Nutritional Status Assessment

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Last update: Wednesday, 07 Mar 2012 at 10.21 pm.

Nutritional status assessment is done to get an objective estimate to whether an individual or a community is well nourished, poorly nourished or overnourished. This is mainly done by:

1. Patient history
2. Clinical examination
3. Laboratory examination
4. Recording dietary intake

Levels

Nutritional status can be assessed according to the:

- Individual
- Group
- Population (often used in health statistics data comparison with food/nutrient consumption data)

History

The history has the same basic approach as taking a normal medical history in the clinical setting. It should include the following:

- Family (normal family history)
- Personal
- Nutritional

1. Type of diet. For example: mixed diet, therapeutic diet or dietary restrictions and any food preferences
2. Any problems related to food intake
3. Unintentional weight loss or gain

Clinical examination

It is important to check the following:

General nutritional status: It is what you can see by just looking at the patient. Is the patient obese, underweight or of normal weight? How does the skin look like, is it pale, dry, greasy? etc.

Signs of malnutrition: For example, Bitôt's spots are reliable signs of vitamin A deficiency, or the skin changes of pellagra of niacin deficiency.

Anthropometric data

- Weight, height and BMI.

BMI =weight in kg/(height in m)2

Status	BMI
Underweight	<18.5
Optimum weight	18.5-25
Grade I obesity	>25-30
Grade II obesity	>30-40
Grade III obesity	>40

- Waist circumference:

Have better predictive data than the weight/height ratio. The apple (android) shape is at higher risk of heart disease then the pear (gynaecoid) shape.

	Increased risk	High risk
Men	>94 cm	>102 cm
Women	>80 cm	>88 cm

- Estimate the body fat percentage:

1. Skinfold thickness measurement. It is done by special precision callipers. A pinch of subcutaneous fat is caught between the jaw of the callipers, and the width is measured in mm. This number is then converted to an estimate body fat percentage by an equation. It should be done at one of the following sites: triceps skinfold, biceps skinfold or the subscapular or suprailiac skin folds. It is very tricky to get it right and it should be left to an experienced professional.
2. Bioelectrical impedance analysis. It is based on the electrical conduction through an organism (typically 800 microamps). Fat free mass is a good conductor because it contains water and electrolytes. Fatty mass is anhydrous, which makes it a bad conductor of electricity. A computer calculates fat-free mass and fat when data on weight, height, age, gender and level of physical activity are entered.

Desirable portion of body fat:

	Men	Women
EU standard	<20%	<24%
US optimum	11-14%	18-22%
CZ Heiner	Up to 23-25%	Up to 28-30%

Laboratory examinations

- Blood

1. Erythrocytes and Haemoglobin
2. Lipids and Cholesterol
3. Proteins
4. Vitamins and minerals

- Urine

1. Nitrogen
2. Urea
3. Selected minerals and vitamins

- Stool

1. Culture
2. Metabolites

- Xenobiotic load in body fluids, stool, nails and hair

Dietary intake

- Prospective food record = food diary for at least a week. It is good for individual studies. It should include meals eaten, fluids and supplements taken, and any artificial feeds.
- 24 hour recall = write down what has been eaten in the last 24 hours by an individual. It is more reliable for group studies, rather than individual studies.
- Food frequency = a questionnaire is usually used to see how a group of people eat. It is good for group and population studies.

Links

Related Articles

Bibliography

- Stewart Truswel. Essentials of Human Nutrition, Selected chapters. 3rd edition. 2007. ISBN 978-0-19-929097-0

References

Eva Kudlova, MD. "Assessment of nutritional status." Charles University, First Faculty of Medicine