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Effect of a supervised intermittent exercise program on insomnia in breast cancer patients undergoing chemotherapy

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Background: Patients with localized breast cancer receiving (neo)adjuvant chemotherapy often experience sleep disturbances, especially insomnia, which significantly impacts quality of life. This study primarily aimed to evaluate the effects of a 12-week exercise program on insomnia, with secondary outcomes on sleep quality, anxiety/depression, fatigue, pain, and exercise adaptation.

Methods: In this randomized controlled multicenter trial, 20 women (mean age 46.8 years), with non-metastatic breast cancer and clinically diagnosed insomnia were assigned to a control (n=10) or training group (n=10). The training group underwent a 12-week supervised intermittent aerobic exercise program during chemotherapy. The primary outcome was objective total sleep time; secondary outcomes included insomnia severity, sleep architecture, sleep quality, anxiety/depression, fatigue, pain, and cardiorespiratory capacity. Assessments were performed before chemotherapy (T-1), at baseline (between the 1st and 2nd sequences of chemotherapy; T0), and post-intervention (3 months after; T3), using polysomnography, actigraphy, validated questionnaires, and a maximal graded exercise test.

Results: The prevalence of clinical insomnia, assessed according to DSM-5 criteria, increased from 47% before diagnosis to 71% at T-1, reaching 100% at T0. Total sleep time measured by polysomnography did not increase after training (07:16 at T0 to 06:13 at T3; p=0.97), although sleep fragmentation appeared to decrease. Based on the MFI-20 questionnaire, clinical improvement was observed in physical and activity-related fatigue. Finally, both submaximal exercise adaptation parameters (power and VO₂/HR) and maximal parameters (power, VO₂ peak, VO₂/HR) significantly improved.

Conclusions: The supervised exercise program did not extend total sleep time in breast cancer patients undergoing chemotherapy, however, it may have enhanced sleep continuity, reduced certain dimensions of fatigue, and substantially improved physical fitness. Future research is needed to investigate the diverse etiologies of insomnia to develop tailored and personalized management approaches.

Keywords

Breast cancer, Insomnia, Sleep disorders, Exercise.

Conflict of Interest & Ethical Approval

yes

Abstract submitters declaration

yes

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