Review on Phakka Roga and Nutritional Deficiency in Children

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Abstract:

Kumaravastha means childhood age describe by traditional science of Indian medical system . The basic feature of this age group to increase immunity, physical & mental strength, management of nutritional supply & control of prevalence of disease in of growing children.

In Ayurveda, the symptoms of Phakka are similar to that of rickets. Phakka roga has been described by Acharya Kashyapa. Various Ayurvedic therapies are given in Kashyapa Samhita which are used in the treatment of Phakka Roga. Malnutrition is one of such condition and rickets is one among them in which there is deficiency of either calcium and vitamin D hampered the bone mineralization and gives rise to multiple symptoms due to brittle bones in child especially below two years of life. Ayurveda consider this disease entity as Phakka roga and explained in detailed about the pathogenesis, symptomology and treatment of the Phakka roga. Asthivah srotas dusti seen in Phakka Vyadhi. Rickets is the disease of children caused by Vit D deficiency, characterized by imperfect calcification, softning and distortion of bones typically results in bow legs.

Keywords: *Ayurveda, Kaumarbhritya,Phakka ,Rickets, Nutritional deficiency.*

Introduction

Phakka disease is classified under kuposhanajanya vyadhi. A lack of adequate mineralization of growing bones results in rickets. Phakka roga is a condition that affects bone development in children.

The Samprapti of disease involve agni dosha caused by etiological factors & malnutrition which affect process of digestion, metabolism & absorption thus body tissue becomes nutrients deficient which results ati drava mala pravrutti, atimutrata and improper utilization of ahara rasa finally child becomes malnourished and phakka roga occurs.

It causes the bones to become soft and weak which can lead to bone deformities. Rickets can cause bone pain, poor growth and deformity of the skeleton such as bowlegs , curvature of the spine and thickening of the ankle , wrists and knees. The incident is more in six month to 2 years age. More in poor socioeconomic condition with low vit D in diet. The area in which lack of exposure of sunlight. Nutritional rickets usually presents in infancy or preschool age, usually as widened wrists or bowing of legs. Presentation in early infancy and finding of seizures or tetany suggest a defect in vitamin D metabolism[1]. PHAKKA. According to Ayurveda. If a child after attaining age of one year does not walk on feet this is known as Phakka.

Classification

Phakkaroga is mainly classified into three groups on the basis of their causes.

A. Kshiraja Phakka
B. Garbhaja Phakka
C. Vyadhija Phakka KshirajaPhakka[2]

A. **Ksheeraj Phakka**: -

It occurs due to kaphajstanya sevan by the child (balak) and child (balak) become krusha.

B. **Garbhaj Phakka**: -

If lactating mother becomes pregnant. Then Quantity of milk secretion becomes less in that mother. There are less nutritional content in milk which is required for growth and development of child . Because most of the part of nutrition is used for growth of fetus in mother~ So child does not get sufficient nutrition from milk of mother and their is no proper growth and development in child. Then gradually child becomes retarding growth (krusha). his is known as Garbhaj Phakka.

C. **Vyadhijphakka**: -

In this Vyadhija Phakka child suffer from nij and agantujadi roga (disease), hence child suffers from ksheenata of mansa, bal becomes emaciated,

abdomen becomes protuberant, head and face becomes more dominant, wasting of muscles.

According To Modern Science:

Etiology Of Rickets[3] :

1.Nutritional rickets.

2. Malabsorption states:

a) Cystic fibrosis

b) Biliaryatresia

c) chronic diarrhoea and vomiting

d)Liver disease

e) Excessive destruction of intestinal mucosa malabsorption

3. Refractory rickets:

a) Renal tubular dysfunction (hypophosphatemicVit D resistant rickets).

b) Renal tubular acidosis.

4) Prolonged anticonvulsant therapy induces rickets by interfering vit D metabolism.

5. Inadequate dietary intake of vit D and lack of sunlight. Functions Of Vitmin 'D':

1) Vitamin D is required for normal growth in Bone's is related to its role in calcium and phosphorus absorption which is needed for bone development.

2) Vitamin D increases calcium and phosphorus absorption in intestine.

3) Vitamin D increases the reabsorption of phosphate by renal tubular cells and rise the level of phosphate in the blood.

4) In normal growth of bones, the bone forming cell's appears as cartilage cells which degenerate and disappear and calcium and phosphorus are deposited in vitamin D deficiency cartilage cell do not degenerate but continue the grow. Metabolic Changes In Rickets: Deficiency of vit D Decreased calcium and phosphate absorption from intestine Decreased level of calcium and phosphate Compensatory mechanism by parathormone a) Reduced calcium excretion by kidney b) Calcium released from bones c) Decreased Renal tubular reabsorption of phosphate Sr calcium return to normal but phosphate level falls.

Prolonged vit D deficiency Even parathormone can not sustained it's action Sr calcium and phosphate both level decreased Interfere with calcification of osteoid tissue Cartilage cells of bone can not be disappears Increase osteoblastic activity Clinical Features Of Rickets: Rickets commonly present at 6 months to 2 years of age with bony deformities and hypotonia of supporting ligaments / muscles.

Important changes in Rickets are:

A) Craniofacial changes:

1) Craniotabes : thinning softening of skull bones with pin-pong ball like resilience on pressure over parietal bones.

2) Frontal bossing : Prominence of frontal bones.

3) Delayed closure of anterior fontanel.

4) Delayed dentition.

B) Thoracic Changes:

1) Rachitic rosary: Round ,non tender bending due to widening of costochondral junction's.

