

Some Information about Kwashiorkor-“Edematous Malnutrition”

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ABSTRACT-

Kwashiorkor is mainly found in 1-5 years children's.According to history of kwashiorkor known as “Nutritional Disease”. Kwashiorkor mostly found in sub-sharan,Africa,Southeast Asia and Central America. This review explains how to treat it.we includes in this review risk factor Treatment, Diagnosis of kwashiorkor

Key words- Malnutrition, Hypoglycemia, Hypothermia,

Objectives-

1. Introduction of kwashiorkor
2. History
3. Pathophysiology
4. Symptoms
5. Diagnosis
6. Treatment
7. Prevention

Other Synonyms of kwashiorkor Includes-

- Severe malnutrition
- Protein malnutrition
- Malignant malnutrition
- Protein calories malnutrition

INTRODUCTION-

Kwashiorkor is form of malnutrition due to lock of dietary Protein, vitamins and essential minerals.

Kwashiorkor also known as “ Edematous Malnutrition” because of inflammation (fluid retention) It is a nutritional disorder mostly seen in drought-Prone regions.(1*)

•Kwashiorkor is most common in areas where- In poverty and destitution areas. kwashiorkor also found in areas with food shortages. Low level of education (when People do not understand how to eat properly). (2*)

This diseases is more prevalent in very poor Countries. Kwashiorkor is rare among children in the United States. (7*)

Kwashiorkor is serious Condition that can occur when a person is not getting enough protein.(1*)This diseases is more common in infants and children under five years of age.Acute protein deficiency leads to inflammation. Kwashiorkor is most common in infants especially if they do not receive adequate nutrition immediately after they stop breastfeeding. If a child suffers from kwashiorkor he should be treated immediately.(9*)



History –

Kwashiorkor name is derived from the language of Coastal Ghana this translate as “illness of children removed from office” and reflects the development of conditions in an older child. When the younger siblings arrived milk extracted from breast.

Kwashiorkor also known as Edematous Malnutrition due to lack of protein. Kwashiorkor was first discovered in 1933 by silly Williams in Africa. To this diseases had many names even before kwashiorkor was found by silly Williams.(2*) The first thing he noticed was lacked of protein. Williams was first person in Africa to talk about the nutritional disease of childhood related to maize diet in 1933.Jamanican pediatrician Cicely Williams published term in 1935.After that two years later she published first formal delineation for disease. Kwashiorkor was officially recognized in 1939 as public health concern. In the late 1960 there was an outbreak of kwashiorkor among the Balubo refugees in South kasai and the disease spread to both children and adults. It is found mainly in infants and young children in sub-sharan Africa, Southeast Asia and Central America.(3*)

