Nutritional Disorder

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Introduction

Nutritional Disorder are diseases that occur when a person's dietary intake does not contain the right amount of nutrients for healthy functioning, or when a person cannot correctly absorb nutrients from food.

Nutritional disorder is caused by under nutrition , over nutrition or incorrect balance of nutrients.

Protein Energy Malnutrition (PEM)

Protein energy malnutrition is a form of malnutrition that is defined as a range of pathological conditions arising from coincident lack of dietary protein and/or energy (calories) in varying proportions.

PEM is an important nutritional problem among preschool age children.

The main cause of PEM is food inadequacy.

Types of Protein Energy Malnutrition

PEM includes :

1. Kwashiorkor (protein malnutrition predominant)
2. Marasmus (deficiency in calorie intake)
3. Marasmus-Kwashiorkor intermediate (marked by protein deficiency and marked by calorie insufficiency signs present, sometimes referred to as the most severe form of malnutrition)

Kwashiorkor

It refers to the sufficient calorie intake, but with insufficient protein consumption.

Severe form of protein malnutrition characterized by edema and enlarged liver with fatty infiltrates.

Kwashiorkor occurs in infant of about 18 months or above.

It is also called as “edematous” malnutrition.

Causes

Limited supply or lack of food,during times of famine caused by natural disasters – such as droughts or floods.

Osmotic imbalance in the lymphatic system causing swelling of the ankle and feet diagnosed as an edema or retention of water.

A lack of nutritional values knowledge and regional dependence on low – protein diets, such the maize – based diets of many south American countries.

Signs and Symptoms

- oPitting edema
- oDistended abdomen (ascites)
- oEnlarged liver with fatty infiltrates
- oThinning of hair
- oGrowth retardation and mental retardation
- oSkin depigmentation and dermatitis
- oAnorexia.

Kwashiorkor

Pitting edema

Treatment

1. Calories are given first in the form of carbohydrates (simple sugars and fats).
1. Proteins are started after other sources of calories have already provided energy.
2. Many malnourished children will develop intolerance to milk sugar (lactose intolerance). They will need to be given supplements with the enzyme lactase so that they can tolerate milk products.
3. After 2 – 3 weeks, the milk is replaced by boiled cereals fortified with minerals and vitamins until its mass is at least 80% of normal weight.
4. Rehabilitation phase - small but frequent rations, given every 2 – 4 hrs. during one week diet hyperglucidic, is gradually enriched in protein as well as essential elements, sweet milk with mineral salt.

Diagnosis

1. Doctor will first examine to check for an enlarged liver (hepatomegaly) and swelling.
2. Next blood and urine tests is ordered to measure the level of protein and sugar in your blood.
3. These tests may look for muscle breakdown and assess kidney function, overall health and growth. These tests includes –

    Arterial blood gas

    Blood urea nitrogen (BUN)

    Blood levels of creatinine

    Blood levels of potassium

Marasmus

It refers to inadequate intake of protein and insufficient calorie consumption.

Severe form of malnutrition and is characterized by emaciation.

Marasmus occurs in the children ranging from age 1 to 3 years.

Causes

Inadequate diet:- Failure of breastfeeding makes children less than 1 year of age to be at risk of having marasmus.

Socio-economics status of family.

Infections:- Infections occurring in Marasmus leads to over consumption of proteins and calories making the nutrients unavailable for use by the body.

Diseases such as measles, diarrheal diseases and intestinal parasites (making absorption of nutrients difficult and also consuming the available nutrients).

Signs and symptoms

- Loss of subcutaneous fat mass.
- Hypothermia
- Dehydration
- Dry skin
- Chronic diarrhoea
- Growth retardation and mental retardation
- "old man" face

Marasmus

Treatment

A. **Stabilization phase**:

The stabilization treatment is carried out within the first two days, to prevent the life threatening conditions: hypothermia, hypoglycaemia, infections and dehydration.

It includes,

1. Correction of hypoglycaemia (low blood glucose) using dextrose or by initiating feeding.
2. Correction of hypothermia (low body temperature).
3. Correction of dehydration using Rehydration Solution for Malnutrition (ReSoMal).
4. Correction of electrolytes disorders and mineral deficiencies.

B. Rehabilitation phase :

The rehabilitation phase for treating marasmus is a combination of the treatment in the stabilization phase and also taking a good and examination to know the cause of the marasmus and appropriately treating the cause with any associated medical conditions.

C. Follow-up phase :

Follow up is done to make sure the child is gaining appropriate weight and to minimize any long term complication that might have been caused by marasmus.

Diagnosis

1. Marasmus diagnosis is done through measurements such as height and weight (anthropometry)
2. A lack of motion in a malnourished child also help to confirm a diagnosis of marasmus, it tends to lack the energy.
3. Marasmus is difficult to diagnose using blood tests, because many children with marasmus also have infections that can affect blood test results.

Complications

1. Severe infections often always occur such as pneumonia.
2. Electrolyte disorders with their complications.
3. Low immunity.
4. Coma.
5. Death.

Prevention

1. Adequate feeding of rich-protein and calorie diet.
2. The diet should contain all the required nutrients.
3. Use of oral rehydration therapy for treatment of diarrhoea.
4. Proper immunization of children to prevent infections.
5. Good sanitation and hygiene.

Characteristics comparison Table

Kwashiorkor	Marasmus
It develops in children whose diets are deficient of protein.	It is due to deficiency of protein and calories.
It occurs in children between eighteen months to five years of age	It is common in infants under one to three years of age.
Subcutaneous fat is preserved	Subcutaneous fat is not preserved (Muscle loss)
Edema is present	Edema is absent
Ribs are not very prominent	Ribs becomes very prominent
Enlarged fatty liver	No fatty liver
Irritable	Irritable and Lethargic

References

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