

Patterns of Daily Physical Activity and Fatigue In Cancer Survivors: A Pilot Study

Background

Cancer-Related Fatigue (CRF) is a distressing and debilitating symptom which affects a third of all cancer survivors who finished curative treatment. Activity management is frequently included in the management of CRF. However, the evidence of the beneficial effects of activity management on CRF is scarce. The aim of our study was to explore patterns of fatigue and physical activity throughout the day to see how physical activity is related to self-reported fatigue in cancer survivors.

Methods

Physical activity was measured with a MTx inertial 3D-motion tracker, for 5 consecutive days from 8 am to 8 pm in cancer survivors (free from cancer, last treatment \geq three months ago). Simultaneously, fatigue was scored thrice daily (morning, afternoon, evening) by survivors on a mobile phone with a 0-10 VAS scale. Changes in fatigue and physical activity throughout the day were tested with Repeated Measures ANOVA. Possible associations between fatigue and physical activity on the different day parts were explored with non-parametric correlations (Kendall's Tau).

Results

18 cancer survivors (6 male; mean age 55.7 ± 10.2 yrs) were included. Time since last treatment ranged from 3 to 204 months, and 83% of the survivors underwent combined treatment of surgery, radiotherapy and/or chemotherapy. Cancer survivors reported a significant increase in fatigue throughout the day ($p=.001$); fatigue increased from an average of 3.7 in the morning to 5.1 in the evening. At the same time, a significant decrease in physical activity was observed from morning to evening ($p=.003$). Self-reported fatigue in the evening showed a significant relationship with activity in the afternoon ($p=.009$), and a trend with morning activity ($p=.07$).

Conclusion

Cancer survivors that finished curative treatment reported increasing levels of fatigue throughout the day. The increase in fatigue accompanied a decrease in level of physical activity. Survivors that showed highest activity in the morning and afternoon also reported higher levels of fatigue in the evening. This suggest that adequate management of daily physical activity could aid in management of CRF.

Research Implications

Although the present study suggest that daily physical activity patterns are associated with self-reported levels of fatigue in cancer survivors, no causal relationship between physical activity and fatigue could be established. Furthermore, an indepth analysis of physical activity patterns in an adequate powered study is necessary to clarify how and in which population of cancer survivors activity management could aid in decreasing CRF following cancer treatment.

Clinical Implications

Activity management is an important aspect of current CRF treatment protocols. Our study partly supports the assumption that levels of daily physical activity are indeed associated with self-reported fatigue. However, due to the cross-sectional design, no conclusions can be drawn from the present study about the effect of activity management in daily life on fatigue. More research is needed that determines the clinical evidence of activity management in the management of CRF following primary treatment.

Acknowledgement of Funding (max 75 words)

This study is part of the A-Care2Move project. A-CaRe2Move is sponsored by KWF - Alpe d'Huzes.