Assessing the Nutritional Status of Patients With Sarcoma by Using the Scored Patient-Generated Subjective Global Assessment

Carly Roop, RD, Michael Piscitelli, BS, and Mary Pat Lynch, MSN, CRNP, AOCN®

An intervention with the Scored Patient-Generated Subjective Global Assessment was implemented at a community cancer center to identify patients with sarcoma at risk for malnutrition. This population usually is not considered to be at nutritional risk because of young age and the site of diagnosis; however, 60% of patients assessed were at risk for malnutrition or were severely malnourished. Nurses and dietitians should be aware of potential nutritional risk in this population and learn about possible interventions.

Almost 80% of patients with cancer will develop some level of malnutrition (Kubrak & Jensen, 2007). Some consequences of malnutrition in the general cancer population include decreased quality of life and response to treatment, as well as reduced survival (Bauer, Capra, & Ferguson, 2002). In addition, patients with cancer can develop a wasting syndrome known as cancer cachexia. Cancer cachexia is classified as a metabolic syndrome that causes patients to exhibit anorexic behaviors such as early satiety, weakness, anemia, sarcopenia (age-related loss of muscle mass and strength), and weight loss (Capra, Ferguson, & Reid, 2001) and occurs in up to 80% of patients with cancer (Andrew, Kirkpatrick, Holden, & Hawkins, 2008; Granda-Cameron et al., 2010). Secondary cancer cachexia is a possible treatment side effect (Gosselin, Gilliard, & Tinnen, 2008) that can be caused by a variety of factors, including impaired oral intake, chronic diseases not related to cancer, or loss of muscle mass (Strasser & Bruea, 2002). However, little research has focused on the nutritional effects of cancer and chemotherapy in adult patients with sarcoma (i.e., malignant tumors of the connective tissues, such as cartilage or bone).

Ideal nutritional assessment tools should evaluate the physiologic requirements, nutritional intake, body composition, and functional status of patients (Barbosa-Silva, & Barros, 2006). The Scored Patient-Generated Subjective Global Assessment (PG-SGA) can be used to determine the nutritional status of patients with cancer (Ottery, 1994). The tool quantifies a nutrition risk score based on the combination of known prognostic indicators of weight loss, performance status, and symptoms that limit fluid and food intake. The PG-SGA places patients in category A (well nourished), B (at risk), or C (severely malnourished), which can be used to assess the amount of nutritional intervention necessary (Bauer et al., 2002).

Bauer et al. (2002) reported 98% sensitivity in detecting malnourished patients with cancer by using the PG-SGA. Isenring, Bauer, and Capra (2003) found similar results, indicating that the PG-SGA is accurate in distinguishing well-nourished patients from malnourished patients. Isenring et al. (2003) also concluded that the serial scores associated with the PG-SGA can be used to predict increases or decreases in patients’ quality of life. In a critical evaluation of multiple nutritional screening tools, Kubrak and Jensen (2007) found that the PG-SGA held more diagnostic value in detecting malnourished patients over the Mini Nutritional Assessment and the Malnutrition Screening Tool.

An evidence-based intervention was undertaken to identify patients with sarcoma at risk for malnutrition at a community cancer center. As an implementation of evidence-based practice, institutional review board approval was not required. No studies have evaluated this population for nutritional changes over the extended course of treatment; therefore, the registered dietitian assessed all patients with newly diagnosed or recurrent sarcoma (N = 28) over a six-month period. The goal was to implement a system that would identify when side effects begin to cause a deterioration of nutritional status and proceed with early intervention to help minimize side effects and treatment delays.

Methods

The Joan Karnell Cancer Center (JKCC), a community cancer center in Philadelphia, PA, treats a wide variety of patients with cancer and is a member of SARC (Sarcoma Alliance for Research Through Collaboration). The PG-SGA was determined...
to be the best diagnostic tool for the patients because it had been researched thoroughly and the scored section could be used to track changes in each patient. The PG-SGA was administered by a dietitian familiar with its use on the first day of treatment and then monthly, as needed.