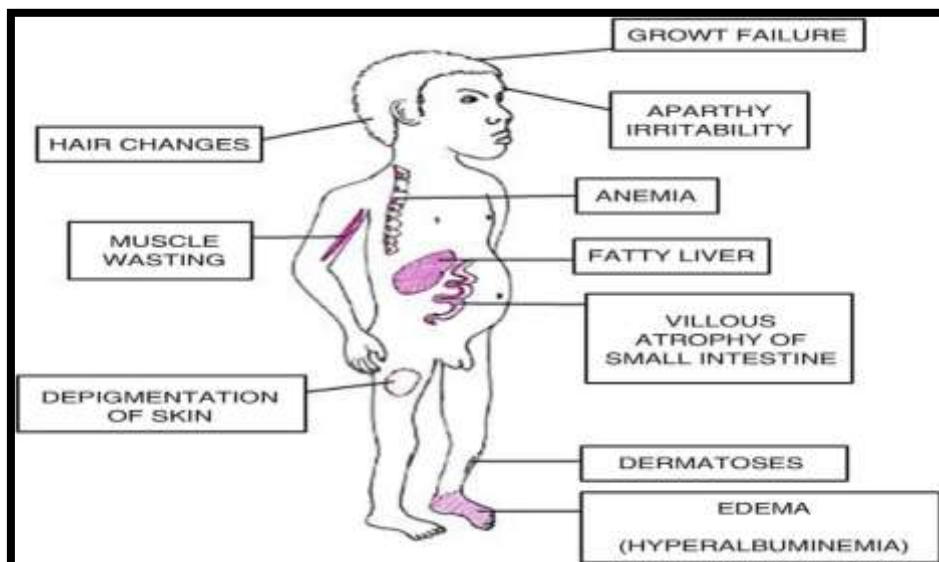
Pathophysiology-

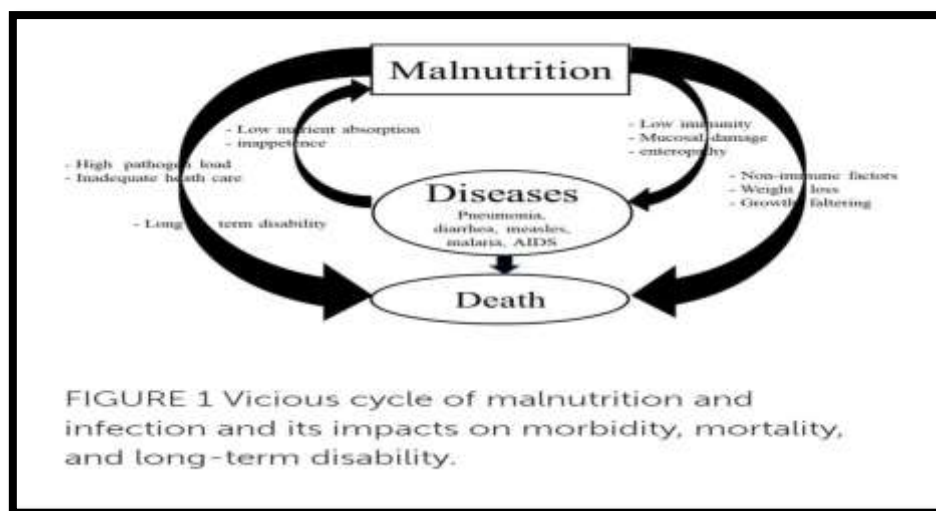
Kwashiorkor is characterized by peripheral swelling in person suffering from hunger. Edema 8s caused by loss of fluid balance between hydrostatic and osmotic pressure on the walls of capillary blood vessels .Albumin concentration contributes to osmotic pressure which allows the body to keep fluid in the blood

vessel. Children with kwashiorkor were found to have extremely low Albumin level and as a result, intravascularly decreased. Subsequently, antidiuretic hormones (ADH) increase in response to hypouolemia resulting in inflammation. Protein deficiency results in a significant pressure gradient of blood vessels and therefore failure to remove fluid from the tissue into the blood stream. This failure causes fluid to accumulate in the abdomen.(9*)

Plasma renin also responds aggressively allowing Sodium to be retained . These factors contribute to edema kwashiorkor is also marked by low glutathione (antioxidant) levels. It is believed that malnourished children show high levels of oxidants .high oxidant level are usually seen during starvation and even in the case of chronic inflammation one remedy is improved nutritional status and sulphur containing antioxidants. There is also an experimental theory that changes in microbiome/Virion causes Edematous Malnutrition.(7*)

Biochemical changes in acute Malnutrition include metabolic hormonal and the glucoregulatory system. The thyroid hormone insulin is the main hormone affected and growth hormone (GH) . The changes include tri-iodothyroxine (T3) insulin. Increase in insulin like growth factor-1(IGF-1) and GH, Cortisol level acute Malnutrition had been identified as decreased in number of neurons, synopses ,dendritic arboresis and mylenination all of which result in reduced brain size. The myofibrils of the heart become thin with impaired contractility. Cardiac output decrease proportionality to loss weight.(12*)





