Fatigue and Other Variables During Adjuvant Chemotherapy for Colon and Rectal Cancer

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Purpose/Objectives: To examine patterns of fatigue and other variables (sleep quality, sleep-wake variables, activity and rest, circadian rhythms, quality of life [QOL], blood counts, and demographic and medical variables) during colon and rectal cancer adjuvant chemotherapy, as well as feasibility of the study.

Design: Longitudinal, descriptive feasibility study.

Setting: Two oncology clinics in the midwestern region of the United States.

Sample: From April 2006–December 2008, 27% of screened subjects (n = 21) enrolled and 14 completed the study. Participants were middle aged, partnered, and employed and had postsecondary education.

Methods: Measurements completed during the first week of three two-week cycles (chemotherapy 1–3) and at six weeks (before chemotherapy 4) were the Piper Fatigue Scale, Pittsburgh Sleep Quality Index, wrist actigraphy, Functional Assessment of Cancer Therapy–Colon, blood counts, and demographic and medical data form. Analysis included descriptive statistics and repeated-measures analysis of variance.

Main Research Variables: Fatigue, sleep quality, sleep-wake variables, activity-rest, circadian activity rhythms, and QOL.

Findings: Fatigue was mild at baseline and rose to moderate levels during chemotherapy 1–3. Sleep quality was poor the months prior to chemotherapy 1 and chemotherapy 4. Actigraphy data revealed disturbed sleep, low daytime activity, and impaired circadian activity rhythms during the first week after chemotherapy 1–3. QOL ratings were similar to those in other cancer populations. Fatigue increased, and white blood cell counts decreased significantly over time.

Conclusions: During adjuvant chemotherapy, patients reported moderate fatigue and poor sleep quality; actigraphs confirmed problems with sleep maintenance as well as low daytime activity and disturbed circadian rhythms. Multiple barriers were encountered during the study.

Implications for Nursing: Clinicians should screen for fatigue and sleep-wake variables and use guidelines to select interventions.

Colon and rectal cancer are the fourth most commonly diagnosed and the second most frequent cause of cancer deaths in the United States (American Cancer Society, 2010). By the time of diagnosis, the cancer often has spread to regional or distant sites. In stages IIA–C, five-year survival rates are about 72%–85%, and in stages IIIA–B, 44%–83% (American Cancer Society, 2010). In addition to surgery, chemotherapy and radiation therapy are prescribed to improve survival and quality of life (QOL) (Cera & Wexner, 2005; Shelton, 2002). Chemotherapy regimens most commonly prescribed for locally advanced colon and rectal cancer include fluorouracil (5-FU), leucovorin, and oxaliplatin (FOLFOX); irinotecan may be substituted for oxaliplatin (FOLFIRI) (Engstrom et al., 2009a, 2009b; Grenon & Chan, 2009). Patients with rectal cancer often receive neoadjuvant 5-FU concurrent with radiation therapy. Oxaliplatin is more likely to produce peripheral neuropathy, and irinotecan may create more gastrointestinal toxicity and hair loss (Saltz et al., 2008). Both regimens are associated with dose-related clusters of symptoms, including fatigue, anorexia, weight loss, pain, fever, and dehydration, which affect functioning and QOL, but sleep-wake variables have not been described (Aprile, Ramoni, Keefe, & Sonis, 2008; Morse, 2006). Cancer-related fatigue has been reported as the most frequent and distressing toxicity of colon and rectal chemotherapy (Aprile et al., 2008).

Literature Review

Fatigue is defined as a distressing, persistent, subjective sense of physical, emotional, and cognitive tiredness or exhaustion related to cancer or cancer treatment that is not proportional to recent activity and interferes with usual functioning (National Comprehensive