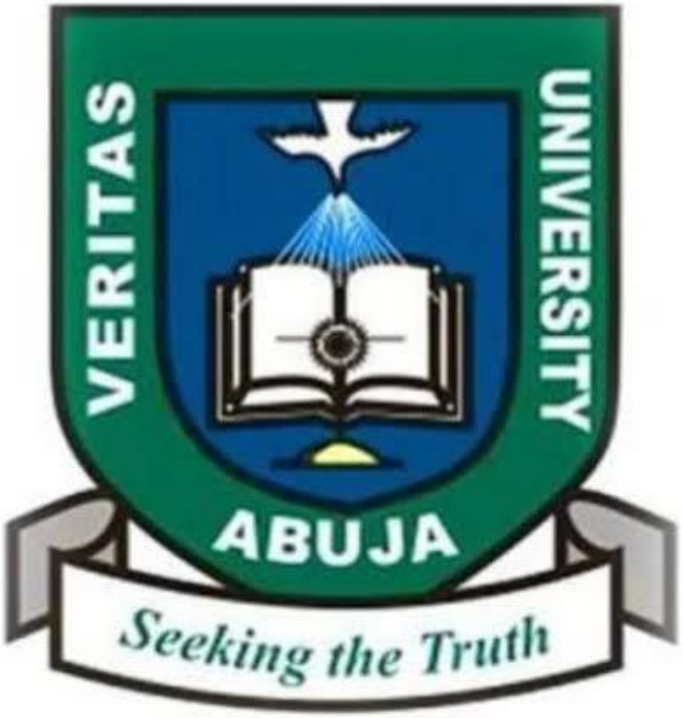

NAME: OHIARE VICTORIA OLUWATOBI

MATRICULATION NUMBER : VUG/PHM/22/6686

COURSE CODE: CLI 403

COURSE TITLE: PATHOLOGY FOR PHARMACY STUDENTS

LECTURER: PHARM. ENE

ASSIGNMENT: Briefly discuss the pathophysiology of protein calorie malnutrition under the following headings:
•Etiology/Causes
•Risk factors
•Symptoms
•Prevention/Management

ETIOLOGY OF PROTEIN CALORIE MALNUTRITION

Protein-calorie malnutrition arises when there is insufficient intake or utilization of proteins and calories. Its causes can be grouped into several major categories:

1) Inadequate Dietary Intake

Worldwide, the most common cause of malnutrition is inadequate food intake. Preschool-aged children in developing countries are often at risk for malnutrition because of their dependence on others for food, increased protein and energy requirements, immature immune systems (causing a greater susceptibility to infection). Poverty and food insecurity, poor-quality diets lacking protein-rich foods are also causative factors involved.

2) Malabsorption and Digestive Disorders

Gastrointestinal infections can and often do precipitate clinical protein-energy malnutrition because of associated diarrhea, anorexia, vomiting, increased metabolic needs, and decreased intestinal absorption. In addition, parasitic infections play a major role in many parts of the world.

These digestive disorders include:

- Chronic diarrhea
- Celiac disease
- Inflammatory bowel disease
- Pancreatic insufficiency
- Intestinal parasites

3) Chronic Illnesses and Medical Conditions

In developed nations, inadequate food intake is a less common cause of malnutrition than is decreased absorption or abnormal metabolism. In these cases, diseases such as cystic fibrosis, chronic renal failure, childhood malignancies, congenital heart disease, and neuromuscular diseases can

contribute to malnutrition. Fad diets, inappropriate management of food allergies, and psychiatric diseases (eg, anorexia nervosa) can also lead to severe protein-energy malnutrition.

Some of these illnesses and medical conditions include:

- Cancer
- Chronic kidney disease
- Liver disease
- Congestive heart failure
- Endocrine disorders (e.g., hyperthyroidism)

4) Social and Environmental Factors

- Neglect or poor caregiving
- Natural disasters or famine
- War or displacement
- Lack of nutrition education

RISK FACTORS OF PROTEIN CALORIE MALNUTRITION

- Poverty and limited access to food
- Food insecurity
- Poor living conditions
- Lack of nutrition education
- Large family size with limited resources
- Chronic infections (e.g., HIV, tuberculosis, malaria)
- Recurrent diarrhoea
- Chronic diseases (kidney, liver, heart disease)
- Cancer and chemotherapy
- Hypermetabolic conditions (burns, fever, trauma)
- Malabsorption disorders (celiac disease, IBD, parasites)
- Poor-quality diets low in protein
- Eating disorders (e.g., anorexia nervosa)

- Alcoholism or substance abuse
- Pregnancy and lactation (increased nutrient needs)

- Natural disasters, famine, conflict, or displacement
- Poor sanitation and hygiene (leading to infections and diarrhoea)

SYMPTOMS OF PROTEIN CALORIE MALNUTRITION

- Severe weight loss
- Muscle wasting (thin arms and legs)
- Fatigue and weakness
- Low energy and reduced physical activity
- Dry, flaky skin
- Hair thinning, easy plucking, or discoloration
- Swelling of feet, legs, or face (oedema—common in kwashiorkor)
- Sunken eyes and bony appearance
- Poor appetite (anorexia)
- Diarrhoea e.t.c

PREVENTION AND MANAGEMENT OF PROTEIN CALORIE MALNUTRITION

Methods of prevention of protein calorie malnutrition include:

- Ensure balanced diets rich in protein (e.g., eggs, fish, beans, milk, legumes).
- Promote exclusive breastfeeding for the first 6 months.
- Introduce timely and appropriate complementary feeding after 6 months.
- Provide nutrition education to caregivers on preparing affordable, nutrient-dense meals.
- Reduce poverty through community support programs.
- Promote food security and access to affordable nutritious foods.
- Strengthen social welfare programs for vulnerable groups.
- Immunization to prevent childhood infections.
- Early treatment of infections such as diarrhoea, malaria, and respiratory illnesses.
- Regular deworming to prevent parasitic infections.

Management depends on the severity (mild, moderate, or severe) and aims to restore nutritional status, treat complications, and prevent relapse.

- Assess for dehydration, infections, anaemia, hypoglycaemia
- Identify oedema (for kwashiorkor)
- Laboratory tests where available (electrolytes, Hb, glucose)
- Treat hypoglycaemia with glucose or frequent feeding

- Treat hypothermia (keep warm)
- Correct dehydration using oral rehydration solution for malnutrition (ReSoMal)
- Treat electrolyte imbalance (low potassium, magnesium)
- Start broad-spectrum antibiotics because infections are common
- Carefully start feeding with low-osmolarity, easily digestible diets (e.g., F-75 formula)

- Regular growth monitoring
- Nutrition counselling for families
- Reinforce breastfeeding and appropriate complementary feeding
- Improve hygiene to prevent recurrent infections
- Address socioeconomic issues (poverty, food insecurity)

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