

Research Article

A Critical Appraisal of Malnutrition in Ayurveda

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Ayurveda the science of life, focus on various modalities of health and wellness through proper diet, digestion and nutrition. *Acharya Kashyap* says *Ahara* is *Mahabhaisajya*. If the *Ahara* is proper and full of nutrition then it brings *arogya* (health) and if it is improper and lack of nutrients then it causes disease in healthy individual. That's a good diet is always required that not only maintain all three *doshas* in equilibrium but also provide complete nourishment to whole body and brain for different activities. Food is made up of essential, natural complex chemical substances called nutrients. There are six major classes of nutrients viz carbohydrates, proteins, fats, minerals, vitamins and water. These nutrients are classified into macro and micronutrients. The Macronutrients are the building blocks of the body. The micronutrients are crucial for their role in metabolic pathways and in enhancing immunity. Balanced diet provides all nutrients in required amounts and proper proportion. According to *Acharya Kashyap*, proper *ahara* helps to improve *kanti*, *bala*, *smriti*, *medha*, *satwasthiti* (stability) and *angavridhi*. Abnormal nutrition causes over nutrition or under nutrition both. Malnutrition i.e. impaired nutrition leads to growth retardation, low resistance to infections and many other health problems. Malnutrition leads to a variety of disorders like *Karshya*, *Sthaulya*, *Phakka*, *Balashosha*, *Parigarbhika* etc. The Ayurvedic explanation of *Ahara* according to *Gunas*, *Satmya*, *Dosha*, *Kala* etc. seems to be more logical & scientific as compared to the modern aspect. All factor described in *Ahara Vidhi Vidhana* has a functional logic and is responsible for maintaining health. In this manuscript author, make an effort to explore various aspects in reference of malnutrition mentioned in ancient Ayurvedic literature.

Keywords: *Ahar*, *Ayurveda*, *Diet*, *Health*, *Malnutrition*, *Nutrients*

Introduction

Nutrition is directly related with growth and development. Childhood is the period where maximum growth and development will be achieved. In order to fulfill the required calorific demand of the growing body adequate nutrition has to be supplemented to the child. Food taken should be a complete food containing all the essential components like protein, fat, carbohydrate, minerals, vitamins and water. Protein is essential for building of body tissues, carbohydrate provides energy, fat not only provide energy but also store it too, vitamins and minerals work as catalyst in various metabolic activities while water provide liquid media.

Vagbhata highlights the importance of nutrition that food should be taken as per rules. If we follow irregular food habits, irregular timings, incompatible combinations then it not only imbalance of physical *doshas* but also bring a lot of disorders related to malnutrition. In *Ayurved* various *Acharya* describe such disorders out of these *Karshya*, *Sthaulya*, *Phakka*, *Balashosha*, *Parigarbhika* are commonly seen among children. Here author make an effort to explore these aspects of *Ayurved*.

Materials and Methods

The material which is presented in this paper was collected from ancient *Ayurved* textbook like *Charka Samhita*, *Sushruta Samhita*, *Astanga Samghra*, *Astanga Hridaya* etc along with supporting evidence search through various search engines like Google Scholar, Pubmed, Medlar, open med etc in today's perspective.

Bala Shosha [1]

This disease is explained by *Acharya Vagbhata*. As the name indicate, there will be *Shosha* i.e., emaciation of the body due to

depletion of subcutaneous fat and tissues. Pathology of development of *Bala Shosha* is almost similar to Protein Energy Malnutrition (PEM).

