Relationship Between Fatigue and Nutritional Status in Patients Receiving Radiation Therapy to Treat Lung Cancer

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Purpose/Objectives: To describe the relationship between fatigue and nutritional status in patients receiving radiation therapy for lung cancer.

Design: Prospective, observational study.

Setting: Radiation therapy department of a large midwestern cancer center.

Sample: 45 adults with primary cancer of the lung receiving outpatient primary or adjuvant radiation therapy.

Methods: Measurements taken before radiation therapy, at week four of treatment, and at completion included the Piper Fatigue Scale, prealbumin levels, and weights.

Main Research Variable: Fatigue, nutritional status.

Findings: Weight loss over the course of treatment was significant but did not correlate with fatigue; fatigue did not change significantly during the measurement period.

Conclusions: Fatigue and nutrition are major problems for patients with lung cancer, but nutritional changes do not correlate with fatigue. An increase in fatigue during radiation therapy was not identified.

Implications for Nursing Practice: Nurses should continue efforts to intervene with the problems of nutrition and fatigue. The study should be repeated using different fatigue instruments and with other cancer populations.

Key Points . . .

- Fatigue is a multicausal, multidimensional, subjective sensation and a significant problem for patients with cancer.
- Patients undergoing radiation therapy for lung cancer may have significant levels of pretreatment fatigue.
- Assessment tools measuring all aspects of fatigue and sensitive to small changes are needed.

According to the American Cancer Society, 169,500 new cases of lung cancer will be diagnosed in 2001, accounting for 13%–14% of all cancer diagnoses (Greenlee, Hill-Harmon, Murray, & Thun, 2001). Treatment options are determined by the type and stage of cancer and may include surgery, chemotherapy, and radiation therapy.

Fatigue is one of the most common symptoms reported by patients with cancer (Clark & Lacasse, 1998; Winningham et al., 1994). Both the disease process and treatment sequelae contribute to fatigue associated with lung cancer. Fatigue is a distressing, underrecognized, multicausal, and multidimensional symptom. Treatment of fatigue in patients with cancer still is in its infancy. If fatigue correlates with nutritional status, perhaps implementing nutritional measures would help to combat this symptom. The purpose of this study was to describe fatigue in patients with lung cancer receiving radiation therapy.

Literature Review

Fatigue is recognized as a subjective symptom (Blesch et al., 1991; Haylock & Hart, 1979; Irvine, Vincent, Graydon, Bubela, & Thompson, 1994; Nail & King, 1987; Piper, Lindsey, & Dodd, 1987; Winningham et al., 1994). Although protective when acute, when fatigue becomes pervasive, excessive, or constant, it interferes with the desire to participate in activities and causes increased task aversion. As a symptom in people with cancer, fatigue has been conceptualized as a response to continual stress inflicted by multiple physiologic, psychologic, and situational factors related to disease and treatment and depleting energy reserves (Blesch et al.). Fatigue commonly is viewed as a multicausal and multidimensional sensation.

Fatigue is a common and debilitating side effect for patients receiving radiation therapy. Reportedly affecting 65%–100% of these patients (Nail & King, 1987), it is one of the few systemic side effects of local radiation treatments. Localized symptoms were documented in a study by King, Nail, Kreamer, Strohl, and Johnson (1985), who examined four groups of patients receiving radiation to the chest, head and neck, genitourinary, or gynecologic ports. They found that fatigue was the only symptom experienced by a majority of participants in all four groups.

The physiologic mechanism causing fatigue associated with radiation therapy is not understood. Various theories describe impairment in one or more areas (Haylock & Hart, 1979; Piper et al., 1987; Rieger, 1988; Winningham et al., 1994). These include toxic metabolite accumulation caused by cellular destruction, changes in energy, and energy substrate patterns allowing for fibroblastic proliferation and

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