

Breast cancer survivors: analysis of rest-activity circadian rhythm

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Rest-activity rhythm (RAR) indicates the activity levels during the 24 hours and it is a marker of the circadian timing system (CTS). In detail, RAR disruption has been found in breast cancer (BC) at different stages of clinical pathway (Berger et al., 2012). To date, there are no studies that analyze RAR in breast cancer survivors several years after the diagnosis.

Aim of the current study is to analyze RAR, by actigraphy, in a population of BC survivors 5 years after the primary diagnosis, and to compare their RAR characteristics with healthy controls.

A total of 28 women were recruited for the study: 15 were BC survivors at 5 years from the primary diagnosis (BC-group) and 13 were controls (Ctrl-group), matched for age, sex and BMI. All participants were requested to undergo clinical visit to obtain: height and body mass to calculate BMI, systolic and diastolic blood pressure, heart rate, glycemia, total cholesterol, high density lipoproteins, low density lipoproteins and triglycerides. In addition, all participants were monitored for a continuous 7-day actigraphic monitoring to evaluate RAR.

Anthropometric, cardiovascular and blood chemistry characteristics were homogeneous in BC-group and Ctrl-group: no significant differences were observed between the two groups for all the parameters. The single cosinor method revealed statistically significant RAR ($p < 0.001$) in all the participants. The population mean cosinor showed a significant RAR in both groups ($p < 0.001$). A significant difference in RAR between BC-group and Ctrl-group was demonstrated by the Hotelling T^2 test. Specifically, MESOR (192.0 vs 276.4 a.c. in BC-group and Ctrl-group, respectively;

p<.001) and Amplitude (167.0 vs 222.6 a.c. in BC-group and Ctrl-group, respectively; p<.001) resulted significantly lower in BC-group compared to Ctrl-group.

Breast cancer survivors, at 5 years after diagnosis, showed lower activity levels compared to healthy controls.

REFERENCE

Berger, AM, Hertzog, M, Geary, CR, Fischer, P, Farr, L. (2012). Circadian rhythms, symptoms, physical functioning and body mass index in breast cancer survivors. *J Cancer Surviv*, 6:305-314