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# Nutrition 02/03

## -- Overview --

Inability to maintain nutritional status is a particularly common problem for persons with cancer. The disease process and its treatment can lead to severe protein-calorie malnutrition, which is the single most common paraneoplastic syndrome or secondary diagnosis in the cancer patient. It is a major cause of morbidity and mortality. Protein-calorie malnutrition exists when the intake of macronutrients is inadequate to meet metabolic requirements. Progressive wasting, weakness, debilitation, compromised immune function, potential therapy intolerance, and ultimately death may result.

Anorexia, the loss of appetite or desire to eat, is the most common symptom in people with cancer that may occur early in the disease process or later as the tumor grows and metastasizes.[1] Anorexia is present in

15% to 25% of all cancer patients at the time of diagnosis and is almost universal in patients with widely metastatic disease.[2] [3] Anorexia is the most common cause of decreased nutrient intake triggering malnutrition and progressive inanition (progressive deterioration with muscle wasting and body compositional change) in malignancy.

Cachexia is a clinical wasting syndrome evidenced by weakness and a marked and progressive loss of body weight, fat, and muscle.[4] Anorexia and cachexia frequently occur together, but cachexia may occur in individuals who are ingesting adequate calories and protein but experience malabsorption of nutrients. It has been estimated that one half of all people with cancer experience cachexia, two thirds while in a terminal phase of the disease.[5] In addition, investigators have found no association between cachexia and tumor size, type, or extent.[6] It has been observed that cancer cachexia differs from simple starvation.[7] Individuals adapt to starvation by decreasing their basal metabolic rate, whereas in cancer patients, the basal metabolic rate is not adaptive and may be increased, decreased, or normal.[8] Although the exact mechanisms causing cancer cachexia are unknown, several theories regarding its pathogenesis point to a complex mix of tumor, host, and treatment variables, which make this syndrome difficult to study.

The prognostic impact of weight loss and malnutrition has been documented since the 1930s [9] in benign disease and later in malignant disease.[10] [11] [12] [13] It has been estimated that up to 20% of people with cancer may die of the effects of cancer-included or treatment-related inanition. Additionally, the impact of malnutrition on health care costs is substantial.[14] [15]

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