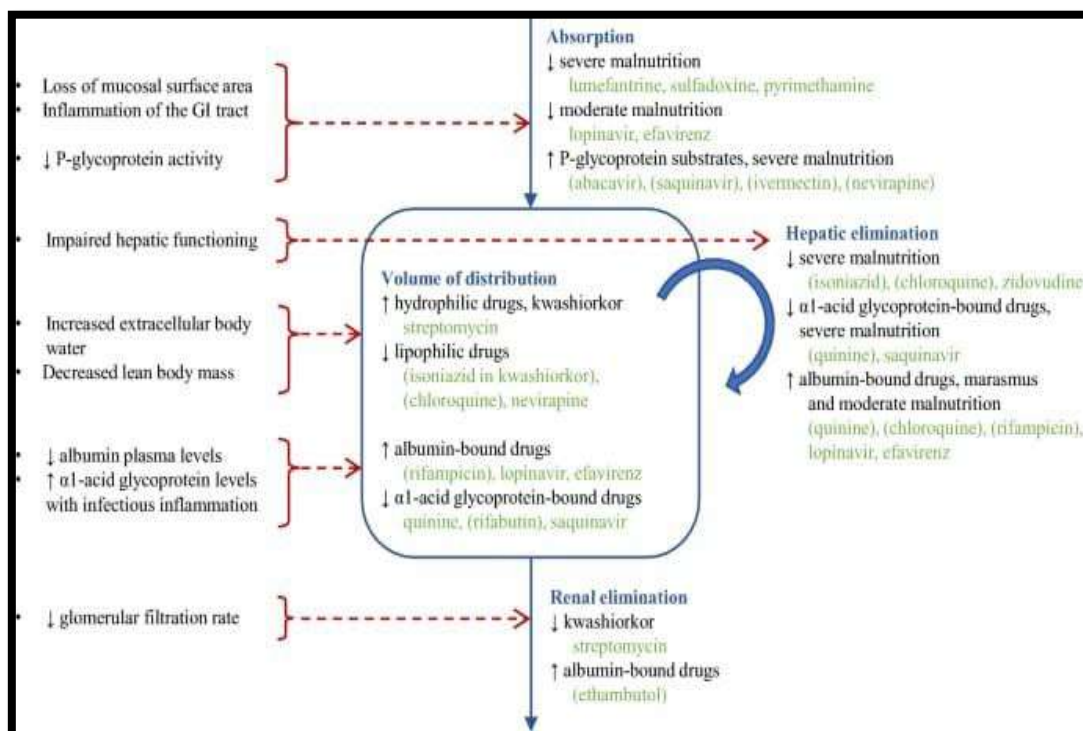
Symptoms -

- 1) Stomach bulging
- 2) Hair thin and easily pull out
- 3) Loose teeth
- 4) Loss of appetite
- 5) Anemia
- 6) Skin dry, thin, wrinkles
- 7) Enlarge liver

- 8) Abdominal distension and swelling of ankle and feet.

Pharmacological action

Due to kwashiorkor increase the level of antidiuretic hormone (ADH) Shows response to hypovolemia & resulting in edema. It is also causing sodium retention.



Diagnosis –

The diagnosis of kwashiorkor can be made based on child's physical appearance and questions about their diet and care. This may include the following tests. Measuring blood sugar and protein levels. Blood test and urine test can be done to rule out other conditions.

If kwashiorkor is suspected doctor will check for an enlarged liver (hepatomegaly) and swelling. And the second blood and urine test for measure the level of protein and sugar in blood.

They can measure a child's weight- height and age & according to various chart. Other test may be done on your blood & urine to measure signs of malnutrition and protein deficiency. These tests can detect muscle breakdown and assess kidney function. Overall health and growth these test includes.(24*)

1. Blood urea nitrogen (BUN Test)

A blood urea nitrogen test is used to examine working of kidney. In this test measuring the amount of urea present in blood. Urea nitrogen is produced in the liver. It is a waste product. Urea nitrogen release after body breakdown proteins. The kidney plays important role to filter this waste and remove it from the body by urination.

