

5/8/13

Protein Energy Mal-nutrition (PEM) :-

PEM is the deficiency of micro-nutrient for energy and protein in the diet and forms the most imp. nutritional deficiencies of public health significance. The term PEM is used to describe a wide range of clinical conditions ranging from the very clinically detectable fomed forms to the mildest forms. in which growth retardation is the major manifestation. PEM occurs in 3 clinically distinguishable forms namely (viz.) Kwashiorkor, Marasmus and Marasmic Kwashiorkor. In addition a large no. of children suffer from various sub-clinical forms of PEM like under weight stunting and wasting.

Some of the causes of PEM are —

- (i) Maternal malnutrition
- (ii) Low birth weight
- (iii) Faulty child feeding practise
- (iv) Dietary inadequacy
- (v) Frequent infection
- (vi) Low purchasing power
- (vii) Delayed complementary feeding
- (viii) Large family
- (ix) High family ill-literacy

Poverty result in food availability. Cultural and social practise impose food tabbos and food feigs which

influence nutritional status. The beginning of PEM in children start in rural area from the time of their birth. At least a 3rd of Indian children are born with low birth weight $< 2.5\text{ kg}$ due to high maternal mal-nutrition.

Childhood infection and parasitic infestation are almost always associated with PEM. These causes anorexia leading to reduce food intake, interfere with nutrient absorption and utilization and result in nutrient losses.

Improper child care, either as a result of lack of knowledge or lack of time for mother could also contribute to the onset of PEM.

Absent weaning, late weaning, ignorance of importance of weaning can lead to under-nutrition.

Kwashiorkor:

Kwashiorkor is an African word meaning a "disease of the displaced child" who is deprived of adequate nutrition. It is one of the most imp. forms of PEM occurring mostly in children b/w the ages of 1-3 years. The 3 essential manifestation of

Kwashiorkor are Ed Oedema or swelling of feet, growth failure and underweight, mental changes. The other signs of Kwashiorkor are apathy and irritability, & Absolute no interest in the surrounding, the cheeks may seen swollen with fluid or fatty tissue and often be slightly sagging that means the face is looking like a moon, here an skin changes, water.

electrolyte and micro-nutrient deficiencies. It will happen deficiency of protein only.

Marasmus:

Marasmus is the deficiency of Protein and Energy. Marasmus is common in children below the age of two years. The characteristic manifestation are (i) Severe growth retardation for the given age the children will be below 60% normal or $<$ median - 3 SD. of the standards.

- (i) Unlike the Kwashiorkor oedema is absent and there are no skin and hair changes.
- (ii) Extreme emaciation.
- (iii) Old man's or monkeys face.
- (iv) Loose and hanging skin-fold over arms and ~~buttocks~~ buttocks.

Marasmus can be described as a bony cage hanging nothing but skin and bones.

17/8/13

Marasmic Kwashiorkor:

Sometimes in areas where PEM is common, Mal-nourished children exhibit the feature of both Kwashiorkor and Marasmus. Such changes would occur during the transition from one form of sever PEM to another. The signs and symptoms of marasmic Kwashiorkor are —

- (i) Extreme muscle wasting "skin and bones"
- (ii) Loose and hanging skin folds
- (iii) Old man's or monkeys face.
- (iv) Absolute weakness

(v) Oedema

(vi) They may also manifest some hair changes and often diarrhoea.

The differential features of Marasmus and Kwashiorkor are as follows —

Features	Marasmus	Kwashiorkor
Essential features		
Oedema	None	Lower legs, sometimes face or generalized
Wasting	Gross loss of sub-cutaneous fat, "all skin and bones".	Less obvious; sometimes fat, blubbery
Muscle wasting	Severe	Sometimes
Growth retardation in terms of body weight	Severe	Less than 1/3 of Marasmus
Mental changes	Usually none	Usually present
Variable features		
Appetite	Usually good	Usually poor
Diarrhoea	Often (past or present)	Often (past or present)
Skin changes	Usually none	Often, diffuse pigmentation; occasional "flaky paint" or "enamel" dermatosis
Hair changes	Texture may be modified but no dyspigmentation	Often sparse - straight and silky; dis-pigmentation grayish or reddish

Kwashiorkor

Features	Marasmus	Kwashiorkor
Moon face	None	Often
Hepatic enlargement	None	Frequent, although it is not observed in some areas.

Biochemical changes

Serum albumin	Normal or slightly decreased	Low
Urinary excretion of the creatinine	Normal or decreased	Low