor sinks in water. Devoid of froth and shreds⁸.

Acharya Kasyapa has given emphasis on resultant action that is the qualities acquired by the child due to consumption of suddha stanya. Such type of milk imparts unhindered growth of different body parts, strength to body organs, longevity as well as good health to the child and does not show any type of anomaly in child and mother. Acharya Harita has also recited the qualities of breast milk, as it is helpful to increase the Satva, Bala and complexion of a child. Milk is having similar properties to that of Oja; so it is conducive in the promotion of Oja. Therefore milk is superior. Milk is invigorating (Jivaniyam) in action. Human milk is wholesome, revitalizing and possesses nourishing property. Eye pains also get relieved due to breast milk. Acharya Bhavamisra quotes it as Laghu, Sita and Sara. It possesses Agni Dipana property. It alleviates Vata and Pitta Dosa. It right away nourishes the Sukra

Dhatu. It is Param Vajikara i.e. aphrodisiac in action. It is also known to have Vayasthapana, Sandhanakara, Rasayana, and Ayusyakara properties.

FEATURES OF NORMAL BREAST MILK^{7,8} –

A test for pure (suddha) breast milk: When poured over a pot of water, it gets mixed up with the water homogenously (neither float, nor sinks) then it is said to be endowed with natural qualities. The white colour of breast milk similar with colour of Conch shell. It should have natural colour, smell, taste and touch. It should not be very cold or very hot; it should suit the body temperature of child. It should be clear (free from impurities), thin, froth less, and shred less. It should be sweet in taste and astringent as a secondary taste. Such type of pure milk imparts health, growth and strength of the child.

COMPOSITION OF BREAST MILK:

Breast milk contains 88.5% of water and 11.5% of Solids⁹. Important solids are Lactose, lactalbumin, casein, fat, calcium, iron, vitamin A & D and other minerals

DISCUSSION:

Both Ancient Ayurveda science and Modern has explained the physiology of Breast milk formation, changes in breast tissue during pregnancy, its relation with menstrual cycle, characteristics of breast milk, low supply of milk and management. There are several benefits of breast milk feeding to the baby and mother.

BENEFITS OF BREAST MILK:

As per Charak Acharya, Human milk is responsible for *Jeevanam*, *Bhrahamam*, *Satmyam* and *Snehanam*¹⁰. It is responsible for proper nourishment, growth and proper strengthening of body constituents in infants. According to Vagbhata, Breast milk is responsible for deha-vridhhi¹¹ (body growth) in infants.

As per modern science,

Benefits to Infants:

- Lactose helps in absorption of calcium and enhances the growth of Lactobacilli in the intestines.
- Amino acids aids in neurotransmission and neuromodulation.
- Polyunsaturated fatty acids help in myelination of the nervous system.
- A number of protective factors eg. immunoglobulins protect from infections.
- Epidermal growth factors enhance maturation of intestinal cells and reduce the risk of allergy in later life.

Benefits to Mothers:

- Breast feeding helps the mother by promoting involution of the uterus.
- The greatest advantage in breast feeding is it develops an emotional relationship between mother and child. This emotional bond helps in the mental development of the infant.
- Breastfeeding is convenient and less time consuming. Breast milk is readily available all the time at the desired temperature. There is no need to buy feeding bottles and artificial milk and no time is wasted for sterilization of bottles and preparation of feeds.
- Women who breastfed their infants had less anxiety and more mutuality than the women who is bottle feeding their infants.
- Decreases in postpartum weight retention also noticed after encouraging prolonged breast feeding.
- Long duration of lactation was associated with a reduced risk of coronary heart disease
- Mothers who breast feed their babies have a reduced risk of breast cancer, ovarian cancer, and endometrial cancer.

LOW SUPPLY OF MILK: NOW-A-DAYS A COMMON PROBLEM FACES BY MOTHERS:

Due to the lifestyle modifications, work pressure, change in eating habits and unbalanced day to day routine mothers throughout the globe is facing problem of low supply of milk. Though there are many programs running to encourage the act of breastfeeding in house, at workplace, in shopping malls, during travel and so on. But still these problems of inadequate supply or low supply after few months of post partum are common complaint by mothers.

LOW SUPPLY OF MILK IS ALPA STANYA PRAVRUTI IN AYURVEDA

Ayurveda science emphasis on management of healthy condition by preventing the reasons , adopting right food, required behavior /lifestyle and then treatment through required ayurvedic drugs is also available.

In Ayurveda classics, different reasons for alpa stanya pravriti have been given, which are as follows: Anger, Greif, Fasting,¹² Lack of affection towards child ¹³, Fasting, Excessive exercise, consumption of dry substances, emaciation and excessive use of purifying measures ¹⁴.

By consciously preventing the above behaviors, after delivery one can help patient to maintain the milk supply. Proper education to the mother should be given at the time of discharge

Management of Alpa Stanya: When there is low supply of milk, woman needs all the measures to improve the condition. Such measures are Proper Food, Adoption of Required habits and behavior and Medications.

Food which contains ample amount madhur , lavana and amla rasa. Cow Milk, Curd, Vegetables, Cereals, Juicy fresh fruits, Use of Ghee and Oils. Food in form of liquids and semi-liquids is easy to digest.

Habits: Lactating woman should keep away from any tension, sorrow, anger ,fear, tiring work and excessive waling or exercise. Maintain happy state of mind¹⁵.

Medicines in Ayurveda: Use of Kaphakara substance to increase lactation. Shatavari is potent natural galatogogue. Milk treated with Shatavari , Maricha and pipalamula , vajikarana drugs. Kashaya prepared with Stanyajanana drugs.(virana,shali,shastika,ikshuvalika,darbha,kusa,kasa,gundra,itkata and Katrina are ten stanyavarg dravyas)¹⁵

In Ayurveda, there are many safe & potential drugs available to increase lactation without any ill-effect to mother or baby. This healing science provides understanding of an overall positive approach and incorporation of positive lifestyle for mother and baby. Knowledge of proper physiological aspects of stanya is essential for right management approach.

CONCLUSION

Stanya is pure bliss of rasa dhatu. Secretion of breast milk depends on proper nourishment of rasa dhatu. Breast milk is formed by the digested food of mother so it contains all the nutrients required for proper nourishment of body constituents. Diet and lifestyle of mother plays an important role in breast milk production. All infants should be fed on breast milk in order to enhance the growth of the body. It provides immunity to the infants. Modern medicine and Ancient ayurveda Samhitas both have given importance to breast milk. Breast feeding related awareness and problems is not only individual family phenomenon but it is a social issue also. It is in welfare of every newborn. Every mother should be encouraged to breastfeed the child exclusively upto the age of six months. It has numerous long-term benefits for both baby and mother.

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