Diagnosis following conditions by BUN test

- Liver damage
- Malnutrition
- Poor circulation
- Dehydration
- Congestive heart failure
- Gastrointestinal bleeding.(25*)

2. Potassium blood test

A potassium test is very important to measure the amount of potassium in blood. Potassium is essential for proper muscle and nerve function. It is an electrolyte. Even minor increase or decrease the level of potassium in blood can result in serious health problems. If potassium level suddenly rise and levels are too high. Causes the heart palpitations, chest pain, nausea or vomiting, Shortness of breathing.(26*)

3. Arterial blood gas

This test also known as a blood analysis or arterial blood gas (ABG) test. The ABG test useful to examine the PH of the blood or how acidic it is. It is also used to measure the amount of oxygen and Carbon dioxide in the blood.

This test is done for

- To check acid- base balance

- To check for severe breathing and lung problem such as asthma, cystic fibrosis, chronic obstructive pulmonary disease (COPD) or obstructive sleep apnea shock diagnosis.(17*)

4. Urinalysis

Urinalysis is examine the urine problem in body. Many diseases and disorders cause due to waste and toxins. The organs includes in this lungs, kidney, urinary tract, skin and bladder. To check the problem of urine detract the urine sample. In a urinalysis involves checking appearance concentration and content of urine.(18*)

5. Complete blood count (CBC)

A CBC useful for diagnosis wide range condition including anemia, infection and leukemia. Complete blood count measure amount of red blood cell. Which carry oxygen.

Hemoglobin : oxygen- carrying protein

Hematocrit : Percentage of red blood cells in your blood. (21*)

Treatment-

Treatment includes both medical treatment and diet. Acute protein energy is treated like any other form of malnutrition.

Treatment is done in mainly 3 phases and involves that should be followed correctly.

A) 1. Stabilization phase- This includes Improving life threatening Conditions such as Hypoglycemia, Dehydration and Hypothermia on the first and second day of admission. (4*)

2. Improving Hypoglycemia in kwashiorkor low blood glucose levels are a frequent cause of death and the child should be referred and continued every 2-3 hrs. There after if feeding is not possible, give 50ml of 10 percent dextrose orally or using a nasogastric tube. If child is unconscious or seriously intravenous glucose solution should be given. (5*)

3. Correction of Hypothermia-

Children with kwashiorkor cannot control their body temperature and it worse in the morning when the ambient temperature is too low. This can be corrected by wearing warm clothing and the mother can practice mother care by holding the child in such a way that her skin and the child come in contact.(14*) If low body temperature can indicate the septic shocks and other symptoms of shock should be evaluated and treated appropriately which may require plasma and blood transfusion with antibiotics.(4*)

4. Improving Dehydration in kwashiorkor -

It is difficult to Accurately access the level of Dehydration in severe form of protein energy malnutrition and it is suffer to assume that there is some level of Dehydration , rehydration should be started immediately with the use of oral and no tubes, and if the patient is seriously ill, then intravenous rehydration may be use . Rehydration is correction in kwashiorkor and any other type protein energy malnutrition using a special rehydration solution for malnutrition as it contains less sodium , ORS should be avoided.

For severely Dehydrated patients or patients with septic shock rehydration should be done with semi potent darros solution with 5% dextrose or Ringers lactate with 5% dextrose or 0.45% normal saline in 5% dextrose.

