Nutritional Assessment

Introduction

The nutritional assessment is often integrated into the health history and physical examination. It provides information about nutritional deficiencies, such as malnutrition, undernutrition, or obesity.

Initial Assessment of Nutritional Status

Malnutrition is diagnosed if there is at least one phenotype criteria and one etiologic criteria below:

Phenotype criteria:

- Low body mass index (BMI)
- Involuntary weight loss
- Reduced muscle mass

Etiologic Criteria

- Reduced food intake or absorption
- Inflammation related to chronic disease or acute inury or disease (Ritchie et al., 2025)

History

- Ask about the patient's current dietary practices and evaluate appetite.
- Use a nutritional screening tool to assess for adequate nutrition;
    - The Mini Nutritional Assessment is a commonly used, well-validated tool to identify older adults who are malnourished or at risk of becoming malnourished.
    - The Malnutrition Screening Tool (MST) is validated in cancer patients and adults acutely hospitalized. It asks only two basic questions:
        - Have you been eating poorly because of decreased appetite?
        - Have you lost weight recently without trying?
- Ask about health problems associated with poor nutrition, such as obesity, osteoporosis, cirrhosis, diverticulitis, Crohn's disease, ulcerative colitis and eating disorders.
- Inquire about previous surgeries, including bariatric surgery.
- Ask about food insecurity. Use the Hunger Vital Sign™ two-question screening tool (Hager et al., 2010) to identify households at risk.
    - Have the patient or caregiver reply often true, sometimes true or never true to the statements below.
        - "Within the past 12 months, we worried whether our food would run out before we had money to buy more."
        - "Within the past 12 months, the food we bought just didn't last and we didn't have money to get more."

Collect dietary data

- To help estimate adequacy and appropriateness of food intake, collect data by having the patient complete a food record or perform a 24-hour food recall, or conduct a dietary interview.
    - Ask the patient if there are any changes in their customary pattern of nutritional intake. While recording the daily meals and snacks consumed, note any changes to satiety.
- Consult with a nutritionist or registered dietician, as needed.

Physical examination

- Assess for clinically significant weight loss or unintentional weight loss.
- Calculate the body mass index (BMI) and waist circumference.
- Throughout the head-to-toe assessment, look for signs that suggest possible nutritional deficiency, such as muscle wasting, poor skin integrity, loss of subcutaneous tissue, and obesity.
- Other tissues that serve as physical indicators of nutrition status include the hair, skin, teeth, gums, mucous membranes, mouth and tongue, skeletal muscles, abdomen, lower extremities, and thyroid gland.
- Perform a biochemical assessment, which may include these serum and urine tests.
    - Low *serum albumin* and *prealbumin* are most often used as measures of protein deficit in adults. *Liver Function Tests (LFTs)* can also be useful because the liver synthesizes albumin and prealbumin.
    - *Transferrin* is a protein that binds and carries iron from the intestine through the serum. Low levels of transferrin can also lead to a deficiency in *iron*.
    - A complete blood count may show a decreased *total lymphocyte count* in patients who are acutely malnourished.
    - *Serum electrolyte levels,* along with a *blood urea nitrogen (BUN), creatinine, and glucose level,* provide information about fluid and electrolyte balance and kidney function.
    - A *24-hour urine collection* can be utilized to calculate the creatinine/height index that assesses metabolically active tissue and indicates the degree of protein depletion.

PEARLS

- Some signs and symptoms that appear to indicate nutritional deficiency may reflect other systemic conditions, such as endocrine disorders, infection, or malignancy, or may result from impaired digestion, absorption, excretion, or storage of nutrients.
- Inadequate dietary intake in older adults may result from physiologic changes in the gastrointestinal tract, financial factors, limited ability to shop and cook, drug interactions, disease or illness such as dysphagia, and poor dentition.
- A waist circumference greater than 40 inches for men or 35 inches for women indicates excess abdominal fat.
- Decreased albumin levels may be caused by overhydration, liver or renal disease, or excessive protein loss due to burns, major surgery, infection, or cancer.

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