A recent prospective study found that 32% of outpatients with cancer had a nutritional risk for poor outcomes, with nutritional risk based on a score derived from common clinical variables (Support Care Cancer [published online ahead of print February 7, 2012]. doi: 10.1007/s00520-012-1387-x).

Lead author Federico Bozzetti, MD, professor of medicine at the University of Milan in Italy, says the main message of the study is that clinically relevant deterioration of nutritional status is frequent even in the outpatient setting, where clinicians may think the population is at low risk. The authors noted that previous studies have shown that a lack of routine screening leaves more than one-half of those patients with signs of malnutrition unrecognized.

**Nutritional Screening Not Complicated**

The study included 1453 outpatients with cancer who presented for diagnosis, therapy, or follow-up at multiple centers. Patients with an endocrine disorder or severe impairment of organ function were excluded. Demographic and clinical data were collected for each patient, including age, sex, primary tumor site, histology, stage, Eastern Cooperative Oncology Group (ECOG) performance status, and systemic and digestive symptoms. Nutritional data included percentage weight loss at different intervals before and during the illness and the patient’s body mass index (BMI).

A nutritional risk score (NRS) was assessed using the Nutritional Risk Screening 2002 (NRS-2002) tool, which has been clinically validated (Clin Nutr. 2003;22:415-421). The tool first assesses if the patient has a BMI less than 20.5, has lost weight within the last 3 months, has reduced dietary intake within the last week, or is severely ill. If the answer to any of these is “yes,” then the patient is further screened to obtain an NRS. For the final score, the amount of weight loss, degree of decreased oral intake, and BMI are quantified and assigned a score that is combined with a score for severity of disease. An NRS of 3 or greater is considered high, indicating the need for further nutritional assessment or intervention.

**Nutritional Impairment Is Common**

Approximately 32% of patients were found to have an NRS of 3 or higher. Demographic and disease characteristics of the patients were generally typical of those noted in outpatient medical oncology centers, with 80% of patients having stage III or stage IV disease, 80% having a good ECOG performance status, and 86% having current or prior oncologic treatment.

“The results of this study are not surprising and are certainly in line with other case series reports,” says Cheryl Rock, PhD, RD, professor of family and preventive medicine at the University of California at San Diego. “Weight loss and poor nutritional status can be present early in the course of some cancers, and are not uncommon in response to initial treatments.”

Tumor site, tumor stage, ECOG performance status, therapy received (never, ongoing, or past), anorexia, and fatigue all were significantly associated with the percentage of patients with a high NRS on univariate analyses. According to the authors, simple measurements and factors that are always collected from cancer patients can quickly identify those patients potentially at nutritional risk.
On multivariate analysis, however, stage and therapy status lost significance. Age was not significantly associated in either analysis.

The combination of anorexia and fatigue was synergistic in increasing the NRS, with the presence of both having an effect exceeding what one would expect by simply adding them together. All patients with an ECOG performance status of 3 or 4 (confined to bed or a chair >50% or 100% of waking hours, respectively) had a >50% chance of having a high NRS. Furthermore, all patients with an ECOG performance status of 1 (restricted in physically strenuous activity but ambulatory and able to perform work of a light or sedentary nature) who also had anorexia and fatigue had a >50% chance of having a high NRS. Having an upper gastrointestinal site of disease had a deleterious effect on nutritional status; it was the only tumor site associated with a >50% prevalence of a high NRS in patients with an ECOG performance status of 0 (able to perform all predisease performance without restriction).

**Practice Implications**

According to the authors, the finding that almost one-third of oncology outpatients are at nutritional risk is striking because it seems logical that patients who are well enough to be considered for outpatient therapy should be a somewhat favorably selected cohort.

Dr. Bozzetti says it is important that oncologists recognize that any member of the oncology care team can perform a nutritional screening in 1 to 2 minutes. “An updated oncologist should be aware that malnutrition is an independent negative prognostic factor that could impair tolerance and efficacy of chemotherapy, and that nutritional status can improve with an adequate nutritional support if delivered in an early phase,” he says.

Guidelines from the American Society for Parenteral and Enteral Nutrition (JPEN J Parenter Enteral Nutr. 2011; 35:16-24) and the National Cancer Institute (www.cancer.gov) recommend that all patients be screened for nutritional risk, but according to Dr. Bozzetti and the coauthors of the current study, most clinicians do not screen. Nutritional assessment and counseling are much underused, despite the fact that information useful for identifying patients at risk is customarily collected during cancer diagnosis and treatment, Dr. Rock says.

The authors conclude that even if clinicians are not familiar with available nutritional assessment tools, the results of their study show that simple measurements and factors that are always collected for cancer patients such as height, weight, performance status, and the presence of anorexia or fatigue can quickly identify those patients potentially at nutritional risk and who should be under consideration for nutritional support. Dr. Rock says individualized dietary counseling is the best way to improve nutritional status, as has been shown in a randomized clinical trial (J Clin Oncol. 2005;23:1431-1438). “Because the oncologist's time is limited and more appropriately focused on cancer treatment, identifying nutritional risk and referring to a dietitian would be more likely to have a favorable effect on the patient's response and course,” she says.

In terms of implementing a nutritional intervention, however, Dr. Bozzetti says malnutrition is so frequent that oncologists cannot completely delegate the issue to dietitians. “At least in the easiest settings they should be able to prescribe supplements, antianorexic, and anticatabolic agents in the same way they are able to prescribe antiemetics and pain killers,” he says.