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COMPLEMENTARY FEEDING – A SAFETY TO PREVENT NUTRITIONAL DISORDERS

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Abstract

Promotion and prevention of health is the Main aim of Ayurveda. Ayurveda gives lot of importance on good nutrition at every stage of child life, in order to preserve their health. The American Academy of Pediatrics (AAP) recommends exclusive breastfeeding for a minimum of 6 month and introduction of appropriate solid food from 6 month to 1 year age group. Weaning is a transition period in which solid and semi-solid foods replace the milk or formula. Between 6 and 12 month of age, baby become familiar to solid foods and liquid by bottle and/or cup, most infants decrease the volume and frequency of breast feeding.Method of weaning also discussed in detail in Ayurveda .Introducing fruit juices is recommended when the child is about 6 months age called as *Phalaprashanasanskara*. Human milk is deficient in vitamin C, D and iron, and these are to be substituted to the infants. Fruit juices are rich sources of these nutrients. Fruits generally relieve constipation and act as *agnideepaka*(increases the digestive capacity) also. Thus introduction of fruit and fruit juices help in supplementing the extra nutrition to the baby at an early age itself. When the baby is around 10 months of age, and has tooth eruption, start with semisolid mashed foods. This introduction of solid food is called as *Anna Prashanasanskara*.During that time period baby require more protein through light diet to cope up his growth and development. The deficiency of such diet itself, or the breast milk deficient of nutrients of mother due to her subsequentearlier conception would adversely affect the child by resulting in malnutrition. In Ayurveda *ParigarbhikaPhakkaroga* and *Balsosha*are the diseases related to malnutrition. In this paper we explore about complementary feeding /weaning, diseases related to delay in complementary feeding and its prevention.

Key Words:

Phalaprashanasanskara Annaprashanasanskara, ParigarbhikaPhakkaroga and Balsosha

Introduction

Most of the children fall into the pit of malnutrition during the weaning and post weaning phase. Malnutrition in infants and young children typically develops duringthe period between the first 6 and 18 months of age, and is often associated with intake of low nutrient and energy dense diet[1]. For a newborn, mother's milk is ideal[2]. In Ayurveda concept of substitute milk is described when mother milk or wet nurse is not available. AcharyaSushruta[3] advised that when mother or wet-nurse is unable to feed due to any reasons, Goat or Cow's milk should be given in appropriate. Vagbhata[4] advised that goat or cow's milk should be given to the child after medicating it either with decoction of laghu-panchmoola or mixed with sugar. The American Academy of Pediatrics (AAP) recommends exclusive breastfeeding for a minimum of 6 month and introduction of appropriate solid food from 6 month to 1 year age group. In absence of breast milk baby can be fed with animal milk like goat or cow's milk. This animal milk should be processed with some drug and sugar, so that the animal milk becomes light and easy fordigestion. Introduction of food supplements (semi-solid complementary foods) along with breastfeeding is necessary for infants after 6 months of age. In this age group baby needs 600 - 700 cal/day and around 600 ml of breastmilk can supply only 400 kcal. So gap increase between total energy need and energy provided by breast milk.

Concept of complementary feeding in Ayurveda :-

Main aim of Ayurveda is promotion and prevention of health. Ayurveda gives lot of importance on good nutrition at every stage of child . In ayurveda food is considered as mahabhaishajya[5].After birth, even the age classification (Vayovibhajana) in children is mainly done on the bases of food they consume as[6, 7]:-

• Ksheerapa – the children up to one year of age and main diet is milk,

• Ksheerannada – the children up to 2 years of age and on both milk and semisolid food

• Annada – the children who takes solid food as main food.

