AN INTEGRATED APPROACH ON CHILD NUTRITION

KULKARNI REENA

Associate Professor, Department of Kaumarabhritya, Sri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital, BM Road, Hassan-573 201, Karnataka, India

Corresponding author: Email address: drreenakulkarni@gmail.com

Abstract

Nutrition is one of the most important and highly discussed topics in medical community. It determines the quality of health in young citizens as well as the future of the nation. Infant and child nutrition, especially in the first few years of life is crucial; lest ends up in malnutrition. Policies on nutrition and health education of mothers on infant and young child feeding as well as efforts to trigger appropriate behavioural changes among mothers are being considered as direct interventions for reducing malnutrition in children. India evidences major concern regarding child malnutrition despite enormous efforts. Proper knowledge of nutrition, blended with traditional and scientific comprehension will enhance better adaptation and community participation, hence will aid in improving nutritional status. Ayurveda emphasizes good nutrition at every stage of life, season, as well as daily routine, in order to preserve health of mother and offspring. Nutritional aspects of Ayurveda, care of pregnant lady, infant nutrition, breast feeding, complementary foods and proper weaning; with due applied aspects; and current guidelines are the highlights of this write up.

Keywords: Ayurveda, nutrition, Ahara, fetal nutrition, infant nutrition, Shishu Prashana, Ayushman Kumara Lakshana

Introduction

Nutrition serves as the corner stone for child survival and quality of survival. It influences growth, development and immunity. Optimal infant and young child feeding practices rank among the most effective interventions to improve child health. An estimated 9.5 million children die before their fifth birthday, and two thirds of these deaths occurred in the first year of life. Under-nutrition is associated with at least 35% of child deaths.\(^1\) It is also a major factor preventing children from reaching their full developmental potential. Around 32% of children, less than 5 years of age in developing countries are stunted and 10% are wasted.\(^2\) Indian academy of pediatrics states that 44% children under 5 years of age are stunted and 15% are wasted in Asia.\(^3\) It is estimated that sub-optimal breastfeeding, especially non-exclusive breastfeeding in the first 6 months of life, results in 1.4 million deaths and 10% of the disease burden in children younger than 5 years.\(^4\) Further, If complementary foods are not introduced at 6 months of age, or if they are given inappropriately, an infant’s growth may falter.\(^5\) To improve this situation, encourage mothers and families and also to initiate and sustain appropriate infant and young child feeding practices, governing bodies are taking enormous initiative. Despite these efforts, the problems of malnutrition are never ending. This creates an urgent need to publicize more and more on this topic. Success in community always depends up on maximum utilization of community practices and traditional recommendations rather than market strategy.
Hence a dispersal of traditional wisdom and Ayurvedic nutritional principles suitable to the current era is essential.

CONCEPT OF NUTRITION IN AYURVEDA

Nutrition of Garbha (fetus)

The very concept of nutrition in Ayurveda starts from the pre-conception stage, where in best quality reproductive tissue (Retas and Artava) are a must in order to obtain healthy progeny which will achieve optimum and uninterrupted growth after birth. Also, after conception, the care of pregnant lady mentioned in Ayurvedic classics predominantly deals with nutritional regimen in the best interest of the mother and fetus. During pregnancy, the fetus completely depends up on the mother for both its nutrition and excretion. Regimen during the first trimester, which is predominantly milk and milk based foods; points to the fact that, although the physiological aversion to food persists during this period, the lady should take minimum quantity balanced diets like milk. Processing of milk with Madhu (honey), Ghrita (clarified butter), Navaneeta (butter) and herbs of the Madhura Varga during the first trimester is to enhance the bioavailability along with micronutrient fortification. The emphasis on green leafy vegetables during this phase aids in enriching the food with folic acid, minerals and vitamins. Navaneeta and milk in 4th month is to target the development of Hridaya (CNS), with due consideration on Sneha Samanyata (contents rich in Poly unsaturated fatty acids which aid in brain development are incorporated to enhance CNS development). Diet rich in pulses, meat products and regimen like Basti (medicated oil enema) with Bala Taila or Madura Aushadha Siddha Sneha during third trimester is to give a boost to the development of musculo-skeletal tissue in the growing fetus. Also, this helps in conditioning the mother’s body for the process of labour, as well as to prevent some of the diseases that can affect fetal growth and nutrition (hypertensive disorders of pregnancy). Apart from this, Rasaja and Satmyaja Bhavas, the epigenetic factors influencing growth and development, are given importance along with genetic and environmental influences (Balavat purushe deshe kale jamna). Further, all these factors largely depend up the nutritional adaptation of the individual with due emphasis on Ashta Vidha Ahara Ayatana (the rules and regulations regarding the intake of food, its qualities and quantity).