5.Improving electrolyte disorder and mineral deficiencies -

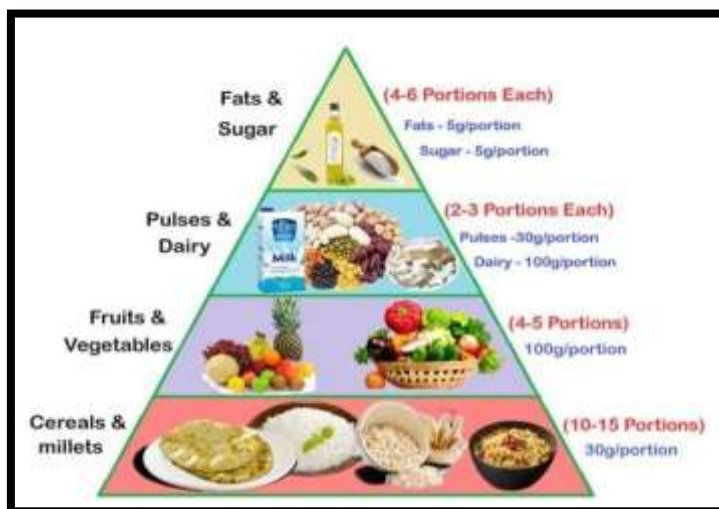
Kwashiorkor is low in potassium, magnesium, copper and zinc in the blood. These can be treated Using ResoMa iron therapy should be started when the infection is treated. (6*)

B) Rehabilitation phase –

This phase requires a detailed medicine history of condition and proper investigation to find out cause of kwashiorkor. It is also include treatment for any related conditions such as anemia, exophthalmia, congestive cardiac failure and dermatosis. Kwashiorkor dermatitis can be treated with zinc supplements or 0.01% Potassium permangant. castor oil and Zinc ointment can be applied (Time line- 2nd week to 6th week).

C) Follow up stage-

Sequential weight measurements should be to ensure proper weight gain. (Time stage-From 6th week to 6th month).(5*)



1. Treated with milk

Milk is a suitable treatment for kwashiorkor since a 1956. According to South African study milk is appropriate diety without any supplemental vitamins. Milk based diet is recommended for treatment.

- Skimmed- milk powder Contain 34% protein
 - Casilan contains 80% protein
- Dried skimmed milk is cheapest from of milk protein
- Kenya skimmed milk contain 55g glucose
 - Shikmmed milk contain 34g of protein and 50g lactose

Other than milk bananans also help to supply of calories, they are good vehicles Of Calories, they are good vehicles of lactose and other sugars.

2. Treatment with soya

Another treatment for child was mixture of soybeans. A combination of cooked banana, sugar and vitamin mixture containing about 15 micrograms of vitamin B12. He was quite hungry at first and he a high calorie intake always more than 800 per day.

3. Weight Gaining through treatment
Treatment of kwashiorkor is end of 28 days. The patient admit for 28 days other see their children healthy & without oedema or skin lesions want to take them.
Natural nutraceuticals and dietary supplements requires like vitamins, protein

Example- vitamin D supplement get people from get sufficient exposure to ultraviolet light.

- Protein supplements recovering the chronic illness or injury
- Daily requirement of vitamin is 3000- 5000 vl/day
- Vitamin B12 obtained from milk, egg,yolk, liver, meat ,fish.
- The daily allow once of vit B12 are 1-2 mg
- Because of deficiency of vitamin B12 Causes megaloblastic anemia,

Demyelinating, neurological disorder of spinal cord

Complications in kwashiorkor –

If some time disease is not treated properly it might lead to the following complications.

- Physical disabilities
- Mental disabilities
- Coma
- Shock(hypovolemic)
- Hepatomegaly(from the fatty liver)
- Cardiovascular System Collapse
- Urinary tract infection

Prevention-

- Kwashiorkor can be prevented by diet rich in protein of animal origin. The best source of protein are milk, eggs fish, cheese.(9*)
- To avoid kwashiorkor made sure you may enough Carbohydrates , fats (at least 10% of Calories) and protein (12% of total calories in diet).
- Developing adequate vegetable protein mixes, especially by increasing availability of nuts, pulse and grains.
- Supplements for young children and infants with an emphasis and food that provides adequate quality of protein.
- With a good intentions young mother in poor countries make many serious mistake in feeding their children. When proper nutrition education programs are effective, it is common to find that changes in traditional diets for infants and young children. Can occur quite

rapidly material and child health centers have a huge impact on nutritional habits. (13*)

- Poor areas generally have a sufficient amount of young children who suffer from neglect. This situation can only be remedied by work of strong social organizations, who need to be educated about the nutritional needs of this age group.

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