Effects of Nia Exercise in Women Receiving Radiation Therapy for Breast Cancer

Debra Reis, MSN, RN, CNP, M. Eileen Walsh, PhD, APN, RN-BC, FAHA, Stacey Young-McCaughan, RN, PhD, AOCN®, and Tisha Jones, MSW

Purpose/Objectives: To compare a 12-week nontraditional exercise Nia program practiced at home to usual care on fatigue, quality of life (QOL), aerobic capacity, and shoulder flexibility in women with breast cancer undergoing radiation therapy.

Design: Randomized clinical trial.

Setting: Large community-based hospital in the midwestern United States.

Sample: 41 women with stage I, II, or III breast cancer starting radiation therapy.

Methods: 22 women were randomized to the Nia group and 19 to the usual care group. Those in the Nia group were instructed to practice Nia 20–60 minutes three times per week for 12 weeks. Those in the usual care group were instructed to continue normal activities.

Main Research Variables: Fatigue, QOL, aerobic capacity, and shoulder flexibility.

Findings: Controlling for baseline scores, change over time between groups was significantly different for the women who practiced Nia at least 13 times during the 12-week period; those in the Nia intervention reported significantly less fatigue between weeks 6 and 12, as compared to control group ($p = 0.05$). No statistical differences in QOL, aerobic capacity, or shoulder flexibility were found, but trends favoring Nia were identified.

Conclusions: For women undergoing radiation therapy for breast cancer, Nia can help relieve fatigue. Additional research in arm and shoulder mobility and preservation also may be beneficial.

Implications for Nursing: Oncology nurses are in a unique position to offer suggestions to help manage fatigue, and Nia could be considered as part of a cancer survivorship program.

Knowledge Translation: Exercise is beneficial for women with breast cancer, and interest is growing in nontraditional exercise options. Nia can benefit women with breast cancer undergoing radiation therapy.

Radiation therapy is one of the principle modalities used to treat breast cancer, both as an adjunct treatment for breast-conserving surgery for early-stage disease and for treatment of diseased lymph nodes, tumor excision sites with remaining disease, and metastatic disease. The primary side effects experienced by women undergoing radiation therapy are fatigue and skin changes (Dhruva et al., 2010; Lee, Kilbreath, Refshauge, Herbert, & Beith, 2008; Lee, Kilbreath, Refshauge, Pendlebury, et al., 2008; Merriman et al., 2010; Schmidt et al., 2012; Sjövall, Strömbeck, Löfgren, Bendahl, & Gunnars, 2010; Thomas-Maclean et al., 2008).

As many as 80% of patients receiving radiation therapy for cancer experience fatigue (Hofman, Ryan, Figueroa-Moseley, Jean-Pierre, & Morrow, 2007; Mustian et al., 2009; Schmidt et al., 2012; Sjövall et al., 2010; So et al., 2009). One study (N = 218) found that 84% of women with breast cancer receiving radiation therapy reported fatigue (Hofman et al., 2005). Patients describe cancer-related fatigue as different from typical fatigue, with more rapid onset, higher intensity, more energy draining, longer lasting, and greater unpredictability. In addition, cancer-related fatigue can cause physical, social, spiritual, psychological, and cognitive distress (Holley, 2000). Specific changes in sleep and mood disturbances have been reported (Garrett et al., 2011; Goldstein et al., 2012).

Skin changes from radiation therapy include erythema and desquamation, which can cause the skin to feel tight, stiff, and even painful. Those sensations, coupled with any scar tissue from surgical intervention or as a result of radiation, can cause women to limit their arm and shoulder movements, which can lead to protective posturing, restricted shoulder mobility, muscle disuse, and pain. In a systematic review of 32 studies evaluating upper-limb problems following surgery and radiation for early breast cancer, as many as 68% of women reported shoulder and arm pain, up to 67% reported restricted shoulder movement, and up to 28% reported arm weakness in the five years following treatment (Lee, Kilbreath, Refshauge, Herbert, et al., 2008). Lymphedema following surgery or radiation therapy can complicate