UNIT 18: NUTRITIONAL DISORDERS OF IMPORTANCE IN NIGERIA

TABLE OF CONTENT

1.0 Introduction
2.0 Objectives
3.0 Main content
3.1 Kwashiorkor
3.1.1 Symptoms
3.1.2 Factors Contributing to Kwashiorkor
3.1.3 Treatments and Control of Kwashiorkor
3.1.4 Prevention
3.2 Rickets
3.2.1 Symptoms of Rickets
3.2.2 Causes of Rickets
3.2.3 Treatments and Prevention of Rickets
3.3 Osteomalacia
3.3.1 Symptoms of Osteomalacia
3.3.2 Causes of Osteomalacia
3.3.3 Treatments of Osteomalacia
3.4 Obesity
3.4.1 Causes of Obesity
3.4.2 Effects of Obesity
3.4.3 Treatment and Prevention
4.0 Conclusion
5.0 Summary
6.0 Tutor Marked Assignment
7.0 References and Other Sources

1.0 Introduction

The nutrients consumed as you learned before must be adequate both in quantity and quality to meet the energy requirement, promote growth and maintenance of body tissues and to ensure proper metabolic functions of the body.

At times, there is inadequate supply and excessive supply, some other times of these nutrients. These conditions amount to malnutrition. The conditions also result into nutritional disorders.

This unit therefore, treats the nutritional disorders of importance in Nigeria.

2.0 Objectives

At the end of this unit, you should be able to:

- Describe some nutritional disorders of importance in Nigeria
- List the causes of the disorders
- List the symptoms of the disorders
- Prescribe treatment for the nutritional disorders

3.0 Main Content

3.1 Kwashiorkor

Kwashiorkor occurs when a child who has remained on prolonged breast feeding is weaned and then fed with diet that is low in protein, probably because of poverty or ignorance in the part of the mother. This is a disorder resulting from protein-energy malnutrition. It occurs mostly in children between the ages of 12 and 18 months though children up to five years may still be affected by Kwashiorkor. The disease is more prevalent among children of rural dwellers who are not able to provide for their children after they are weaned. The mothers tend to use mostly carbohydrates to feed their children, thereby causing poor intake of protein in the diet of the children.

The diet contributing to Kwashiorkor has been found to lack vitamin Bp

3.1.1 Symptoms of Kwashiorkor

Some of the symptoms are:

a. The growth of the child is retarded
b. The hair changes colour, loses its sheen and becomes thin
c. There is development of oedema with the feet, face and hands swollen
d. There could be diarrhea
e. There is generalizes unhappiness or apathy
f. There could be some degree of anaemia, though not severe
g. There could be dryness and flaking off of skin

3.1.2 Factors Contributing to Kwashiorkor

Some of the factors contributing to Kwashiorkor are

a. Shortage of protein food especially animal protein for weaning

I;. Inability to meet the high protein requirement during infancy

c. The ignorance of some parents that well n; '.irished foods containing meat and eggs should be the preserve of the adults specially heads of the family
d. Exposure of children before five years to som infections

3.1.3 Treatment and Control of Kwashiorkor

Some mild cases of Kwashiorkor can be treated by the mothers, by feeding the baby with good quality protein such as egg, milk. beans, groundnuts three times daily.

In ensuring that the diet of the child contains sufficient protein of high quality, we should make sure that adequate calorie can also be supplied by the diet. This is done by making sure that the diet contains enough oil from palm oil, groundnuts and cotton seeds. Apart from all these, the child should be given adequate care and attention.

Severe cases must be reported to doctors and treatment should include the consumption of high quality protein food.

3.1.4 Preventions

a. After weaning the child, the diet must contain high quality protein food.
b. There must be nutrition educational programs on the feeding of the children.

3.2 Rickets

Rickets is essentially a disease of the poor in which there is inadequate supply of calcium and phosphorous. It results in defective bones formation when there is inadequate deposition of calcium and phosphorous in the body.

As a result of poor calcification of the bone at the time of birth, the bone remains soft and pliable. When the children are growing up and the bones are to perform their roles, deformities occur because the bones are not strong.

Rickets is a disease of the children. It is the equivalent of osteomalacia in adults.

