Sixth Lecture

Learning Objectives for the Lecture:

At the end of the lecture the student is going to be able to:

1. Define nutritional epidemiology.
2. Describe the goals of nutritional epidemiology.
3. Describe the components of nutritional epidemiology.
4. Define nutritional assessment and describe the purpose of nutritional assessment.
5. Describe methods of nutritional assessment.

Nutritional epidemiology

Nutritional epidemiology is a scientific field that studies the effect of diet on the risks of diseases.

Goal of Nutritional Epidemiology

The overall goal nutritional epidemiology is to contribute to the prevention of disease and the improvement of public health.

It aims to deliver knowledge on how to cope with an imbalance between nutrients that causes illness such as anaemia, goitre wasting and stunting

Components of Nutritional Epidemiology:

1. Assessment of nutritional status of the community
2. Nutritional and dietary surveys: It's designed to collect detailed, quantitative information on the food consumption, nutrient intake and nutritional status of the general population
3. Nutritional surveillance: Monitoring the state of health for the purpose of planning and evaluating nutrition policy.

Major Nutrition-related Diseases Throughout The World:

- Heart disease
- Cancer
- Osteoporosis

Cataracts
Stroke
Diabetes

Deficiency Syndroms:

Mineral deficiency disease

Protein energy malnutrition

Iron deficiency anemia

Over intake of nutrients

Nutritional Assessment:

The purpose of nutritional assessment is to:

1. Identify individuals or population groups at risk of becoming Malnourished.
2. To develop health care programs that meet the community needs which are defined by the assessment.

3-To measure the effectiveness of the nutritional programs and intervention once initiated.

Methods of Nutritional Assessment:

Nutrition is assessed by two types of methods; **direct and indirect methods:**

- The direct methods deal with the individual and measure objective criteria,
- Indirect methods use community health indices that reflects nutritional influences.

Direct Methods of Nutritional Assessment:

Anthropometric methods

- Body Mass Index.
- Waist Circumference.
- Height.
- Weight.

- Skinfold thickness.
- Bone Mineral Density.
- Blood Pressure.
- Heart Rate

Anthropometric Methods:

- It is an essential component of clinical examination of infants, children & pregnant women.
- It is used to evaluate both under & over nutrition.
- The measured values reflects the current nutritional status & don't differentiate between acute & chronic changes .

Other anthropometric Measurements

- Mid-arm circumference
- Skin fold thickness
- Head circumference
- Head/chest ratio
- Hip/waist ratio

Biochemical, laboratory Methods

- Hemoglobin estimation .
- Stool examination
- Urine dipstick & microscopy for albumin, sugar and blood

Specific Lab Tests

- Measurement of individual nutrient in body fluids (e.g. serum retinol, serum iron, urinary iodine, vitamin D)
- Analysis of hair, nails & skin for micro-nutrients.

Clinical Methods

- It is an essential features of all nutritional surveys
- It is the simplest and most practical method of ascertaining the nutritional status of a group of individuals
- It utilizes a number of physical signs, (specific nonspecific), that are known to be associated with malnutrition and deficiency of vitamins & micronutrients.

Clinical signs of nutritional deficiency

Hair: Spare and thin… Protein, zinc, biotin deficiency

Easy to pull out… Protein deficiency

Corkscrew and Coiled hair… Vit. C and Vit. A Deficiency

Nutritional intake of humans is assessed by five different methods. These are:

- 24 hours dietary recall
- Food frequency questionnaire
- Dietary history
- Food dairy
- Observed food consumption

Indirect Methods of Nutritional Assessment

These include three categories:

- Ecological variables including crop production.
- Economic factors e.g. per capita income, population density and social habits.
- Vital health statistics particularly infant and under 5 mortality and fertility.