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Exercise Interventions on Health-Related Quality of Life for Patients With Cancer During Active Treatment

Liu Jing, MN, RN

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Objective

To assess the effectiveness of exercise interventions compared with usual care or other types of nonexercise interventions on health-related quality of life in patients with cancer during active treatment.

Type of Review

A meta-analysis of 56 trials comparing patients with cancer participating in exercise and nonexercise interventions.

Relevance to Nursing

Ensuring quality of life in patients with cancer is a key priority because the growing number of survivors experience many different disease-related physical, psychological, and social effects, as well as treatment-related symptoms. Health-related quality of life (HRQOL) has become increasingly important in relation to patient outcomes and is recognized as a patient-reported, multidimensional construct that contains major domains (e.g., physical function, psychological function, social function, economic function, spiritual well-being).

The measurement of HRQOL in patients with cancer can provide useful information to guide therapeutic and lifestyle interventions. Exercise interventions have been suggested to improve HRQOL for patients undergoing active treatment. Nurses play an active role in providing exercise interventions, so they must know whether exercise interventions are beneficial during active treatment.

Characteristics of the Evidence

The review included 54 randomized, controlled trials and two quasirandomized, controlled clinical trials, with a total of 4,826 participants. Participants were aged 18 years and older with cancer receiving active treatment regardless of age, gender, site, type, or stage of tumor, and type of treatment. Participants who were terminally ill or receiving hospice care and trials in which fewer than one-third of participants were undergoing active treatment for either the primary or a recurrent cancer were excluded. Thirty trials included patients with breast cancer, seven with prostate cancer, 12 with a range of cancer diagnoses, and the remaining seven trials included people with non-small cell lung cancer, acute myelogenous leukemia, and lymphoma.

The intervention of interest was exercise, defined as any physical activity causing an increase in energy expenditure designed to maintain or enhance health-related outcomes and involving a planned or structured movement of the body performed in a systematic manner in terms of frequency, intensity, and duration. Interventions could be initiated when treatment was scheduled (10 trials), when participants were undergoing active treatment (36 trials), or during and post-treatment (10 trials). Exercise programs differed across trials and included walking, cycling, resistance training, strength training, yoga, and Qigong.

Trials compared exercise interventions with no exercise, a different intervention (e.g., group psychotherapy), or usual care. The outcomes of interest were HRQOL and its domains, which were assessed using a wide range of measures at four follow-up intervals (i.e., at 12 weeks, between 12 weeks and six months, at six months, and more than six months). All the included trials were at high risk for performance bias, and the majority of trials were at high risk for detection bias because of the inability to mask the exercise intervention from study participants. Meta-analysis was undertaken where possible.

Summary of Key Evidence

For overall HRQOL, exercise interventions showed a statistically significant improvement for HRQOL compared with controls at the 12-week follow-up (11 trials, standardized mean difference [SMD] = 0.47, 95% confidence intervals [CI] [0.16, 0.79]).

Exercise interventions had a positive impact on certain HRQOL domains compared with controls. Exercise interventions resulted in statistically significant improvements in physical functioning from baseline to the 12-week follow-up (eight trials, SMD = 0.69, 95% CI [0.16, 1.22]) and at the six-month follow-up (four trials, SMD = 0.28, 95% CI [0.00, 0.55]), or when comparing differences in follow-up scores at 12 weeks (18 trials, SMD = 0.28, 95% CI [0.11, 0.45]) or at six months (five trials, SMD = 0.29, 95% CI [0.07, 0.5]); role function from baseline to the 12-week follow-up (seven trials, SMD = 0.48, 95% CI [0.07, 0.9]), or when comparing differences in follow-up scores at 12 weeks (15 trials, SMD = 0.17, 95% CI [0.00, 0.34]) and at six months (five trials, SMD = 0.32, 95% CI [0.03, 0.61]); social functioning at

Liu Jing, MN, RN, is a teaching assistant in the School of Medicine at Anhui University of Science and Technology in China. She is a member of the Cochrane Nursing Care Field. Jing can be reached at liujingstudy@hotmail.com, with copy to editor at CJONEditor@ons.org.

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