3.2.1 Symptoms of Rickets

a. Deformities such as bending or bowing of the bones occur when the child starts to walk. This is because the bones are not strong enough to support the weight of the body.

b. There could be soft-lining of the skull leading to its box-like appearance with protruding fore head
c. There could be teeth eruption and the teeth are less well formed than the normal. They also undergo decay earlier •
d. Growth can be retarded
e. There is enlargement of the ends of long hones causing difficulty in movement as a result of knock knees resulting from the flattening which occurs when poorly calcified ends are subjected to carry the weight of the body
f. There could be deformities of the ribs that cause crowding of the chest cavity.

3.2.2 Causes of Rickets

a. Rickets is caused by deficiency in calcium and phosphorous and by the inability of the parents in providing mild, cream, butter and eggs that can provide calcium and vitamin D.
b. Feeding on diet that contains high quality cereal food in which the absorption of calcium may be interfered with by phytic acid.
c. Frequent occurrence of diarrhea that results from digestive disorders in which adequate absorption of calcium is distributed.

3.2.3 Treatment and Prevention of Rickets

Rickets and the attendant deformity could be treated and corrected by:

a. Synthesis of adequate amount of vitamin D through exposure to sunlight rays
b. Feeding the children with the diet that is rich in vitamin D and calcium.
Such foods are milk, cod-liver oil, fish, butter and so on.

3.3 Osteomalacia

Osteomalacia, adult rickets, is a defect in bone formation that is not necessarily as a result of vitamin D deficiency. In osteomalacia, the shaft of the long bones and flat bones such as

the pelvics are affected. Osteomalacia is more prevalent in women of child bearing age than men.

3.3.1 Symptoms of Osteomalacia

Some of the symptoms of osteomalacia are:

a. Skeletal pains
I). Muscle weakness that is present and that is producing disability

c. Skeletal deformity
d. There could be replacement of bony subs', ince in the body with osteoid tissue as a result of the progressive decalcification of the bones. The effect of this decalcification of the bones is felt in the spine, ribs, pectoral girdle and in the pelvics and lower limbs.

3.3.2 Causes of Osteomatacia

Some of the causes of osteomalacia are:

a. Low intake of dietary calcium and vitamin A and D
b. Lack of adequate exposure to sunlight
c. Frequencies of pregnancy and lactation with its attendant increase in the demand for calcium and vitamin D.

3.3.3 Treatment of Osteomalacia

a. There should be maintenance treatment with vitamin D
b. Good diet that contains milk, egg, butter and margarine should be supplied
c. In all cases of osteomalacia, we should give a supplement of calcium orally. However in doing this, we should give consideration to the toxic effect of excessive intake of vitamin D whose absorption is related to the presence of calcium.

Students' Assessment Exercise 18.1

List the causes of Kwashiorkor, rickets and osteomalacia.

3.4 Obesity

This is a state where excess fats accumulate in the body as a result of excess calorie consumed and absorbed. This condition could be assessed visually. It is important to assess the degree of obesity for the purpose of regulation and treatment. This can be done by comparing the weight of the person with the value in the table of standard weights.

We should also note that the normal body weight of an individual is dependent on body build. Heredity confers large frame and large body muscle on some individuals.

Even when these individuals are more than 20% over their standard weight, they are still not regarded as obese.

Obesity can be assessed by obtaining fats as a percentage of total body weight.

For normal men and women, the fat content percentage of the total weight should be respectively about 12 — 18% and about 18 — 24% when men and women have fat content of about 20% and 30% respectively, they could be considered as obese.

Obesity occurs when on a continuous basis the caloric intake exceeds the caloric requirement. This excess is always stored inform of fat in the adipose tissue.

Some people are also considered overweight when their weights are slightly above the standard weights.

However, if consumption of calorie is not controlled at the point the overweight is noticed, the overweight people can later on become obese.

3.4.1 Causes of Obesity

The causes of obesity can be due to

a. Environmental Factors
b. Psychological Factors
c. Genetic Factors
d. Cultural Factors
e. Physiological Factors

f. Environmental Factors: Some environmental causes of obesity are demand for food causes individual to consume more food than necessary thereby resulting into obesity.
g. Psychological Factors: Technology has brought energy saving mechanical devices and convenience foods. All these reduce the energy expenditure of the individual thereby causing the caloric intake to be in excess of caloric requirement.
h. Genetic Factors: Especially in Africa, foods and drinks are used to express hospitality. A person who is offered foods and drinks from early morning to late in the evening may become obese after some time.
i. Cultural Factors: The decrease in the amount and intensity of physical activity with age without corresponding decrease in caloric intake can result into obesity.

