Abstract:

A huge clinical research database on adjuvant cancer treatment has verified improvements in breast cancer outcomes such as recurrence and mortality rates. On the other hand, adjuvant and neoadjuvant therapy with chemotherapy and radiotherapy impacts on quality of life due to substantial short- and long-term side effects. A number of studies have evaluated the effect of exercise interventions on those side effects. This is an updated version of the original Cochrane review published in 2006. The original review identified some benefits of physical activity on physical fitness and the resulting capacity for performing activities of daily life. It also identified a lack of evidence for other outcomes, providing clear justification for an updated review. To assess the effect of aerobic or resistance exercise interventions during adjuvant treatment for breast cancer on treatment-related side effects such as physical deterioration, fatigue, diminished quality of life, depression, and cognitive dysfunction, we carried out an updated search in the Cochrane Breast Cancer Group Specialised Register (30 March 2015), the Cochrane Central Register of Controlled Trials (CENTRAL) (Issue 2, 2015), MEDLINE (1966 to 30 March 2015), and EMBASE (1966 to 30 March 2015).
searched the World Health Organization International Clinical Trials Registry Platform (WHO ICTRP) and ClinicalTrials.gov for ongoing trials on 30 March 2015. We screened references in relevant reviews and published clinical trials. We included randomised controlled trials that examined aerobic or resistance exercise or both in women undergoing adjuvant treatment for breast cancer. Published and unpublished trials were eligible. Two review authors independently performed data extraction, assessed trials, and graded the methodological quality using Cochrane's 'Risk of bias' tool. Any disagreements were resolved through discussion or by consulting the third review author. We entered data into Review Manager for analysis. For outcomes assessed with a variety of instruments, we used the standardised mean difference (SMD) as a summary statistic for meta-analysis; for those assessed with the same instrument, we used the mean difference (MD). For this 2015 update we included a total of 32 studies with 2626 randomised women, 8 studies from the original search and 24 studies from the updated search. We found evidence that physical exercise during adjuvant treatment for breast cancer probably improves physical fitness (SMD 0.42, 95% confidence interval (CI) 0.25 to 0.59; 15 studies; 1310 women; moderate-quality evidence) and slightly reduces fatigue (SMD -0.28, 95% CI -0.41 to -0.16; 19 studies; 1698 women; moderate-quality evidence). Exercise may lead to little or no improvement in health-related quality of life (MD 1.10, 95% CI -5.28 to 7.48; 1 study; 68 women; low-quality evidence), a slight improvement in cancer site-specific quality of life (MD 4.24, 95% CI -1.81 to 10.29; 4 studies; 262 women; low-quality evidence), and an improvement in cognitive function (MD -11.55, 95% CI -22.06 to -1.05; 2 studies; 213 women; low-quality evidence). Exercise probably leads to little or no difference in cancer-specific quality of life (SMD 0.12, 95% CI 0.00 to 0.25; 12 studies; 1012 women; moderate-quality evidence) and little or no difference in depression (SMD -0.15, 95% CI -0.30 to 0.01; 5 studies; 674 women; moderate-quality evidence). Evidence for other outcomes ranged from low to moderate quality. Seven trials reported a very small number of adverse events. Exercise during adjuvant treatment for breast cancer can be regarded as a supportive self care intervention that probably results in less fatigue, improved physical fitness, and little or no difference in cancer-specific quality of life and depression. Exercise may also slightly improve cancer site-specific quality of life and cognitive function, while it may result in little or no difference in health-related quality of life. This review is based on trials with a considerable degree of clinical heterogeneity regarding adjuvant cancer treatments and exercise interventions. Due to the difficulty of blinding exercise trials, all included trials were at high risk for performance bias. Furthermore, the majority of trials were at high risk for detection bias, largely due to most outcomes being self reported. The findings of the updated review have enabled us to make a more precise conclusion that both aerobic and resistance exercise can be regarded as beneficial for individuals with adjuvant therapy-related side effects. Further research is required to determine the optimal type, intensity, and timing of an exercise intervention. Furthermore, long-term evaluation is required due to possible long-term side effects of adjuvant treatment.
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