After 6 months of age, gradually introduce semisolid food to the baby. Introducing fruit juices is recommended when the child is about 6 months age called as Phalaprashanasamskara[8]. Human milk is deficient in vitamin C, D and iron, and these are to be substituted to the infants.14 Fruit juices are rich sources of these nutrients. Fruits generally relieve constipation and are agnideepaka (increases the digestive capacity) also. Thus introduction of fruit and fruit juices help in supplementing the extra nutrition to the baby at an early age itself. After eruption of teeth or in tenth month, the feeding of cereals (Annaprasana) should be done during auspicious day in prajapatya constellation, after worship of god and Brahmanas. The supplementary feed of fruit in sixth month has not been described by any other author. First cereal feed is prescribed in sixth month by Sushrutaand Vagbhatas or after eruption of teeth as given by Kashyap. Cereals to the child should be increase gradually even if the cereals feeding are started late and quantity of milk should be gradually reduced[9, 10, and 11]**.** In Astangsangraha and Astanghridaya certain recipes are also advised as a complementary feed [12, 13]**.**The diet given to the child should be satmya(congenial), laghu (light) and hitakara (good to the body) to the child[14]**.**

Concept of complementary feeding/weaning in Modern sciences :-

The introduction to solid feeding and the gradual replacement of milk by solid food as the main source of nutrition is the process known as weaning. In its recent publications the WHO uses the term weaning in a more limited sense to indicate complete cessation of breast feeding.

Complementary feeding is the provision of any nutrient containing foods or liquids other than breast milk and includes both solid food and infant formula. In the UK the terms "weaning" and "complementary feeding" are sometimes used synonymously to mean infant solid feeding. Weaning is defined as 'the systematic process of introduction of suitable food at the right time in addition to mothers milk in order to provide needed nutrients to the baby'(UNICEF 1984).

"Breast is best". This was reconfirmed in a compelling review of the benefits of breast feeding recently published in this journal [(15)]**.** We should all promote breast feeding and support the WHO/UNICEF UK "Baby Friendly Hospital Initiative" [(16)]**.** Eventually, however, the volume of milk required to meet energy and other nutrient needs will exceed the mother's lactational capacity or the baby's ability to consume a sufficient volume of milk. Ideally weaning should occur at a time before this stage is reached.

For the majority of infants weaning should commence between 4 and 6 months of age [(17)]**.** Within this age range, gastrointestinal development and renal solute load considerations will not be a major consideration in food choices for healthy infants. While the etiological origins of food intolerances often remain unclear, it would appear prudent to delay introduction of the foods most commonly associated with atopic disease and enteropathies. The usually accepted list of allergenic and enteropathic foods is gluten containing cereals (wheat, barley, rye, and oats), cows' milk, egg, fish, soybean, and nuts [(18)]**.** From 1 year of age, a child should be capable of participating in family meals and eating at least some family foods.

The nutritional content of weaning foods becomes of increasing importance as infancy progresses. The most pertinent concerns are the nutrient densities of the foods and the bioavailability of essential micronutrients therein. When compiling weaning guidelines the following recommendations should be particularly considered: -

- **a)** Energy density should be greater than that of breast milk and ideally around 4.2 kJ/g[(19)].
- **b)** Meat or iron fortified weaning foods should be introduced early to increase iron intake[(19)].
- **c)** Meat, pulses, dairy products, wheat, and rice should be included as appropriate to increase zinc intake[(19)].
- **d)** Phytate levels should be kept relatively low to enhance mineral absorption[(19)].
- **e)** The change from breast milk/formula to cows' milk should be delayed until after 1 year of age**[(20)].**
- **f)** Drinks, other than breast milk, formula, and water, should be discouraged**[(20)].**

Good nutritional practice, incorporating all of the above, would be compatible with guidelines that include the initial use of baby rice mixed with the infant's normal milk, followed by the gradual introduction of vegetables, then fruits, cheese, yoghurt and lean meat, all in pureed form. At 7–8 months of age, more texture could increasingly be introduced into all foods, together with soft finger foods and wheat and soy products. After 9 months of age, egg and fish could be offered to the child, but nut products would not be included in the diet until beyond 1 year of age. It is essential that accurate information about appropriate weaning foods and practice is disseminated to prevent infant malnutrition, problems with development, or longer term eating and health problems [(21)]**.**

