Nutrition Intervention in Cancer

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KEYWORDS

• Nutrition • Cancer treatment • Cancer prevention • Malnutrition • Cancer

KEY POINTS

- Nutrition intervention supports the patient with malnutrition secondary to cancer and its treatment.
- Nutrition intervention has been used in the primary and secondary prevention of common forms of cancer.
- The cancer patient is vulnerable and easily subject to nutritional claims for curing cancer from unqualified and sometimes dangerous practitioners.

INTRODUCTION

Nutrition intervention supports the patient with malnutrition secondary to cancer and its treatment and more recently has been used in the primary and secondary prevention of common forms of cancer.[1] During the emotional stress of dealing with a cancer risk or diagnosis at any stage, patients derive increased quality of life and a sense of control over their lives as the result of receiving supportive advice on diet and lifestyle. Therefore, the use of nutrition intervention in cancer patients is justified in the absence of absolute proof of efficacy as long as it is done safely and with the consent of the cancer patient. As will be repeatedly emphasized here, the cancer patient is vulnerable and easily subject to nutritional claims for curing cancer from unqualified and sometimes dangerous practitioners. Patient's families also read a great deal about the promise of nutrition for cancer in the popular press and must be educated as to its real and potential benefits for each patient's situation.

As the number of cancer survivors who have successfully completed therapy increases, together with a growing population of patients with ongoing preventive pharmacology based on small molecule pharmacotherapy, the demand for nutrition counseling to decrease risk of cancer recurrence or for general health is becoming

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more prevalent. The evidence base for nutrition intervention in these patients is drawn from a combination of extensive epidemiologic inference from association studies of the relationship of nutrition and physical activity to cancer and extensive animal studies showing cellular and molecular mechanisms of the interaction. There are limited nutrition intervention studies in humans, but the general advice given for cancer prevention is also beneficial in reducing the risks of other common age-related chronic diseases, such as diabetes and heart disease. In the absence of proven benefits of nutrition intervention in this population, the interventions should be based on generally accepted macronutrient ranges according to the Institute of Medicine guidelines and be based on results of clinical trials, which show a lack of adverse events when the nutrition interventions have been used.

MALNUTRITION AND CANCER

At the time of diagnosis, 80% of patients with upper gastrointestinal cancers and 60% of patients with lung cancer have significant weight loss,[2,3] defined as at least a 10% loss of body weight in the prior 6 months.[4] In addition, malnutrition is a common complication of patients undergoing chemotherapy, radiation, or surgery for cancer.

This common problem in cancer patients has been recognized as a significant contributor to morbidity and mortality in cancer. Malnutrition is associated with a decreased quality of life in cancer patients, and significant weight loss is a biomarker of poor prognosis in cancer patients.[3] Nutrition intervention can help cancer patients maintain body weight and nutrition stores, offering relief from symptoms and improving their quality of life.[5] Poor nutrition practices, which can lead to undernutrition, can contribute to the incidence and severity of treatment side effects and increase the risk of infection and mortality in cancer patients.[6]

Anorexia, nausea, vomiting, diarrhea, constipation, stomatitis, mucositis, dysphagia, alterations in taste and smell, pain, depression, and anxiety all occur as complications of malnutrition in cancer patients.[7] Nutrition screening can be used to detect malnutrition early and reduce the risk for malnutrition. Nutrition screening is an important component in the development of standards of quality of care in oncology practices and in general medical and surgery practices caring for cancer patients and their families.[3]

Although weight loss is traditionally associated with cancer in the minds of professionals and the public, weight gain can occur as the result of chemotherapy treatment for early-stage cancers, possibly resulting from decreases in lean body mass and resting metabolism.[8] This is especially common in postmenopausal women with breast cancer who have sarcopenic obesity after treatment. Sarcopenic obesity is found to be a risk factor for breast cancer progression.[9] Obesity has also been associated with increased mortality in prostate cancer.[10] The nutrition of cancer patients should be assessed throughout the continuum of care to reflect changing objectives of nutrition intervention.

TUMOR-HOST INTERACTION AND PROTEIN-ENERGY MALNUTRITION

Protein-energy malnutrition (PEM) is the most common secondary diagnosis in individuals with cancer. PEM results most commonly from inadequate intake of macronutrients needed to meet energy requirements. In addition to reduced food intake, several associated abnormalities can combine to worsen malnutrition, including reduced absorption of macronutrients secondary to changes in the gastrointestinal tract. Altered taste sensation can contribute to anorexia, whereas physical barriers to the ingestion or digestion of food are common in head and neck cancer patients and patients with