The PG-SGA is a two-page, two-part assessment that is completed by the patient and the dietitian (to view the PG-SGA, visit www.ochsner.org/content/loc_kenner/Nutrition_Assessment.pdf). The first part of the assessment, which is completed by the patient, asks questions focused on weight, food intake, symptoms, activities, and function. The second part, which is completed by the clinician (e.g., dietitian), includes physical examination and establishes disease and nutritional requirements, metabolic demand, and weight loss. The clinician scores the first part of the PG-SGA and adds up each section to reach a total. The total falls into the following scale: 0–1, 2–3, 4–8, and 9 or higher. Each increment on the scale indicates different intervention necessities, with anything higher than 4 requiring a dietitian’s intervention.

The dietitian met with patients based on their PG-SGA category. Patients labeled A (well nourished) required little to no intervention, and their weight was tracked with each visit for chemotherapy treatment. Patients labeled B (at risk) or C (severely malnourished) required interventions bi-monthly or monthly, respectively. Patient data were recorded with a Microsoft® Excel® spreadsheet.

Results

Twenty-eight patients (15 men and 13 women) participated initially; however, three were lost to attrition, and their data were removed. Patients were aged 18–73 years. Most had stage III or IV disease (n = 15), and the most common chemotherapy agents received were doxorubicin plus ifosfamide (n = 8) and cisplatin plus doxorubicin plus high-dose methotrexate (n = 4).

During the project, 19 delays in chemotherapy and 16 hospitalizations during chemotherapy were recorded. The most common nutritional causes for delays and hospitalizations were mucositis (37%), nausea or vomiting (26%), loss of appetite (26%), and dehydration (11%). Of the total delays and hospitalizations during chemotherapy, 41% occurred during the second cycle of chemotherapy, regardless of chemotherapy type. The other cycles all were below 20% (see Figure 1). No trends caused by sarcoma or chemotherapy type were noticed, possibly because of the relatively small sample size.

At the conclusion of the project, 15 patients (60%) were labeled A, 8 (32%) were labeled B, and 2 (8%) were labeled C. Figure 2 expresses the initial and final patient data according to PG-SGA label. The most common interventions by the dietitian for symptom management and dietary adjustment were distribution of protein powders, suggestions of dietary guidelines for increased calorie and protein intake, and rinses for preventing mouth sores. In addition, one patient required pancreatic enzymes and enteral nutrition.

Discussion and Nursing Implications

No available research exists to compare the initial data of nutritional status in patients with sarcoma; therefore, the initial sarcoma data in the current project serves as the baseline. An alarmingly high number of patients with sarcoma appear to be at risk for malnutrition. In addition, 74% of delays in chemotherapy in patients with sarcoma can be correlated with label B or C, whereas 63% of hospitalizations during chemotherapy are experienced by these patients. Another finding was that more than 40% of delays and hospitalizations in patients with sarcoma occurred during the second cycle of chemotherapy. Patients usually do not start treatment with neutropenic fever or other symptoms related to chemotherapy, and the decline after the second cycle may be caused by adjustments and interventions to the chemotherapy. By the conclusion of the project, patients with sarcoma at risk for malnutrition or patients who were severely malnourished had decreased from 60% to 40%. The decrease may have been the result of interventions that were suggested by the dietitian, which would indicate that nutritional interventions are necessary in this population.

As a result of this project, early intervention strategies have been implemented for patients with sarcoma at the cancer center. A nutrition counselor assesses patients for nutritional deficiencies at the start and throughout their treatment. In addition, programs such as nutrition classes, cooking demonstrations, and a support group cofacilitated by the dietitian are available for these patients.

Patients with sarcoma are not commonly considered at nutritional risk because sarcoma usually occurs in young, otherwise healthy adults and affects the extremities more than the gastrointestinal tract. However, 60% of patients with sarcoma who participated in the project were either at risk for malnutrition or were severely malnourished. As evidenced, the sarcoma population should be assessed as susceptible for malnutrition. Nurses and dietitians should become aware of potential nutritional risk in this population and

---

**Figure 1. Hospitalizations and Treatment Delays by Chemotherapy Cycle**

**Figure 2. Assessment Status of 25 Patients With Sarcoma After Dietary Intervention**
learn of possible interventions to reverse the risk when possible before it progresses to cancer cachexia.

The authors take full responsibility for the content of the article. The authors did not receive honoraria for this work. No financial relationships relevant to the content of this article have been disclosed by the authors or editorial staff.

Author Contact: Mary Pat Lynch, MSN, CRNP, AOCN®, can be reached at LynchMP@pahosp.com, with copy to editor at CJONEditor@ons.org.

References