Nutritional disorders in Ayurveda:-

In ayurveda if weaning is not done in proper way and time, child will suffer from many nutritional disorders like parigarbhika, phakka, balashosha (nutritional disorders during childhood) etc. So to prevent nutritional disorders the weaning or complementary feeding should be started at proper time and proper way.In different samhita

of Ayurveda these three diseases described that is near to nutritional disorders -

1.Balshosha: The causes of Balshosha are Shlaishmika anna sevana (Excessive energy dense food), Shitambu (cold liquiditems) and diva swapna (excessive day sleep) ,these factor can creat impairment of Agni. Clinical features of Balshosha is Arochaka(reduced digestive capacity), Pratishyaya (Running nose), Jwara (fever) and Kasa (Cough); and atlast baby may lead to Shosha(Emaciation)[22].

2.Phakka roga: In Phakka roga,Ksheeraj phakka,Garbhaj phakka and vyadhi phakka are described. In Ksheeraj phakka intake of Shlaishmika dughdha Vyadhija Phakka is malnutrition condition resultant of any diseases as Graha roga etc, and Garbhaj phakka is due feeding of baby by pregnant lady. Clinical features of Phakka roga is wasting of buttocks,Upper limbs) and thighs), Pot belly abdomen, head appears big due to relatively wasting in body parts and baby is inable to walk [23].

3.Parigarbhika:-If any baby feed breast milk of pregnant women then parigarbhika roga can occur and that milk have poor nutrients. Clinical feature of Parigarbhika roga is cough ,impaired digestive capacity, vomiting, fever and anorexia[24].

Nutritional disorders in Modern sciences:-

The child who does not get other nutritious food and continued to be fed on milk alone for long time is likely to become ill with different nutritional disorders. Unhygienic feeding practices may result in entrance of infections and diarrhea which again a cause for malnutrition in children. Infants are having weak digestive power so suitable feeds need to be selected.Malnitrition is a pathological state resulting from a relative or absoulte deficiency or excess of one or more

essential nutrients[25]. Two clinical forms of protein energy malnutrition: Kwashikor and Marasmus. Prevelence of clinical protein energy malnutrition (PEM) in the form of Marasmus is more than Kwashiorkor. While emaciation and vit-A deficiency in the form of Bitots spots and Vitamin B complex deficiency in the form of angular stomatitis and cheilosis seen in few children[26].Many children is found to be suffering from upper respiratory tract infection and a large number of children with diarrhea [27].

Prevention of Malnutrition:-

Care of nutritional needs is required at three stages; Nutrition during pregnancy,nutrition in infancy and nutrition in childhood. Fetal nutrition is totally dependent on maternalnutrition. In fact, intra uterine growth retardation (IUGR) may be due to maternal deprivation and or diseases in pregnancy. Infant nutrition should be through exclusive breast feeding up to 6 months, to meet the nutritional demands and to prevent morbidity. Following period is complemented with other foods along with breast feeding to meet the growing needs of the infant. Diet in children needs equal emphasis on both quality and quantity. Toddler needs more than half the portion of food that mother eats. The diet of pre-school children needs special attention to vitamins and minerals varieties; while school going children need 3/4th of food that father eats. Children should not miss meals, especially breakfast[28].

Conclusion:-

Nutritional disorders are major problem in India due to poverty and illiteracy etc. knowledge about proper time and method about complementary feed can prevent these disorders. Breast feeding should be continuing for as long as feasible, preferably till two years of age along with weaning food. This is important as the first two years is a period of rapid brain growth. Most of the children fall into the pit of malnutrition during the weaning and post weaning phase. Malnutrition in infants and young children typically develops during the period between the first 6 and 18 months of age, and is often associated with intake of low nutrient and energy dense diet.

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