The Trajectory of Fatigue in Adult Patients With Breast and Ovarian Cancer Receiving Chemotherapy

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Purpose/Objectives: To describe the trajectory of fatigue and determine the feasibility of exploring physiologic mechanisms of fatigue in adult patients receiving chemotherapy for breast and ovarian cancer.

Design: Descriptive, longitudinal, repeated measures.

Setting: Outpatient ambulatory cancer centers within two large, academic, teaching hospitals with overnight hospital stays in general clinical research centers.

Sample: Seventeen adult participants with either early-stage breast or ovarian cancer receiving chemotherapy for the first time.

Methods: Demographic questionnaire; Piper Fatigue Scale (PFS); hemoglobin, bilirubin, melatonin, and weight change were measured at baseline, three months, and approximately six months. PFS also was collected at three additional two-week nadir, post-treatment, measurement points. Descriptive statistics and repeated analysis of variance measures were used to analyze data.

Main Research Variables: Fatigue, hemoglobin, bilirubin, melatonin, and presence of other comorbid disease.

Findings: Subjective fatigue was experienced by the majority of patients receiving chemotherapy. It was irregular over time, intensified at three months, and continued after treatment ended. The physiologic trajectory of fatigue from baseline to three months indicated a significant change over time in hemoglobin in the breast cancer group ($p = 0.02$) and in nighttime melatonin levels for both breast and ovarian cancer groups ($p = 0.03$). Although not significant, daytime melatonin levels changed over time from baseline to six months.

Conclusions: Fatigue fluctuates during the course of chemotherapy treatment and does not cease after treatment ends. Preliminary findings suggest that fatigue mechanisms may have an undetermined physiologic basis.

Implications for Nursing: Assessment of cancer treatment-related fatigue must be ongoing, even after treatment ends. Findings suggest an awareness of the importance of understanding fatigue mechanisms to enable future testing of research-based interventions.

Key Points . . .

- ➤ Although early treatment of patients with breast and ovarian cancer has demonstrated increased cure and survival rates, therapy frequently results in short- and long-term effects, such as fatigue.
- ➤ Fatigue is experienced by the majority of patients receiving chemotherapy, intensifies during the course of treatment, and does not necessarily cease immediately after treatment ends.
- ➤ Patients with ovarian cancer experienced greater levels of fatigue than patients with breast cancer.
- ➤ Findings suggest that fatigue mechanisms may have an as yet undetermined physiologic basis.

Fatigue is the most frequently reported side effect of cancer treatment, and some estimates report its occurrence in up to 100% of patients (Broeckel, Jacobsen, Horton, Balducci, & Lyman, 1998; Jacobsen et al., 1999). Interest in fatigue experienced by patients receiving cancer treatment has increased substantially in recent years. This heightened interest is consistent with literature reporting that fatigue remains the most common and distressing symptom experienced by patients with cancer receiving chemotherapy (Atkinson et al., 2000; Jacobsen et al.). Cancer treatment-related fatigue (CRF) is disruptive and can adversely affect quality of life and the optimal recovery course of patients receiving treatment (Broeckel et al.; Richardson, Ream, & Wilson-Barnett, 1998).

Although CRF occurs frequently, minimal research has been conducted to understand its mechanisms. Most studies of fatigue related to cancer treatment have focused on patients' subjective self-reported experiences, with a few studies measuring changes in fatigue over a course of repeated treatments (Jacobsen et al., 1999). The current study was designed to determine whether fatigue levels and select physiologic measures would change over time while subjects were receiving chemotherapy treatment and to examine fatigue mechanisms on a yet undetermined biophysiologic basis. Specifically, the purposes of this pilot study were to evaluate changes in levels of subjective fatigue in patients with early-stage breast and ovarian

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