It occurs due to inadequate dietary intake of caloric in growing children. Carbohydrate is the chief source of energy when it is not met in adequate quantity then its deficiency cause energy deficit. These initiates break down of fat for energy leading to depletion of body fats and subcutaneous tissues resulting in a lean emaciated body. When the fat source is also emptied, then body proteins are utilized for producing energy. Proteins are very essential for each and every activities of the body (enzymes, hormones, antibodies, immune components etc). When proteins are utilized to give energy (instead of carbohydrate and fat), its deficiency supervenes leading to disturbances in the body homeostasis and metabolism. There will be depletion of body tissues, leading to structural and functional shutdown of different body systems. Decreased or no production of antibodies due to protein deficiency results in depressed immune system, making the patient more prone to infections. Repeated infection causes further emaciation of the body. After an episode of infection, body demands more calories for its recovery, which is not available. In this situation child gradually lands up in a state of "immunocompromization". Child reaches a state of marasmic appearance and becomes irritable and frustrated. Further, loss of protein leads to hemodynamic changes with disturbed "plasma oncotic (osmotic) pressure" resulting in oedema, which becomes generalized and manifests as a compensatory mechanism for protein loss. Except this other cause of *BalaShosha* are [2].

Atiswapn: Meaning is child has been indulging in excessive sleep. This indicates a dull inactive child with lack of interest. This is an important finding of Kwashiorkor in the advanced stage.

AtiAmbu sewan: Excess intake of water before meal makes the person *Karshya* by decreasing the digestive power. Excess intake of liquid food leads to early satiety with subsequent calorific insufficiency and emaciation due to catabolism of stored fat in the body (subcutaneous body fat).

Atishitambhu: Cold water ameliorates the *jatharagni* (weak digestive fire) which cause *agnimandya*.

Sleshmic stanaya: Breast milk vitiated with *Kapha* leads to an excess accumulation of un-digestible fat in breast milk with change in its nutritional value (*Guru*). By all the above causative factors *Kapha* will abnormally increase in the body, supervening *Agnimandya* and *Ama* formation, which further blocks the *Rasavaha Srotas*.

Thus, the total body digestion and metabolism gets hampered with decreased production of metabolic end products in the blood due to which tissues will suffer badly (depleted *Dhatu* formation on obstruction of the *Rasavahasrotus*). This leads to increased catabolism and decreased anabolism. Treatment³ of *Balashosha* includes those herbs, which not only remove blockage of channel but also increase digestive fire too. In this direction, ancient sage described numerous single and combination of herbs and herbo-mineral compound. Out these, some mentioned here as powder of *trikatu*, *manjistha*, *patha*, *girikadamba*, *saindhava lavana* should be mixed with *madhu* and *ghrita* are given to relieve *shosha*. Other compounds are *atipushtikara yoga*, *vidarikandadi churna*, *palash amalki rasayana*, *ashwagandha ghrita*, *utsadana* and *abhishek*. But before administration of such compound, we should remove blockage of channels by advising various *Ghrita* such as *madhuyasthisadhita ghrita*, *shatpala ghrita* and *kumara kalyana ghrita*.

Parigarbhika [4]

This is a special nutritional disorder explained in *Ayurveda*, which highlights the development of malnutrition during infancy period. This disease is also called as *Paribhava*, *Parigarbhika*, *Ahindi*, *Dugdha kitta*. *Paribhava* means humiliated baby, *Paribhavakhya* means condition associated with humiliation, *Dugdhakitta* means condition due to an increased non-nutritious content in the breast milk, *Ahindi* means emaciated condition. If a breast-feeding mother (within one year) becomes pregnant again, it will result in a decreased breast milk secretion as hormones maintaining pregnancy and breast milk secretion are contradictory in action. Hence, there will be stoppage or decrease in adequate breast milk secretion and the first child will be deprived of breast milk in its *Ksheerapavastha*. He is not only deprived of breast milk but also of proper care, love, security, maternal bonding and affection, as mother will be psychologically involved with the growing fetus in the uterus. Crucial 'weaning process' of the first child will also be neglected resulting in improper growth and development of the first child. This leads to a gradual development of nutritional deficiency in the infant, which lands up in emaciation, and other consequences of protein energy malnutrition.

