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Complementary feeding in children and its homoeopathic management

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Abstract

Most of the time patients are coming from remote areas, they are not concerned about complementary feeding, as a result most of the time they suffer from nutrition deficiency during this crucial period, result in stunted growth and delayed development. Homoeopathic medicines can manage such cases beautifully.

Keywords: Complementary feeding, nutrition, deficiency, homoeopathic medicine

Introduction

First 1000 days (starting from time of conception/fertilization up to 2 yrs. of age) are very crucial for a child for growth and development. Brain develops rapidly especially during later month of fetal life and early month of post-natal period. 90% brain developed at 2 years of age. There are many factors which are responsible for development of a baby, that is genetic factor, nutrition, hormones (growth hormone, thyroid hormone, para thyroid hormone etc.), We all know that from the time of gestation up to birth fetus gets nutrition from mother. After birth to 6 months of age they get sufficient nutrition from breast milk where breast milk is sufficient but after 6 months only breast milk is not sufficient for a baby.

What is complementary feeding? ^[1]: Complementary feed is - “any nutrient containing food or liquid other than breast milk given during this period are complementary foods” and period “during which other food or liquid are provided along with breast milk”
According to Indian Academy of Pediatrics (IAP): It should be started at 6 months of age.

There are 10 principles regarding complementary feeding ^[1]

1. Practice exclusive breastfeeding from birth to 6 months and introduce complementary foods at 6 months of baby - it proved that breast milk contains all the nutrients that an infant needs in the first 6 months of life. By the age of 6 months, a baby usually doubled of his or her birth weight, and become more active. Then Exclusive breastfeeding is not sufficient for the baby.
2. Continue breastfeeding until 2 years of age or beyond – Because breast milk provides half or even more energy required for the child 6 to 12 months of age.
3. It provides protective factors.
4. It is critical source of energy and nutrients during illness Start small quantity of food and increase the quantity as the child gets older. The actual amount of food depends upon the energy density of the food offered. If a complementary food is more energy dense, then a small amount is needed to cover the energy gap. Increase the frequency of complementary foods as the child gets older and that depends on the number of meals.
5. Gradually increase food consistency and variety: As the child have small size of the stomach but requirement of energy is too high. That is why it necessary to complementary food should be quite thick& energy dense. Breast milk contains about 0.7 kcal / ml. So complementary foods should have a greater energy density than breast milk; which is at least 0.8 kcal per/gram.
6. Give variety of nutrient-rich food.
7. Use fortified complementary foods or vitamin-mineral supplements for the infant as needed.

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8. Increase fluid intake during illness, and encourage the child to eat soft, favorite foods. After illness, encourage the child to eat more.
9. Practice responsive feeding: We have to respect the child's desire and to feed them slowly and patiently. We will have to encourage for self-feeding. If the child refuses to take foods, experiment with different combinations of food, tastes, textures, but not force them.
10. Practice good hygiene and proper food handling: Contamination of complementary foods is a major cause of diarrhea, particularly common in children between 6 to 12 months of age. So advices wash caregiver's and children's hand before eating, Serve food within 2 hrs after preparation, Use clean utensils.

There are two types of nutrition is needed for the child for growth and development, e.g macronutrients and micronutrients, Parents are more concerned about macronutrients that is carbohydrates, protein and little bit of fat but not concerned about micronutrients, that is vitamins and minerals. Now a day a term that is hidden hunger is very much popular in our society.

What is Hidden Hunger? ^[1]

It is a misnomer of no feeling of hunger but it is actually deficiency of micronutrients that is "deficiency of essential micronutrients (vitamins & minerals) in individuals or populations which negatively impact on health, cognition, function, survival, and economic development". It may be mentioned here that the most important is iron and 90% of iron must be provided by complementary food to the breast feed infant.

What are the recommendation? ^[2]

For normal child who not get sufficient iron from complementary food give 1mg/kg/day iron drop by the age of 6 months. 2. For premature and low birth weight baby the recommendation is 2 mg – 4mg/kg/day start from 1months to 12 months.

Source: richest source of iron is liver, meat, fish, jiggery.

If complementary food contains poor iron, then it give symptoms like loss of appetite, this symptoms are very common in our OPD, ignoring the symptoms which are due to malnutrition or deficiency of iron, zinc or due to hookworm infestation. Other symptoms of iron deficiency are decrease exercise stamina, do not play like another child and impaired in school performance.

Iodine: WHO and UNICEF recommended universal salt iodization (USI) as a safe, cost-effective, strategy to sufficient intake of iodine for prevention of iodine deficiency, Iodine is required for thyroid gland to make thyroid hormone, best source is sea fish and sea salt. Requirements: 90 mg /day for birth to 59 months of baby. If complementary food contains low iodine then hypothyroidism develops, result in retarded mental and physical developments, delayed motor development, it more common if during intrauterine life especially in hilly area where mother does not take sufficient iodine.

Zinc: Found especially in animal protein like meat, fish and

milk. Requirements: 3.5-5 mg/day. Deficiency of Zn produces symptoms like anorexia, diarrhea, so that's why Zinc (20 mg/day) should be given to all children with diarrhoea for 10–14 days. In infants below 6 months of age, the dose of zinc should be 10 mg/day.