Infant Nutrition

In new born care, stress is laid on nutrition once again. Breast milk is compared to nectar and described as an unparalleled food. Breast feeding is encouraged within few hours of delivery as soon as baby is stabilized. Breast milk is the sole food recommended till six months, unless situation demands supplementary feeding or food. It is highlighted for its importance in brain boosting and disease prevention of both mother and baby. Reviews of studies from developing countries show that infants who are not breastfed are to 10 times more likely to die in the first months of life than infants who are breastfed. Predominant breastfeeding is associated with substantially lower risk of deaths compared with partial or no breastfeeding. Diarrhea and pneumonia are more common and more severe in children who are artificially fed, and are responsible for many of these deaths.

Dhatri (wet nurse) is given prime importance as a source of nutrition during first 6 months of life. Shishu Prashana (prelacteal feeds) and breast milk substitutes also find their importance in the form of medicated milk of goat and cow for management of extreme situations like absence of lactation or loss of mother. Definite procedure of fortifying Goat or Cow’s milk is mentioned to suit the nutritional needs of the baby and to humanize it by boiling it either with Sthira Dve (Desmodium gangeticum and Uraria picta) or Laghu Panchamula (group of five medicinal plants namely Solanum indicum, Solanum xanthocarpum, Tribulus terrestris, Desmodium gangeticum and Uraria picta) or Musta (Cyperus rotondus).

Sixth month onwards is the time for complementary feedings, in the form of fruits.
and infant formulae given as of Priyala Majjadi Modaka (bolus), Bala Bilva Modaka and Shalyadi Modaka (all three are the weaning foods mentioned in Ayurveda to be given in the form of semisolid bolus). Former of them is mentioned in general for improving the nutritional status (Preeenana). It has a perfect combination of Priyala Majja (seed of Buchanania lanzan), Laja (puffed rice), Yashtimadhu (Glycyrrhiza glabra), honey, and Sitopala (candy sugar). Thus it forms a wholesome mixture of carbohydrate rich complementary food, containing essential protein from Priyala Majja. In conditions where the infant has indigestion, one can give Balabibva (unripe fruit of Aegle marmelos) modaka (bolus). It contains pulp of unripe Bilva, Laja Saktu (powdered puffed rice), and Ela (Elettaria cardamomum). Shalyadi Modaka is preferred when the teeth start erupting or at 10 months of age. It is prepared either by using single cereal like rice, bajra, barley, wheat etc. or based on the staple food of the family. In the later period, combination of them can be adapted with addition of pulses. At this stage, introduction of meat in the form of soup is also advised. On acclimatization to this schedule cooked meat can be introduced gradually considering the acceptance of the child. Wholesome family pot feeding can be resorted to after 10th month. Prakrti (constitution) and disease specific complementary feeds like use of Yastimadhu and Amalaki (Emblica officinalis) in Pitta constitution, Matulunga Rasa (juice of Citrus medica) in Vatika constitution, Laja, Bilva in Atisara (diarrheal tendencies), Vidanga (Embelia ribes) in Krimi, Ela (Elettaria cardamomum) in Chardi (vomiting) provide insight in to the dietary advice designed to suit minor ailments during infancy.

After infancy, preservation of health is mainly through food, thus said as food is the sole medicine to highlight the importance of food (Mahabhaishajya), provided wholesome dietetics is followed as per guidelines on Ahara vidhi (guidelines on food and eating), Matrashiteeya (eating in adequate quantity as per need) and along with avoidance of junk and unwholesome food-Virudhahara. Traditional Indian kitchen practices like the addition of carminative spices like cumin, coriander, ginger or asafetida salt etc. increase absorption and hence bioavailability of nutrients. It also aids in prevention indigestion, flatulence and worm infestation. Enriching with milk, curds and cheese like Paneer (cottage cheese), coconut milk or dry fruits increases nutritive value. Preparations like Kheer (milk pudding), dates porridge, Shreekhand (Indian dessert prepared from yogurt, nuts and sugar), basundi (Indian dessert prepared from milk, nuts and sugar), sweets and preparations of bengal gram flour, suji (broken cereals or kind of semolina), chikki (groundnut and dry fruit burfy), daal, puddings etc. which are common Indian desserts are valuable in family nutrition. They in fact are energy rich foods and easily accepted by children due to sweet taste. Fermented traditional and homemade idli, dosa, kichri, mashed veggi bhat, dalia, upma are few handful alternatives to offer continued nutritional supplements. These traditional Indian dishes are perfect blend of essential components of food like carbohydrate, fat, proteins and minerals. They and added use of egg, meat, fish and green leafy vegetables and seasonal fruits will bridge the nutrient gap. The Ghrita, oil and sugar added while preparation will aid to bridge the calorie gap especially during the period of weaning. Milk products and nuts are good source of protein, calcium and vitamins. Jaggery is rich in iron. Vegetables and fruit are the sources of vitamins, minerals and fibers. The process of fermentation enriches vitamin C and digestability. Moreover, these are usually prepared from house hold available ingredients which can be afforded by all the socio economic classes.