Agni Sada, *Aruchi*, *Karshya*, *Kasa-Vamana*, *Bhrama-Tandra*, *KosthaVridhhi* are the characteristic feature which are seen in affected children due to this disease [5]. Hence, *Parigarbhika* explains how a child gets humiliated by nutritional deficiencies and gradually develops Kwashiorkor like situation. But skin changes are striking presentations in Kwashiorkor, but, in *Parigarbhika*, there is no mentioning of any skin manifestations (probably due to less incidence

of Kwashiorkor in India), incidence of marasmus is more in India. *Kashyap* has not mentioned the disease by name *Parigarbhika*, but, while explaining *jataharini* mentions that a woman becomes pregnant again while the first child is breast-feeding, then the prior child will definitely die [6]. *Agnideepana* is the main stay of treatment. *Charka* says "Aharmatra puna Agnibalapekshshni". Thus, *Agni* of the child is modified as per the food [7].

Phakka [8]

No other author has described any disease by this name, which is characterized by one important symptom i.e. inability to walk even after the child attains age of one year. The word *phakka* is derived "Phakkatinichaigacchatiitiphakkah" i.e. there is constant decline of health of the child. The use of term *phakktwa* in subsequent description denotes that it is a syndrome developing due to various causes characterized mainly with emaciation and inability to walk after one year of age. While describing the detailed clinical features under third category of *phakka* caused due to various diseases, marked emaciation is clearly mentioned. On the basis of only one exclusive clinical feature i.e. predominance of face in head, some of the authors have tried to equate it with rickets which is not correct, because rickets is a disease caused by deficiency of calcium, phosphorus and vitamin D, in this condition, due to hypotony of muscle, the child apparently looks flabby and not emaciated. This *phakka* appears to be a condition of weakness of lower extremities especially due to marked protein calorie deficiency i.e. under nutrition; however, paralysis of lower extremities can also be considered under this syndrome to some extent.

The state of *phakka* (marasmic state) is said to be of three types i.e. due to (ingestion of) breast-milk (*kshiraja*) [9,11], caused due to (presence of) embryo/fetus (*garbhaja*) [10] and also third due to (complication of) disease [11]. The *kshirajaphakka* occurs due to consumption *kapha* vitiated breast milk. The child consuming this milk not only suffers from emaciation but also suffers so many diseases. If breast milk of wet-nurse having *pitta* and *vata* constitution (*prakriti*), salt, or vitiated by all the three *doshas* then the child who fed up this breast milk will suffer from lame, idiot and dumb.

If breastfed child's mother get pregnancy in early month then it leads to cessation of breast-milk, which cause emaciation not only breast baby but also cause emaciation or early death of embryo or foetus due to marasmus. The disease named *parigarbhika* attacking the child of pregnant mother is given in *Astanga Samgraha* along with its treatment.

The orphan child who suffers from fever etc. endogenous and exogenous diseases, his flesh, strength and luster decreases, hips and arms become emaciated, abdomen becomes protuberant; in (comparison to) skull the face becomes more dominant, is yellow eyed, has horripilation in body-parts, appears just like a skeleton, lower body-part is emaciated, passes daily (too much) feces and urine, lower body becomes inactive or crawls with hand and knee, due to weakness has less activity and due to less activity feces, urine, abnormal thick nasal discharges. Due to these causes, the child is overpowered by flies, insects and worms, thus, due to disease reaches nearer to death. This marasmic child has dry, erect and stiff body-hair, big nails, foul smell, dirty, irritable, and feels as if entering in dark, has (passes) excessive feces and urine.

The child whose mother is pregnant, specially orphans whose *grahani* (duodenum and small bowel) is vitiated, often eat too much, they (are known to) suffer from *phakka*, because their ingested diet becomes useless to weak digestive fire and the liquid *rasa* is discharged (is wasted), thus, they (pass) excessive urine and feces.

Treatment [12,14]: The child suffering from *phakka* (marasmus) should drink *kalyanaka*, *satpala* or *amrita ghrta* till seven nights, afterwards cleansing (milk treated with *trivrt*) should be done. After purification of *kostha* (digestive system, the child suffering from *phakka* (marasmus) *Brahmi Ghrta* should be advised, however, this *Brahmi Ghrta* should not be given to untouchables as its use destroys them.

The milk medicated with (appetizing auspicious drugs), (along with) either *rasna*, *madhuka* or *punarnava*, *ekaparni*, *eranda*, and *satapuspa* or *draksha*, *pilu* and *trivart* should be used.