Calcium: Essential for normal skeletal growth and mineralization, richest source is milk, milk product, egg, fish. Requirements: 500 -800 mg/day for children. Deficiency in children primary dentition starts from 6 months and continues up to 31 months of age. So at that time calcium rich complementary food is very much essential along with exposure to sunlight because calcium absorption depend upon formation of vit D. we are getting many patient coming to our OPD with delayed dentition. They are advised to take high calcium rich food.

Vitamin-D ^[3]: It promotes the absorption of calcium and phosphate from intestine. Source: sunlight, cod liver oil, halibut liver oil, butter. Requirements: 200 IU/lit for 2 months to 1 yr. 400 IU /lit for children. Deficiency: breast milk contain only 30-40 IU/L, so expose the baby and mother to sunlight or vitamin D supplementation the nursing mother can increase the vitamin D content in breast milk. Low Vit. D produces infantile rickets, especially in between 6 to 36 months of age. It is common in those children who are not exposed to sun light, that's why infantile rickets is more common in flat culture than village. In villages children are more exposed to sun light. Or where mother was strict vegetarian, that is very common in Marwari society.

Vitamin A ^[4]: Essential for vision, epithelial cell integrity and cell differentiation. Source: cod liver oil, halibut liver oil, carrot, butter. Requirements: for infant 300-400 ug/day. For children 400-600 ug/day. Deficiency is common in developing countries, According to IAP, a dose of 100,000 IU is given with measles vaccine at 9 month of age, a dose of 200,000 IU is given with DPT booster at 15 -18 month of age.

Vitamin-C ^[4]: Essential for growth and repair of tissues in all parts of the body, it is needed for wound healing, it helps for iron absorption. Source: amla, guava, cabbage, orange. Requirements: for infant 30-40 mg/day. For children 40 -70 mg/day

Practical recommendation for initiating complementary food: ^[5].

1. Introduce single new food at a time, to observe possible allergic reaction of the food.
2. Choose first food with iron fortified cereals or meat as first good complementary food, because it contains ample protein, iron and zinc.
3. Withhold cow milk or any animal milk for 1st year of life: because cow milk or any animal milk contain more casein then whey, so it more hard to digest, and risk of allergy, and also not provide sufficient iron, essential fatty acid, Vit C, Vit E, So according to AAP: no cow milk given till one year of age.
4. Complementary food should be rich in fat food - toddlers have small stomach and can't take in large amount of food at a time, so fat is essential for maintaining energy and supporting proper growth, there

- is no upper limit of fat up to 2 years of age. so advise to serve fat rich food like butter, ghee or cheese etc.
5. Advise them to exposed sunlight for baby and nursing mother for 15 to 20 min/day,
 6. Vegetarian diet: most of the time mother gives only boiled vegetable, without butter or ghee or any other animal protein. In that cases there are high chances deficiency of iron, zinc, B12 Vit D, so don't use only vegetable food as a complementary food.
 7. Ensure adequate calcium intake when transition to complementary food.
 8. Do not introduce fruit juices during the first 6 month of life because it reduces appetite for more nutritious food.
 9. Food to be avoided a) Tea and coffee, it delays iron absorption. b) Junk, processed food, cold drinks, chocolates, chips, and sugar leads to overweight and obesity.
 10. Psychological dwarfism: Psychological care is also important for growth and development of a baby, when I go through our text book O.P. Ghai it clearly mentioned that in case of emotion deprivation growth hormone not response properly, most of the time after a new born baby the elder sister/brother becomes depressed, irritable, loss of appetite after her new born sister, these kinds of symptoms are shown due to insecurity, so in that cases psychological care is most important. So counsel the parents about complementary feeding, along with giving proper psychological care to the child.

Malnutrition is very common at the time of complementary feeding, especially due to inappropriate complementary food, unhygienic complementary food, poverty, food taboos, reduce space between child birth, ignorant of motherhood, illiteracy or early child marriage are main factors for malnutrition.

Prevention of malnutrition family level: [2]

1. Exclusive breast-feeding for infants' up-to 6 months.
2. Complementary food should start at 6 months of age.
3. Vaccination of baby.
4. Family planning: It very essential in Muslim communication.
5. Helminthic infestation is a major cause of malnutrition in children, so eradication of worm is most important.

Homoeopathic approach: Ample number of patient come at our OPD especially age group between 6 months to 3 yrs of baby. Most of the time they complaints of loss of appetite, recurrent URTI, diarrhea, and height and weight not proportionate to the age, and delayed dentition. During taking the case, I observed that most of them suffer from malnutrition or under-nutrition, due to inappropriate complementary food, unhygienic complementary food, hookworm infestation, after proper case taking we manage the cases under two heading. At first, if there is any nutritional deficiency then it supplemented by nutritional food, secondly, if supplementary food is sufficient but problem in assimilation, then we think about [6] Silicea, Calcarea carb etc and where due to nutritional deficiency baby recurrently suffer from cough, cold, coryza, diarrhea we treat them with constitutional homoeopathic medicine which increase their immunity along with complementary food. According to Hahnemann aphorism no 7 [7] clearly

mentioned that maintaining cause has to be removed, so if the baby repeatedly suffer from diarrhea due to unhygienic complementary food, then council the parents regarding hygienic condition of the baby.

Conclusion

No research work has been done at CCRH regarding scope of homoeopathic medicine in malnourished child. It is proposed that to have a survey work to our OPD to see the outcome result on the issue which is as follows: Two Groups of patients will be selected: One group only complementary food will be prescribed and to the other group along with complementary food, constitutional homoeopathic medicine will be prescribed considering the health status.

Conflict of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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