Prevention of nutritional deficiency

To prevent nutritional deficiencies, daily food should comprise of cereals, pulses, salt (minerals), vitamins, enough water, fats and if necessary meat. Thus adapted healthy practices of food, with healthy physical activities will go a long way in preventing impending ill health. Variations in climate influences body homeostasis. Food selection is given emphasis in Ayurvedic dietetics to prevent seasonal
diseases and dietary variations. Table 1 summarizes modification of diet as per seasons.

**Table 1: Modification of diet as per season**

<table>
<thead>
<tr>
<th>Rtu (season)</th>
<th>Diet</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hemanta and Shishira</strong> (winter)</td>
<td>Snigdha (unctuous) and Medura Ahara (fatty meal)</td>
</tr>
<tr>
<td><strong>Vasanta</strong> (spring)</td>
<td>Yava (Indian Barley), Godhuma (wheat) Bhojana (diet)</td>
</tr>
<tr>
<td><strong>Greeisha</strong> (summer)</td>
<td>Light, sweet, liquid and dairy rich products</td>
</tr>
<tr>
<td><strong>Varsha</strong> (rainy season)</td>
<td>Light foods processed with honey</td>
</tr>
<tr>
<td><strong>Sharad</strong> (autumn)</td>
<td>Light diet predominant of Madhura (sweet), Tikta (bitter) in Sharad Rtu (autumn)</td>
</tr>
</tbody>
</table>

Further, processing of food enhances nutritional value and at the same time makes it easily digestible and absorbable. Hence, encouraging roasted, parboiled cereals, malting, and addition of ghee, jaggery and honey is essential.

**Ayushman Kumara Lakshanas** (screening for healthy baby and estimation of life),**Pramana shareera** (measurement of body parts) and **Samskaras** (traditional rituals at different age) reveal importance of repeated and regular nutritional and developmental assessment mentioned in Ayurvedic classics. In current practice too, nutritional anthropometry is a vital clinical tool to assess nutrition or in other words 'growth for the age’. These include anthropometrical measures of weight, height, mid upper arm circumference (MUAC), weight for age and weight for height.

**CURRENT GUIDELINES**

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 maternal nutrition. In fact, intra uterine growth retardation (IUGR) may be due to maternal deprivation and / or diseases in pregnancy. IUGR intern be a cause for nutritional disorders in infancy and childhood. Breast feed is the first and best feed for an infant to satisfy its nutritional and psychological needs. 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. It is always safe practice to promote diet rich of pulses, greens, veggies and nuts, meat and dairy products in growing ages.

It could be with fruits, staple cereal based porridge enriched with sugar, jaggery and **ghee** at 6 months. Followed by cereal or pulse based foods enriched with jaggery, sugar, oil or ghee, cooked and mashed green leafy vegetables and root or tuberous vegetables from 6 to 9 months of age. During 9 to 12 months one can give soft chewable foods without spices. Cooked meat soup and fish can be introduced. Protein rich food like egg can be started after 10 months. **Chapathis** and other foods which are difficult to chew, may be soaked in milk, or **Daal** (lentil soups) made soft and offered. By one year baby should be offered everything cooked at home including meat. Most traditional foods like khichidi, dalia, suji kheer, upma, idli, dokhla, bhaat (cooked Rice dish with spices) etc are hailed for their better acceptance, easy availability and nutritional value. Fortifying them with ghee, vegetables and introduction of egg, fish and meat can yield better outcome. Use of seasonal fruits and vegetable available locally are better accepted and they serve as rich source of micronutrients. Following completion of one year, one can resort to family pot feeding.

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.

**CONCLUSION**

As the popular saying ‘one who knows to manage diet will not easily yield to disease.’ Food determines the life and health of humans!
A wholesome management of nutrition is essential at all stages of life, as nutritional factor is one among those which influence progeny at genetic as well as epigenetic level. An emphasis on this shall yield better out comes in all initiatives that are taken to prevent nutrition related morbidity in infants and young children. Nutritional concepts of Ayurveda are applicable at all ages and stages of life, with due importance to Prakṛti, health, diseases, seasons as well as economy. Traditional knowledge needs resurgence in the scientific light for better community involvement.

References


Source of support: Nil, Conflict of interest: None Declared