

DAILY PHYSICAL ACTIVITY PATTERNS IN CANCER SURVIVORS: A PILOT STUDY

J.G. Timmerman^{1,2}, R. Kurvers^{1,2}, H. Bloo¹, Prof. Dr. H. Hermens^{1,2}, Prof. Dr. M. Vollenbroek-Hutten^{1,2}

¹Roessingh Research and Development, Enschede, Netherlands

²University Twente, Enschede, Netherlands

Abstract

In cancer survivors physical activity levels are measured primarily with questionnaires. As a result, insight in actual physical activity patterns of cancer survivors is lacking. Activity monitoring with accelerometers revealed that cancer survivors have lower levels of physical activity in the afternoon and early evening. This finding can help to personalize physical activity advice more adequately for these patients.

Keyword(s): biosensors, telemonitoring

1 Introduction

Cancer survivors are more and more encouraged to increase daily physical activity, since low physical activity is associated with low quality of life (QoL), and increased chances of morbidity and mortality[1]. Until now, activity levels in cancer survivors have been studied primarily by means of questionnaires[2], and insight into actual daily physical activity of cancer survivors is lacking. Therefore, this pilot study aimed to examine daily physical activity levels objectively in cancer survivors to determine whether physical activity patterns are deviant from healthy individuals.

2 Methods and materials

Daily physical activity was measured with a MTx inertial 3-D motion tracker, for 5 days (at least 1 weekend day) from 8.00 am to 10 pm in both cancer survivors (free from cancer, and last treatment \geq three months ago) and healthy controls. QoL and fatigue were measured with the EORTC QLQ-C30 and the MFI-20, respectively. Following activity monitoring, participants completed a physical activity questionnaire (PASIPD) which asks about physical activity during the last 7 days.

3 Preliminary results

So far, data of 12 cancer survivors (4 male; mean age 53.3 ± 15.1 yrs) and 12 controls (6 male; mean age 48.1 ± 18.0 yrs) are analyzed. Cancer survivors

show significant more fatigue symptoms ($p < .001$) and worse quality of life ($p < .05$) than healthy controls. Mean daily physical activity is lower in cancer survivors (993 ± 174 counts per minute (cpm)) than in healthy controls (1146 ± 265 cpm). More interestingly, there is a marked decrease of physical activity during the afternoon and the early evening compared to healthy controls (fig. 1). As expected, self-rated physical activity does not reflect actual physical activity in both cancers survivors ($r = -.480$, $p = .180$) and controls ($r = .088$, $p = .797$).

4 Discussion & Conclusions

Cancer survivors showed lower daily physical activity levels than healthy controls. The hour-by-hour analysis revealed that physical activity is primarily decreased in the afternoon and early evening when compared to healthy controls. Insight in actual daily physical activity patterns through activity monitoring can help to personalize physical activity advice for the patient more adequately. Lastly, care should be taken when interpreting activity questionnaires, since their results do not represent actual physical activity levels.

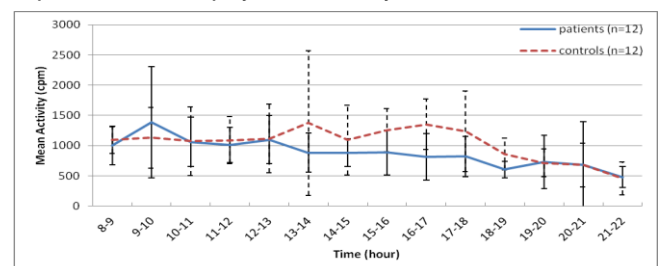


Figure 1 Mean daily physical activity pattern for cancer survivors and controls.

References

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