RCP Ten Top Tips for Assessment of Nutritional Status

Background

Nutritional status is a dynamic integration of three interacting dimensions:

i) habitual diet and specific food exposures (*What we eat*)

ii) body composition (*What we are*)

iii) habitual level of physical activity (*What we do*), and functional capacity (*What we can do*) at the level of cells, tissues, organs, and the whole body, encompassing physical, mental and social functioning

Together these reflect and in part determine the body's demands for energy and nutrients, as well as how well they are being met. No single measure can give a comprehensive assessment of nutritional status. All the dimensions must be considered, and need to take account of environmental conditions, and health/disease status.

Ten top tips for Nutritional Assessment (short)

1. There is no single measure that captures all aspects of nutritional status.
2. Every patient's nutritional status should be considered with screening as a minimum standard, when admitted to hospital or care-home.

Assessment of Dietary Intake (What we eat)

3. Consider diet and nutrition during history-taking.
4. Consider whether specialist referral is needed.

Assessment of Body Composition (What we are)

5. Weigh every patient at each new medical contact. Calculate BMI and compare to agreed reference ranges, and review changes since last assessment.
6. Consider the need for more detailed assessment of body composition or of the composition of specific tissues.

Assessment of nutrition-related functional capacity (What we can do)

7. Include assessment of physical activity, and cognitive and social function in history-taking.
8. Poor nutrition can lead to functional deficit, and illness can compromise nutritional state.

Impact of medical treatments on nutritional status

9. Many medications can influence nutritional state.

Evidence-based Practice

10. Remember that any assessment must include a forward plan to review and optimise nutritional status when appropriate.

Ten top tips for Nutritional Assessment (Long)

1. There is no single measure that captures all aspects of nutritional status.

   Nutritional status is an integrated and multidimensional concept, relating to diet, body composition, level of physical activity and functional capacity. Each of these aspects needs to be considered in the light of the others, and of the immediate environment, and health and disease state.

2. Every patient's nutritional status should be considered, and nutritional screening applied as standard on admission to hospital or a care home.

   Over or undernutrition, for energy or for specific nutrients, could impair health or be a consequence of disease. A measure of body weight is the minimum. Screening for risk of malnutrition, using a validated Nutrition Screening Tool (e.g. the Malnutrition Universal Screening Tool - MUST) should be conducted (i) on admission to hospital (ii) regularly (e.g. weekly) during long admissions, and (iii) regularly (e.g. annually) in the community for older patients. Nutrition Screening is not diagnostic but identifies patients at risk of malnutrition, for whom formal nutritional assessment is indicated.

Assessment of Dietary Intake (What we eat)

3. Consider diet and nutrition during history-taking.

   Specific food exposures, nutritional knowledge and cultural/religious diets, may be relevant. Identify major issues e.g. of food avoidance (e.g. for religion, personal conviction such as vegetarianism, perceived food intolerance, fad or weight loss diets), altered appetite, food texture needs, weight change.

4. Consider whether specialist referral is needed.

   Formal clinical assessment of diet quantity and quality, conducted by trained dietitians, can characterise reported food and food-group exposures, and estimate dietary adequacy for some major nutrients.

Assessment of Body Composition (What we are)

5. Weigh every patient at every new medical contact. Calculate BMI and compare to agreed reference ranges.

   Isolated assessment may be useful if extreme, but classification by BMI is inexact. The main value is for longitudinal recording.

   Use regularly calibrated scales (standing, sitting or lying). Measure height using a calibrated stadiometer. If height is unavailable, estimate from lower leg or ulnar length, using standard equations. BMI = Weight(kg)/height^2 (m^2); height (cm) can be estimated from Lower Leg Length (LLL): men = (2.31 x LLL) + 51.1; women = (1.84 x LLL) + 70.2.

6. Consider the need for more detailed assessment of body composition or of the composition of specific tissues.

   Body and tissue composition may be estimated using many different methods e.g. bone density by DEXA, body fat distribution by DEXA or MRI. Training, to reduce observer-error, in simple

anthropometry can inform a longitudinal assessment of lean tissue mass (mid upper arm circumference) or body fat content and cardiometabolic risk (waist circumference).

Biochemical tests (e.g. serum ferritin for iron) may provide useful information for some micronutrients, but often reflect neither whole body content nor functional state. Some biochemical tests of enzymatic function may indicate nutrient status, for example RBC transketolase or rbc thiamine indicates thiamine (vitamin B_1) status, but most tests need to be interpreted in the clinical context. Serum albumin is NOT an index of nutritional status. Low albumin indicates an acute inflammatory response, unless in the context of liver failure, nephrotic syndrome or protein-losing enteropathy. Tests are often altered in acute-phase and chronic inflammatory states. Isolated tests may be misleading if there is intermittent consumption and high storage of a nutrient (e.g. urinary iodine). Do not order tests unless you know how to interpret them, or can access appropriate specialist advice.

Assessment of nutrition-related functional capacity (What we can do)

7. Include assessment of physical activity, and cognitive and social function in history-taking.

8. Poor nutrition can lead to functional deficit e.g. by reducing digestive enzymes in the GI tract, and illness can compromise nutritional state by increased nutrient need and by reducing appetite and food consumption.

Impact of medical treatments on nutritional status

9. Many medications can influence nutritional status.

   Some medications may alter GI absorptive capacity (e.g. anti-cancer drugs). Some can increase (e.g. thyroxine, beta agonists), and others reduce (e.g. beta-blockers), metabolic rate and energy requirements. Some major drug classes increase appetite with substantial unwanted body fat accumulation, e.g. insulin, sulfonylureas, antipsychotics, some antidepressants and antiepileptics. Almost all drugs can impair appetite for some people.

   Some drugs affect specific nutrients e.g. metformin is linked to vitamin B12 deficiency. Some anti-epileptic and antituberculosis drugs increase requirement for folate.

Evidence-based Practice

10. Remember that any assessment must include a forward plan to optimise nutritional status when appropriate. This plan may address food selection and provision, held with food preparation and eating, nutritional supplement use and/or artificial support. It must include plans for monitoring and review.

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