Dietary Management for Protein Energy Malnutrition

Diet plays an important role in the management of Protein Energy Malnutrition (PEM). Nutritional intervention is the primary consideration. Thus, some healthy balanced dietary management tips are recommended for prevention of Protein Energy Malnutrition as following:

**Energy:** Energy is important to cure PEM that is supplied to the body by carbohydrates mainly. A diet providing sufficient quantities of calories made of Cereals & Starchy Foods like- Oats, Rice, Wheat Flour etc. should be included as they are main sources of energy. Malted cereal is a good choice to increase calorie density. Sugar, Jaggery etc. should be included to increase calorie requirement.

**Protein:** Since the continual catabolism of tissues occur in PEM, a high intake of dietary protein should be given to prevent this condition. A protein rich diet made of plant proteins like- Pulses, Soyabean etc. and animal proteins like- Milk or Milk Products, Fish, Lean Meat, Eggs etc. should be given to cure malnutrition. In case of Milk intolerance, formulation should change to include Buttermilk or Dal based formulas.

**Vitamin A:** In PEM, Vitamin A deficiency i.e., vision impairment, growth retardation is commonly seen. So to manage this deficiency, Vitamin A rich foods like- Egg Yolk, Milk, Curd, Butter, Fortified Food, Fruits & Vegetables that are Green or Deep Yellow or Orange in color (such as Green Leafy Vegetables, Carrots, Tomatoes, Ripe Papaya, Mango) should be added in the diet.

**Vitamin C:** Since Vitamin C is essential for the formation of collagen (a major structural protein of connective tissues) and it is an excellent anti-oxidant that helps to aid in infections and improves immunity, Vitamin C rich foods like- Amla, Oranges, Tomatoes, Lemon etc. should be given for better immune response and to prevent infections.

**Vitamin B₆ (Pyridoxine):** Vitamin B₆ plays a role as a coenzyme in the metabolism of protein, carbohydrate and fat. Since Vitamin B₆ deficiency appears to adversely affect growth in infants, Vitamin B₆ rich foods like- Lean Meat, Pulses, Wheat and other Cereals should be included in the diet.

**Folic Acid:** Foods which are rich in Folic Acid like Liver, Egg Yolk, Lentils, Soya Products, Nuts, Leafy Vegetables, Fruits etc. should also be given as it is important during cell division.
and times of growth owing to the DNA needed for new cells.

**Iron:** Anaemia is very common in PEM. Green Leafy Vegetables (such as Spinach), Liver, Meat or Chicken, Pulses, Whole Grains, Jaggery etc. as they are rich in Iron, should be included in diet to cure Anaemia.

**Calcium:** Calcium rich foods like Milk & Milk Products, Egg White, Fruits & Vegetables, Nuts, Sea Foods etc. should be included in diet for strengthening bone health.

**Zinc:** Unmilled Cereals and Legumes are good sources of Zinc which is needed to retard the symptoms of PEM like slow growth (particularly affecting the lean tissue compartment), impaired immune function and diarrhoea.

**Fluid:** Often dehydration is seen in PEM. In such cases the fluid intake should be done in balanced amount to correct the Electrolyte Balance of the body. ORS solution, Plain Water, Dal Water, Tender Coconut Water etc. should be given as fluids.

**Other Dietary Tips To Manage PEM:**

The diet for PEM should be-
1. Easily digestible
2. High in calories
3. Of cereal and pulse combination 5:1 proportion
4. Consisting of minimum 100 ml of milk per day
5. Consisting all the five food groups (Cereals and their Products, Pulses and Legumes, Milk and Meat Products, Fruits and Vegetables, Fats and Sugar)
6. Of increased quantity of food and of many number of feedings
7. Evenly distributed throughout the day