Brigitte Jia

Medicine

brigitte.jia@vanderbilt.edu

Radiation Therapy Is Associated with Prefrailty in Breast Cancer Survivors Aged 40-65

Introduction: Frailty and pre-frailty increase vulnerability to functional deterioration, cognitive decline, and disease complications. Cancer patients are at increased risk for pre-frailty and frailty due to disease and high-intensity treatments like chemotherapy, but associations between frailty and radiation therapy remain less well-understood. This study evaluated the effects of radiation treatment on prefrailty and frailty in breast cancer survivors.

Methods: Survivors of localized breast cancer completed a 56-item survey regarding functional impairments, daily living, social health, and aging-related disease, from which a cumulative deficit index (CDI) was established and used to classify participants as robust (CDI ≤ 0.2), prefrail (0.2 < CDI ≤ 0.35), or frail (CDI > 0.35). Cancer and treatment information were collected from the electronic medical record. Multinomial logistic regression models stratified by age 40-65 or ≥65 years at time of survey were used to evaluate associations between radiation treatment and frailty status, with adjustment for demographics, comorbidities, menopausal status, time since diagnosis, cancer stage/subtype, and other treatments.

Results: This study enrolled 319 breast cancer patients, all of whom received surgery and 242 receiving adjuvant radiation therapy. Patients who received radiation therapy had a nonsignificant higher risk of pre-frailty (OR=1.75, 95% CI=0.96, 3.19) and frailty (OR=0.93, 95% CI=0.42, 2.06). Among participants aged 40-65 (N=168), radiation therapy was significantly associated with increased prefrail status (OR=4.94, 95% CI=1.67, 14.59).

Conclusions: Radiation therapy was associated with a higher prevalence of pre-frailty in breast cancer patients aged 40-65 independent of other treatments. Thus, younger breast cancer patients receiving radiation therapy might benefit from frailty assessments and interventions like group exercise, nutrient supplementation, and cognitive training that have been shown to delay or even reverse the progression of pre-frailty to frailty.