Pieces of meat soup or medicated milk should be taken with *sali* cereal, and also drink same daily. By use of this one attains life, becomes free from diseases. The oil cooked (medicated) with these is beneficial in all types of *phakka* (marasmus). Uses of *ghrita*, oil, milk, soup (vegetable) or juice (meat-soup) twice medicated with *rasna*, becomes free from all the diseases. In case of predominance of *kapha*, the urine mixed with milk should be given for drinking.

Raja tail [13]: Attained movements, longevity, strength and pleasure. As it is prescribed first of all for kings, thus, is known as *raja taila*. It is praised for favors of kings.

Walking aid for physiotherapy: A three-wheeled chariots made by wise carpenter is known as *phakka* chariot. Holding it gently, the child should practice by gradual walking.

Other treatment: Enemas, oral use of oleaginous substances, sudation and rubbing of unguents especially in children seized with diseases of *vata*, proper sleeping, sitting in a pleasurable place and enema should be used.

Karshya [14]

It is a nutritional disorder, which can be correlated with undernutrition. *Acharaya Charak* has mentioned in *Asthoninditiyaadhyaya*. It is an *Aptarapanjaynya vyadhi* where *vata dosha* plays important role in the pathogenesis along with *Pachaka Pitta*. *Pachaka Pitta* is a sub type of *Pitta* leads to *Agni dushti* (impaired digestion) as results of which all *dhatu*s such as *Rasa*, *Rakta* etc are not nourished properly leading to *karshya*. *Aahar dosha* such as *Alpashana* (reduced intake) and *Vishamashana* (false habit of intake) are predisposing factor for this disorder.

Treatment [15]: *Nidaan parivarjan*, *Deepan*, *Pachana*, *Samshmana Chikitsa*, *Rasayan therapy*, *Panchkarma* procedure such as *Basti* therapy should be given.

Discussion

Nutrition is an important aspect of each individual's life. Food is made up of essential, natural complex chemical substances called nutrients. Balanced diet (Aahar) provides all nutrients in required amounts and proper proportion. According to *Acharya Kashyap*, proper *ahara* helps to provide *arogya* (healthy) but improper *ahara* cause diseases [16]. Abnormal nutrition causes over nutrition or

under nutrition both. Malnutrition disorders like *Karshya*, *Sthaulya*, *Phakka*, *Balashosha*, *Parigarbhika* etc. *Balashosha* is explained by *Vagbhata*. In this disease, emaciation of the body due to depletion of subcutaneous fat and tissues. Pathology of *Balashosha* is most similar to Protein Energy Malnutrition (PEM).

Parigarbhika is a special nutritional disorder and *parigarbhika* means condition due to an increased non-nutritious content in the breast milk. If a breast-feeding mother (within one year) becomes pregnant again, the first child will be deprived of breast milk in its *Ksheerapavastha*. The first child will be neglected resulting in improper growth and development nutritional deficiency and gradually develops *Kwashiorkor* like situation.

Phakka (marasmus) is a syndrome developing due to various causes characterized mainly with emaciation and inability to walk after one year of age. The *kshiraja phakka* occurs due to consumption *kapha* vitiated breast milk. The child, whose mother is pregnant, specially orphans whose *grahani* (duodenum and small bowel) is vitiated.

So, in *balashosha* disorders condition give a numerous single and combination of herbs and herbo-mineral compound as powder of *trikatu*, *manjistha*, *patha*, *girikadamba*, *saindhava lavana* should be mixed with *madhu* and *ghrita* are given to relieve *shosha*. In '*Parigarbhika*' condition, *Agnideepana* is the main stay of treatment. Who child suffering from *phakka* (marasmus) should drink *kalyanaka*, *satpala* or *amrita ghrta* till seven nights, after purification of *kostha*, *Brahmi Ghrta* should be advised.

Conclusions

It is concluded from the study that ancient sage has vast knowledge to understand pathogenesis of malnutrition and its management. By following Ayurvedic principles along with specific diet and lifestyle guidelines, we are not only able to treat the malnutrition but also prevent micro element deficiencies in malnourished children.

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