2) Harrison sulcus: A groove / depression along the lower costal margins. 3)Sternal Deformities like pectus excavatum i.e.depression of sternum .Pigeon - Chest deformity.

C) Limb Deformities:

1)Widening of wrist ankles due to widened epiphysis and metaphysis

2) Gait abnormalities e.g. Knock-Knee ,Bow legs and Coxa -Vera.

3) Green stick pathological tactures of long bones.

D) Spinal Deformities:

1) Kyphosis or scoliosis due to lax ligament.

2)Short stature due to deformed spinal curvature.

Sign And Symptoms

Asthi Vakrataa in Children or Rickets

- Bone tenderness in various parts of the body.
- Dental problems – delayed formation of teeth, holes in the enamel, increased cavities in the teeth.
- Muscle weakness – Richetal myopathy.
- Increases tendency for Fracture.
- Skeletal deformities like bowed legs (Genu Varum), knock knees (Genu Valgum), Cranium deformities (Skull bossing), Spinal deformities. 6) Stunted Growth, short stature.
- Hypocalcaemia.
- Tetany – uncontrolled muscles spasms all over the body.
- Soft skull (Craniotabes).
- Costochondral swelling – Ricketal rosary.
- Harrisons groove – A horizontal groove along the lower border of the thorax equivalent to costal insertion of diaphragm.
- Widening of Wrist and bowing of the distal radius and ulna and progressive lateral bowing of the Femur and Tibia, widening of the ankle can be seen.
- Breast bone pushed forward (Pigeon shaped chest) Asthi Vakrataa in Adults or Osteomalacia

Treatment Of Phakka:

According to Ayurveda [4-7]

A) **Abhyantar Chikitsa**: -

- Dipana and pachana dravya like; vacha, ativisha and panchmula ghana kwatha should also be used to relief pathological progression. Ayurveda also described disease management at Balaka level (diseased child) and suggested use of Raja taila and Abhyantar snehana.
- Oral use of amruta ghrita, kalyanaka ghrita, shatpala ghrita and bramhi ghrita followed by virechana with trivrutt sheeram basti which pacify vata dosha and mamsa.
- The dipana and pachana dravya like as raasna, madhuka siddha ghrita, milk bruhana dravya also indicated. Approaches used to stroto shodhana (udavartanam) play significant relief in disease management.
- Abhyanga with Raj-taila consisted of earanda, shaliparnni & bilva offer beneficial effects in disease, oil siddha with mamsa & yusa also useful in phakka. Sudhavarga ausadhi dravyas like Sudhasatak is helpful for nourishment of Asthidhatu.

Management of Ksheeraja Phakka

A. The condition may occur due to kaphaja stanya sevana which leads krusha and finally phakka. The milk medicated with deepaneeya dravya help in disease management. Rasna, madhuka, punarnava, ekaparni, eranda and shatapushpa also offer relief in disease symptoms.

B) Management of Garbhaj Phakka

C) The condition involve balshosha in which shosha leads kshiraj Phakka, parigarbhik then garbhaj Phakka, this condition require use of agnidipan chikitsa which help to control parigarbhik. Dipan and pachan dravya siddha with vidari, yava, godhum & pippali in ghrita may be recommended. Anupana rich in milk with honey and sugar help to manage Phakka associated with vitamin deficiency.

D) Management of Vyadhija Phakka

- Dosh-dushya samprapti mainly involve in vyadhij Phakka (rickets) associated with nija roga and agantuj roga. The nourishment of tissue decreases due to the mandagni and dushta grahani which further leads sara sanhanan deterioration. The treatment approaches involve consideration of hetu & its management. Consumption of nutritious food, kshirapeya, lehya dravya and kalpas should be recommended. Samvardhan Ghrita also possesses relief in disease symptoms[8].

1) Orally use of Kalyanak ghrita, Amruta ghrita, Shatpal ghrita, , Sanvardhanghrita.

2)Asthiposhak vati, Kukkutandatwak bhasma,Liq kumarikalpa.

B) BAHYACHIKITSA: -

1)Sarvang Snehan:

Balatail, Chandanbalalakshaditail, Rajtail.

2)Vedanashamak Tail: Narayantail, Dhanvantartail, Visgarbhatail, Dashamultail for Abhyang.

3)Sarvang Swedan: 1)Bashpa Swedan with Dashmulbharadchurna.

2)Nadi Swed with Vataghnadravya.

3)Swedan with shalishastikpindasweda.

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1) Kyphosis or scoliosis due to lax ligament.
2)Short stature due to deformed spinal curvature.
1) Pot -belly due to abdominal muscle hypotonia.
2) Visceroptosis due to ligamental laxity.
3) Hyper- extensible joints (acrobatic rickets).

Treatment Of Rickets (According to modern science):

A) Vit D is administered orally either in a single dose of 600,000 IU or over 10 days (60,000IU daily for 10 days) followed by a maintenance dose of 400-800IU/day and oral calcium supplement 30 -75 mg/kg/day for 2 months.

B) Expose the child to the sunrays in morning hours for about 15-20 minutes. Human skin contains provitamin which gets activated and synthesized on exposure to sun. This promotes the absorption of calcium and phosphorus by the body which makes the bone grow stronger.

C) Include whole grains and beans like oats, Barley, Rice, Black beans, Lentils etc in the diet regularly.

D) Consume more of green leafy vegetables like Spinach, Methi etc

E) Consume dry fruits like Almond, Walnuts, Cashews, Raisins in diet

F) Include fresh fruits like Oranges, Figs, Bananas etc in your diet

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