Inpatient Nutrition Support

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KEYWORDS

• Malnutrition • Specialized nutritional support • Enteral nutrition • Parenteral nutrition

HOSPITAL MEDICINE CLINICS CHECKLIST

1. Established criteria for malnutrition include at least 2 of the following features: insufficient energy intake, weight loss, loss of muscle mass, loss of subcutaneous fat, localized or generalized fluid accumulation, and decreased functional status.
2. Specialized nutrition support includes oral nutrition supplements, enteral nutrition (EN), and parenteral nutrition (PN).
3. Malnutrition is common in hospitalized adults.
4. Hospitalized patients typically require 20 to 35 kilocalories per kilogram per day, and there are specialized formulas to estimate energy requirements in obese patients.
5. Protein requirements can vary greatly between states of health and critical illness.
6. The Joint Commission requires a nutrition screen for all patients admitted to an acute care hospital, and there are several nutrition screening tools available.
7. Various laboratory tests including albumin, prealbumin, and transferrin vary greatly depending on the illness, and do not consistently indicate the current nutritional status of many patients.
8. The literature supports the use of EN over PN with few exceptions.
9. Medical comorbidities may influence choice of access for EN, PN, and which type of EN formula to select.
10. Risks of EN and PN include refeeding syndrome, which can be ameliorated by initiating nutrition support at a slower rate in patients at greatest risk.

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DEFINITIONS

What is the definition of malnutrition?

Stedman's Concise Medical Dictionary defines malnutrition as "faulty nutrition resulting from malabsorption, poor diet, or overeating."[1] Published criteria for malnutrition include at least 2 of the following features: insufficient energy intake, weight loss, loss of muscle mass, loss of subcutaneous fat, localized or generalized fluid accumulation, and decreased functional status.[2]

A published consensus statement also describes an etiology-based definition of malnutrition that includes whether or not and to what degree inflammation is present (**Table 1**).[3] For example, anorexia nervosa is a noninflammatory condition whereby a patient can still have severe malnutrition. By contrast, sepsis leads to an inflammatory cascade whereby severe malnutrition can rapidly develop. In the context of an acute illness such as trauma or sepsis, severe malnutrition is quantified by intake of 50% or less of the estimated energy requirement for 5 days or longer. In a patient with anorexia nervosa, severe malnutrition is defined as a patient with 75% or less of estimated energy requirement for at least 1 month. In addition to diminished energy intake, other measures such as weight loss, loss of body fat and muscle mass, impaired grip strength, and increased fluid accumulation stratify the severity of malnutrition.

Why is it important to identify and treat malnutrition?

Malnutrition, whether present on admission or acquired during hospitalization, is associated with adverse outcomes for patients and can also have negative financial consequences for an institution. Negative effects of malnutrition include decreased

Table 1
Clinical characteristics that the clinician can obtain and document to support a diagnosis of malnutrition

Clinical Characteristic	Acute Illness			
	Moderate		Severe	
Energy intake	<75% estimated energy requirement for >7 d		<50% estimated energy requirement for >5 d	
Interpretation of weight loss	% of body weight lost: 1–2 5 7.5	Time frame for loss of that % of body weight: 1 wk 1 mo 3 mo	% of body weight lost: >2 >5 >7.5	Time frame for loss of that % of body weight: 1 wk 1 mo 3 mo
Physical findings	Mild changes		Moderate changes	
Body fat	Mild losses		Moderate losses	
Muscle mass	Mild losses		Moderate losses	
Fluid accumulation	Mild increase		Moderate to severe increase	
Reduced grip strength	No change		Measurably reduced	

Adapted from White JV, Guenter P, Jenson G, et al. Consensus statement: Academy of Nutrition and Dietetics and American Society for Parenteral and Enteral Nutrition: characteristics recommended for the identification and documentation of adult malnutrition (undernutrition). JPEN J Parenter Enteral Nutr 2012;36:3; with permission.