Some mothers are always interested in the large weight gained by their children and they consider this weight gain as desirable. This leads them to

introduce their children to solid foods at early age to feed them with milk of high caloric value and to encourage them to consume large portions of food. All these encouragement can lead to obesity.

-

Some psychological factors that are implicated as causes of obesity are anxiety, disappointment especially in love affairs and frustration.

Anxiety can lead to more intakes in caloric consumption. A lady that is jilted by a man may substitute foods for lost love. In some people, food is used to compensate for some sort of frustration.

As we discussed before, heredity has a role to play in the body frame and the amount of muscles of an individual. Heredity is also the tendency for some obese parents to have some obese children.

Cultural factors are also implicated as causes of obesity. To some people in some cultures, a large body size is a sign of wealth. In this type of culture excessive intake of calorie may be encouraged and this may lead to obesity.

Other factors causing obesity are Physiological Factors such as hormonal factors and regulation of food intake.

3.4.2 Effects of Obesity

a. As a result of the increase in weight, the heart and some other organs of the body receive additional work load to maintain and move the extra weight around.
b. There is reduction in the body reserves to deal with infection and acute illnesses.
c. There is increase in the incidence of such diseases as diabetes, coronary heart diseases and arterial diseases.
d. The joints between bones particularly those of the leg are overloaded and may wear down
e. As a result of the increase in weight there is a reduction in the tendency for the obese to participate in physical activities, hence the obese becomes dull and sluggish.

3.4.3 Treatment and Prevention

The treatment of obesity can be achieved by any measure that can cause a successful reversal of the positive caloric balance that result in obesity. Therefore, in treating obesity there must be

a. Decrease in caloric intake

b. Weight adjustment through increased physical activities
c. Consumption of reducing diets consisting of high protein, high fat and low carbohydrates content
d. Administration of agents that can reduce food intake that is administration of appetite depressants or anorexigenic drugs.

4.0 Conclusion

In this unit. kwashiorkor, rickets, osteomalacia and obesity, some nutritional disorders in Nigeria are discussed under causes, symptoms and treatments. Some students' assessment exercises are given to make the student assess their understanding on the contents of the unit.

5.0 Summary

The body needs nutrients that are adequate in quantity and quality for its energy need, growth, maintenance of body tissues and some metabolic functions in the body. Under intake and over intake of these nutrients could lead to nutritional disorder.

Under intake of nutrients leads to kwashiorkor, rickets and osteomalacia that are discussed in this unit while over intake of calorie over and above the requirement leads to obesity.

Kwashiorkor is a disease of children in which there is protein energy malnutrition leading to retardation of growth, decolouration of hair and losses of its sheen oedema with feet, face and hands swollen, dullness and apathy. Kwashiorkor can be treated by feeding the baby with good quality protein such as milk, eggs, beans and groundnut.

Rickets is as a result of deficiency of calcium and phosphorous and poor calcification of bones in children. This leads to deformity of the bones and enlargement of the ends of long bones when the children arc trying to walk. The fore-head may also protrude and eruption of teeth delayed. Exposure of body to sunlight and inclusion of food rich in vitamin D and calcium into the diet can be used to treat rickets.

Ostcomalacia is adult rickets characterized with skeletal pain and pains in the limbs. It is more prevalent in women than in men. It is caused by low intake of calcium and vitamin D. lack of exposure to sunlight and frequent pregnancy and lactation.

Obesity is caused when there is excess of caloric intake over the caloric requirement. The causes can be environmental, physiological, cultural, psychological and genetic.

Obesity can be treated by increasing physical activity decreasing caloric intake, consuming reducing diet of high protein content, high fat content and low carbohydrate content and administration of appetite, depressant or anorexigenic drugs.

6.0 Tutors Marked Assignment

Discuss the causes and the treatments of rickets and obesity

Answers to students' assessment exercises

18.1 See answers in Sections 3.1.2, 3.2.2 and 3.3.2 of this unit
18.2 See answers in section 3.4.2 of this unit

7.0 References and Other Sources

Davidson S. et al (1915) Human Nutrition and Dietics, 6th edition, Longman Group Ltd

Guthrie H. A (1979) Introductoru Nutrition 4thedition, The C. V Mosby Company, St Louis London, Toront