Understanding Subjective Global Assessment

Subjective global assessment (SGA) evaluates whether an individual is appropriately nourished i.e. whether nutrient intake and absorption meet the nutrient requirements of an individual. When there is an imbalance among nutrient intake, absorption and requirement then malnutrition occurs. The primary purpose of SGA is to determine whether nutrition deficit plays a role in a patient's condition and therefore, whether nutritional treatment is required. SGA uses a focused history and physical examination to classify individuals into well nourished, mildly/moderately malnourished and severely malnourished categories. The objective is to identify patients who would benefit from nutritional therapy.

Since the original description of the subjective global assessment (SGA) in pre-operative patients in 1982[1], this nutrition assessment tool has been validated in many different disease states[2]. In addition, several detailed descriptions regarding the use and interpretation of the SGA have been published[3,4]. Despite its widespread use, there remain misunderstandings regarding the classification of nutrition status using the SGA. The following is a brief explanation of some of the core concepts integral to performing a valid nutrition assessment using the SGA.

SGA provides a global overview of the patient with respect to nutrition, considering food intake, function, potential malabsorption, reasons for poor food intake, weight loss, and changes in body composition. Due to this global perspective it can distinguish those who have body composition changes due to malabsorption or poor food intake, from conditions such as cachexia where body wasting is due to disease and sarcopenia where, for example, muscle wasting is related to aging. Cachexia is a multi-factorial syndrome defined by an ongoing loss of skeletal muscle mass (with or without loss of fat mass) that is variably but incompletely treated by conventional nutritional support[5]. Sarcopenia is a preferential wasting of muscle mass due to a variety of mechanisms, which requires exercise and potentially nutrition for improvement.

For example, a patient with metastatic pancreatic cancer may, with the addition of nutrition supplements, be consuming sufficient calories to meet the metabolic demand of the disease and their baseline nutritional requirements, but still have weight loss and evidence of significant muscle wasting. If their history indicates no malabsorption and sufficient intake, they would be classified as having cachexia. Frequently, in such clinical scenarios, nutrient intake may be moderately or severely compromised in which case the person would be classified as SGA B or C. However, if this patient is given full nutritional support that meets requirements and there is no significant improvement in weight and functional capacity, a subsequent evaluation could reclassify them as being cachexic.

Sarcopenia may be related to several different factors. For example, in the aged individual, muscle wasting may not be due to lack of nutrients but to a combination of disuse and muscle fibre atrophy, a condition called sarcopenia of aging. If oral intake is deemed appropriate for an elderly individual and there is no evidence of malabsorption but there is evidence of muscle wasting, this would be consistent with sarcopenia of aging.

The distinction between cachexia or sarcopenia on the one hand and malnutrition on the other is made by making an overall evaluation as to whether the intake of nutrients, as well as gastrointestinal health (good appetite, absence of vomiting and diarrhea) permit adequate intake and absorption, or are restricted sufficiently to partially or fully account for the loss of weight and wasting. Prior to giving the final rating, the evaluator must determine whether changes in body composition (muscle and fat) and body weight are dominated by the insufficient nutrition intake (malnutrition) or by the cachexia/sarcopenia.

Classification using SGA is a dynamic process and this classification can change, even in a relatively short period of time. The change in classification is related to the patient's capacity to reach nutrition requirements, begin to gain weight and improve functional capacity. Thus, the SGA classification can be modified towards improvement in status, even if there is still evidence of depleted fat reserves and muscle mass; essentially the clinician needs to ask themselves if further interventions beyond what are already instituted are required to further improve the status of the patient. For example, if patient has lost 15% of their body weight due to decreased oral intake from a gastric outlet obstruction, but has definitive therapy to relieve this obstruction and oral intake normalizes, they would be considered SGA A (well nourished) even if there was still evidence of fat loss and muscle wasting on physical examination as other components of SGA are normal or improving. In essence, no additional nutritional treatment or diet prescription is needed as the patient is on a successful trajectory towards full recovery.

Malnutrition often develops gradually and the repletion of nutritional status with normalization of muscle and fat stores is also gradual and not corrected in a short period of time. However, the SGA considers an individual well-nourished once nutrient intake is sufficient to meet metabolic demands and the symptoms affecting intake and/or malabsorption are managed, even though body compositional changes have not fully normalized. The SGA accounts for this by considering the trajectory of intake, symptoms, and weight loss in the 2 weeks prior to the assessment.

The following are specific factors to consider when completing the Subjective Global Assessment:

Nutrient Intake

One of the fundamental aspects of the SGA relates to the adequacy of nutrient intake, mainly energy and protein intake, in relation to metabolic needs. Malnutrition results when there is an imbalance of nutrient intake and/or absorption in relation to metabolic expenditure. Energy and protein intake in the form of specialized nutrition support (enteral or parenteral nutrition) needs to be considered in the determination of the adequacy of nutrient intake.

Weight Loss

This is an important component of the SGA. However, body weight or quantifying weight loss is often a guess as patients do not weigh themselves regularly. The power of SGA is that it is valid even if the actual weight is not available.[6] The trajectory of weight change needs to be the focus of determining a turnaround to SGA A or continuation of a downward progression to SGA B/C.

Symptoms

Any symptoms that affect dietary intake or suggest malabsorption of macronutrients are relevant to interpretation of the SGA.

Functional Capacity

The presence of protein-calorie malnutrition may affect functional capacity particularly in those who are severely malnourished. Functional capacity also needs to be considered in the overall context of the patient's clinical condition. In many cases functional capacity may be impaired due to underlying illness. For example, an individual with a CVA would have reduced functional capacity due to paresis. This may affect the body composition assessment (i.e. atrophy due to disuse) but these changes may not be the result of underlying malnutrition due to inadequate food or nutrient intake.

Metabolic Requirement

In most clinical circumstances, mild metabolic stress associated with underlying disease does not significantly influence nutrition requirements. States of high metabolic demand such as the systemic inflammatory response syndrome (SIRS), severe inflammatory bowel disease, burns, head trauma, and thyrotoxicosis are associated with an increased metabolic requirement. When performing the SGA, the adequacy of nutrient intake should be assessed in relation to presence of metabolic stress. An individual with high metabolic stress would be expected to have higher energy demand than an individual of similar body composition with mild or minimal stress. An inability to meet these requirements would result in malnutrition.

Body Composition Assessment (fat and muscle wasting)

Assessment of fat stores and muscle mass are an important part of the SGA. However, changes in body composition may be due to other factors such as disuse (for example, decreased ambulation secondary to a severe osteoarthritis), cachexia and sarcopenia. Individuals who continue to ambulate but restrict other activities may have a decrease in upper body muscle mass that is disproportionate to the lower body. These factors that can result in muscle wasting irrespective of nutritional status, and must be taken into account when considering the body composition domain and classifying individuals according to the SGA. The power of SGA is the multiple body sites that can be considered for determination of fat or muscle wasting.

Edema and Ascites

Edema and ascites are rarely manifestations of severe malnutrition but more commonly due to underlying disease. From a nutritional point of view, detecting fluid retention is relevant as this falsely increases body weight measurements. Accumulation of interstitial fluid needs to be taken into consideration when considering body weight measurements.

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FUNCTIONAL CAPACITY

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BODY COMPOSITION ASSESSMENT (fat and muscle wasting)

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