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Prospective Associations Between Sleep Quality and Patient-Reported Outcomes During Neoadjuvant Treatment for Breast Cancer

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Purpose
To examine the associations between baseline sleep quality and patient-reported outcomes (PROs) during neoadjuvant breast cancer (BC) treatment, and whether participation in an exercise program modified these associations.

Methods
Women undergoing neoadjuvant BC treatment participated in supervised exercise or usual care as part of the Neoadjuvant Exercise Oncology Program randomized trial. Participants were prospectively assessed at baseline, mid-, and end-treatment for sleep quality (PSQI), fatigue (FACIT-F), pain, physical functioning and global health (QLQ-C30), anxiety, and depression (HADS). Our first analysis examined changes in PROs from baseline to end-of-treatment using linear mixed-effects models. We then computed Pearson correlations to examine unadjusted and adjusted (for baseline PROs; i.e., partial correlations) associations between baseline sleep quality and PROs collected at end-of-treatment. In our last examinations we computed correlations for sleep quality-PROs stratified by exercise vs. usual care.

Results
Participants were 62 women, 51.8±9.1 years, who completed 16-20 weeks of neoadjuvant chemotherapy. The average PSQI score at baseline was 6.8±3.5 and approximately 42.6% of BC patients reported having poor sleep. Fatigue, pain, physical functioning, global health, anxiety, and depressive symptoms deteriorations ranged from 7 to 70% during treatment when compared to baseline (all $p < 0.05$). Sleep quality at baseline was associated with end-of-treatment fatigue ($r = -0.30$, $p = 0.025$), pain ($r = 0.28$, $p = 0.038$), and physical functioning ($r = -0.28$, $p = 0.036$), but not with global health, anxiety, or depressive symptoms. After adjusting for baseline PROs, sleep quality at baseline remained only associated with pain (partial $r = 0.26$, $p = 0.046$). Correlations remained similar across the exercise and usual care groups.

Conclusion
Neoadjuvant chemotherapy is associated with worsening patient-reported outcomes and pain, in particular seems to be aggravated by poor sleep quality at diagnosis. Interventions targeting sleep may potentially improve pain outcomes during BC treatment.

Keywords

sleep; exercise; neoadjuvant chemotherapy; quality of life; pain

Conflict of Interest & Ethical Approval

yes

Abstract submitters declaration

yes

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