



SNS COLLEGE OF NURSING

COIMBATORE – 35

VITAMIN DEFICIENCIES

VITAMIN A DEFICIENCY:

Night blindness is one of the first sign of vitamin A deficiency □ Xerophthalmia and complete blindness can also occur.

CAUSES:

- Breast milk of mother with vitamin A deficiency contain little vitamin A to baby
- Mal absorption.
- Mal nutrition.
- Zinc deficiency- can impair absorption, transportation and metabolism of vitamin A because it is essential for synthesis.
- Iron deficiency

CLINICAL FEATURE:

- Night blindness
- Xerophthalmia- eye fails to produce tears
- Xerosis cornea- dryness.
- Bitot's spot- grayish or white plaques.
- Phrynoderma- the skin becomes rough, dry

OTHER CLINICAL FEATURES:

- ✓ Eye- blurred vision, bulging eye, cataract
- ✓ Skin- acne, bedsores, dry skin.
- ✓ Hair and nails- dandruff, dry hair.



VITAMIN D DEFICIENCY

RICKETS:

RISK FACTORS

- ✓ children age (3month – 3 years)
- ✓ lack of sun exposure.
- ✓ inadequate dietary intake of vitamin D

CLINICAL FEATURES:

- ✓ Characterized by bone deformities - Formation of small round unossified areas in the bone of skull.
- ✓ Delayed closure of anterior fontanel.
- ✓ Frontal and partial bossing.
- ✓ Delayed eruption of primary teeth.
- ✓ Osteomalacia- bone deformities occur due to weight of the body on weak pelvis.
- ✓ Others include muscle cramps, seizures, breathing difficulty, poor growth.

DIAGNOSIS

- History collection
- Blood test - serum calcium and phosphorus level and vitamin D level .
- X –ray

MANAGEMENT

- Vitamin D is given in a dose of 1000-5000 IU orally for a month, followed by 800IU daily for 6 month.
- Providing enough vitamin D diet.
- Exposure to sunlight.
- Administration of vitamin D to Nourishing mothers (human milk contain 30-40 IU per liter)

VITAMIN E DEFIECIENCY

Vitamin E deficiency can cause nerve and muscle damage that results in loss of feeling in the arms and legs, loss of body movement control, muscle weakness and vision problem.

CAUSES:

- Inadequate intake of vitamin K during pregnancy.
- Reduced dietary intake of vitamin k.
- Malabsorption- inadequate absorption, pyloric or intestinal obstruction



CLINICAL FEATURES:

- ✓ Abnormal bleeding even from small cut.
- ✓ Spontaneous nose bleeding.
- ✓ Bleeding gums.
- ✓ Blood in urine and stool.

MANAGEMENT

- Dietary intake of vitamin K rich food items like spinach, cabbage, egg yolk, liver and fish
- Administration of oral suspension of vitamin K.
- Injection vitamin k can be given IM

VITAMIN C DEFICIENCY

SCURVY:

CLINICAL FEATURES:

- ❖ Loss of appetite and listlessness
- ❖ Infant cries when arms and legs are moved
- ❖ Swelling is seen at the ends of long bone
- ❖ Hemorrhage may occur under the skin.
- ❖ Gums are swollen.
- ❖ Convulsion

DIAGNOSIS

- ❖ X ray of limbs.
- ❖ Vitamin C level in blood.
- ❖ Vitamin C level in urine

MANAGEMENT

- Diet rich in vitamin C like citrus fruits, kiwi, mango, papaya.
- Infants are given ascorbic acid in a dose of 50 mg IM, twice daily for 1 week, thereafter a dose of 100mg/day is given for 1 month

VITAMIN B DEFICIENCY:

VITAMIN B1 (THIAMINE)

BERI BERI:

DRY BERI BERI:

It is characterized by

- Loss of appetite
- Diminished abdominal reflexes.



- Tingling and numbness of legs and hands.
- Wasting of muscle pain and tenderness.
- Peripheral neuropathy

WET BERI BERI:

Wet Beri-Beri characterized by Generalized edema, Cardiac enlargement, Palpitation, Difficulty in breathing

CEREBRAL BERI BERI:

Cerebral beri beri may lead to Wernicks Korsakoffs syndrome, Foot drop, Wrist drop, Ataxia of gait, Apathy

DIAGNOSIS:

- Blood and urine examination.
- A positive diagnosed by measuring the activity of trans ketolase in RBCs

MANAGEMENT:

- ❖ Thiamine supplement is required 5mg/week IM or 5mg/daily, orally for a month.
- ❖ Diet rich in B1 like wheat germ and dried yeast, whole cereals

VITAMIN B2 (RIBOFLAVIN):

CLINICAL FEATURES:

- Oral and facial lesions – angular stomatitis
- Glossitis
- Scrotal dermatitis

MANAGEMENT:

- Supplement 1mg Riboflavin 3 times daily for several weeks, and infants respond to 0.5mg twice daily.
- Diet rich in yeast, milk, egg, meat, fish.

VITAMIN B3 (NIACIN)

PELLEGRA :

Clinical features

It is characterized by 4 D's

- Dermatitis
- Dementia
- Diarrhea
- Death



DIAGNOSIS:

- Low serum niacin level.
- Low urine level of N-Methylnicotinamide and pyridine

MANAGEMENT:

- Administration of niacin rich food like milk, meat, nuts, green leafy vegetables and whole grains.
- Pharmacological management included administration of niacin 50mg IM twice a week followed by oral dose of 100mg twice a week for 2-3 weeks

VITAMIN B6 (PYRIDOXINE)

Pyridoxine is essential for maintaining nerves in normal condition

Clinical features

- Peripheral neuritis.
- Impaired immune response due to impaired antibody production.
- Nerves lesions around eyes, nose, and mouth

Management:

- VitaminB6 Supplementation is beneficial.
- Dietary supplement which are rich in pyridoxine are yeast, liver, egg yolk, rice polish.

VITAMIN B12 (COBALMIN)

CLINICAL FEATURES

Deficiency of vitamin B12 leads to Biermer's disease or pernicious anemia characterized by following symptoms like

- Megaloblastic anemia.
- Numbness.
- Tingling in extremities.
- Absent of reflex .
- Impaired perception of touch
- Ataxia.
- Fatigue
- Difficulty in breathing

DIAGNOSIS:

- Serum B12 level
- CSF.
- Schilling test Management



MANAGEMENT

- Vitamin B12 is supplemented in form of oral pills, sublingual and liquid.
- Dose of supplementation is 100µg two times in a week.
- Diet like meat, fish, liver, and kidney.

VITAMIN B7 (BIOTIN):

CLINICAL FEATURE:

- Fine scaly disquamation of skin without pruritis.
- Mild depression.
- Extreme lassitude.
- Muscle pain.
- Anorexia with nausea

MANAGEMENT:

- Dietary supplementation of biotin are yeast, egg yolk, milk, tomato, peanuts, liver, whole cereals

VITAMIN B5 (PANTOTHENIC)

CLINICAL FEATURES

- Head ache
- Fatigue
- Impaired muscle co ordination
- GI order.

MANAGEMENT

Dietary Sources of Pantothenic

- Meat.
- Milk
- Mushrooms
- Liver
- Peanuts.
- Eggs
- Yeast

CONCLUSION:

Vitamins are essential organic compounds that are needed in small amount in the diet, both to prevent deficiency and to support optimal health. Vitamins- Vital Amines Vital- Essential for life Amines- These compounds contain an amine functional group



REFERENCE

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