



An essential component of cancer care

Cancer cachexia can be detected early in the course of a patient's illness. Timely discovery may allow interventions to prevent or delay the devastating consequences of cancer cachexia. Simple measures are available to alert physicians to patients' nutritional problems and help in the detection of symptoms that impact on appetite, weight, functional status and quality of life. In this article we describe screening procedures that can be readily carried out in a physician's clinic or office and enable intervention or referral as appropriate. These screening measures are also applicable to patients with other chronic conditions.

CANCER CACHEXIA

Simple nutritional screening in clinical practice

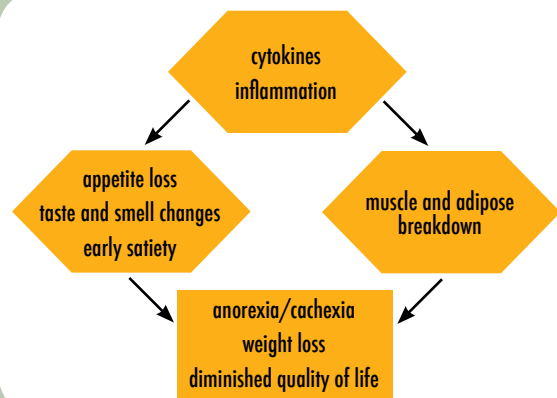
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Any disease that causes a person to experience wasting (loss of fat and muscle) places him/her at a higher risk for complications and adverse effects from treatment. The maintenance of good nutritional status during treatments for cancer or other chronic illness increases the likelihood of successful completion of prescribed therapies and improves a patient's quality of life.

THE ANOREXIA-CACHEXIA SYNDROME

Cancer cachexia is a complex metabolic process characterized by breakdown of skeletal muscle. It is associated with harmful abnormalities in fat and carbohydrate metabolism, usually accompanied by inadequate nutritional intake.¹ Cachexia is classified as either primary or secondary, depending on its cause. Primary cachexia is principally caused by a tumour-induced chronic inflammation involving aberrant cytokine and prostaglandin activation. Consequences include anorexia and poor food intake mediated through the effect

FIGURE 1. Cachexia model



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TABLE 1. Potentially correctable causes of cancer cachexia

<p>Nutritional problems</p> <ul style="list-style-type: none"> appetite loss taste and smell alterations thrush dysphagia dysgeusia xerostomia mucositis stomatitis esophagitis heartburn nausea and/or vomiting diarrhea and/or constipation obstruction malabsorption satiety fistula mineral and/or electrolyte imbalance 	<p>Metabolic causes</p> <ul style="list-style-type: none"> diabetes adrenal insufficiency hypogonadism thyroid insufficiency <p>Psychologic factors</p> <ul style="list-style-type: none"> anxiety depression psychosocial problems distress spiritual problems <p>Fatigue</p> <ul style="list-style-type: none"> inability to sleep <p>Pain</p>
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of cytokines on the hypothalamus (Figure 1). A cachectic patient also experiences muscle loss secondary to decreased protein synthesis and increased proteolysis.²

Secondary cachexia stems from problems that may not be related to chronic inflammation; these problems impact on nourishment and must be identified. Table 1 lists major causes of secondary cachexia. For the most part, these can be alleviated with early intervention directed specifically at the etiology of the symptom (e.g. pain management, control of constipation).

Malignancies display different propensities to induce cachexia. Wasting is often seen in early lung and upper gastrointestinal cancer, while patients with breast cancer and hematologic malignancies only occasionally suffer from this syndrome until the terminal phase. Malnourished patients are less likely than better-nourished ones to tolerate surgery, radiation and chemotherapy, and they have a lower life expectancy.

The pathogenesis of cachexia is not simply an imbalance between energy intake and expenditure. People who are starved preserve muscle: weight is lost preferentially in the fat component of the body. Patients with cachexia, however, lose weight both in the muscle and fat component of the body. Table 2 describes other differences between the effects of starvation and cachexia. Weight loss in starvation — as encountered in some cancer patients with gastrointestinal obstructions — is reversible by enteral and/or parenteral feeding, whereas no such techniques can currently reverse primary cancer cachexia.³

Chronic inflammation has also been implicated in cachectic patients suffering from other disease states, such as congestive heart failure. Similarly, proinflammatory cytokines may induce anorexia-cachexia in patients with COPD, chronic renal failure and the frail elderly.^{4,6} The same nutritional

screen used for cancer patients will help identify malnutrition in patients with these disorders.

THE IMPORTANCE OF NUTRITIONAL ASSESSMENT

In the past, cachexia was accepted as an inevitable component of advanced illness, but today early identification leading to early intervention is believed to make a difference.^{7,9} Earlier nutritional intervention helps patients enjoy a better quality of life, with weight maintenance and alleviation of symptoms such as anorexia, taste and smell changes, early satiety and chronic nausea. It may also reduce treatment toxicity, possibly increasing patients' ability to complete their therapy.^{10,11}

Nutritional screening should be regarded as an essential component of modern cancer care. The simplest measurement is an accurate weight at first presentation and throughout the trajectory of illness. The American Society for Parenteral & Enteral Nutrition (ASPEN) guidelines and dietitian standards recommend that a loss of 5% body mass in 1 month, 7.5% in 3 months or 10% in 6 months should trigger a further nutritional assessment.^{12,13} Others favour an absolute cutoff of 2 kilograms in 1 month, because a percentage guidance may not aptly apply to large people.¹⁴

PG-SGA and ESAS

When weight loss is identified, a nutritional questionnaire should be administered, highlighting symptoms that impact on appetite and weight. The patient's questionnaire responses will guide the health professional in symptom alleviation. Our clinic recommends use of the Patient Generated Subjective Global Assessment (PG-SGA), shown in Figure 2 (page 36).¹⁵ This is a well-recognized tool for evaluating malnutrition in the cancer population, and it


TABLE 2. Characteristics of starvation vs primary cachexia

	starvation	cachexia
acute phase reaction (indicating inflammation)	no	yes, usually
adipose tissue	↓	↓
appetite	↑	↓
glucose intolerance	no	yes
insulin levels	↓	↑
liver size	↓	↑
resting energy expenditure	↓	↑
skeletal muscle	maintained initially	↓

Academy of Family Physicians (AAFP), the American Dietetic Association (ADA) and the National Council on the Aging, Inc.¹⁹ Called “DETERMINE, Your Nutritional Health Checklist”, the NSI consists of 10 questions ranging from how many meals a person eats per day to ability to shop for food. DETERMINE can regularly assess older adults in order to detect nutritional deterioration. The NSI believes that both older adults and cancer patients should receive early nutritional screening and intervention, noting that malnutrition and cancer anorexia ultimately impact on the patient’s quality of life and the healthcare system.

SNAQ or Simple Nutrition Appetite Questionnaire is another screening tool developed to quickly assess malnutrition in the older population. It consists of only 4 questions dealing with taste of food, how much food is consumed during the day and whether or not a person feels full at any time during a meal.²⁰

BENEFITS OF MONTHLY MONITORING

The PG-SGA and ESAS are simple, effective tools readily administered in an outpatient hospital clinic or private clinic. Monitoring the patient at risk on a monthly basis will help prevent malnutrition and can identify patients’ symptoms at a point when they can be alleviated. Ideally, an interdisciplinary team (oncologists, nutritionists/dietitians, nurses and physiotherapists) should be in place to intervene at an earlier stage of the cancer patient’s illness in order to help ease the symptoms associated with cachexia and anorexia. 

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