Physical Activity (PA) and patterns of Quality of Life (QoL) after adjuvant chemotherapy (CT) for breast cancer (BC)


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Background

• Study rationale: Side effects of BC and CT may have a persistent negative impact on QoL of cancer survivors. PA was associated with better BC-specific survival, QoL, and overall ability to function and perform daily activities1. The WHO recommends to achieve at least 10 MET-hours/week of PA for healthy adults, and these levels were validated for cancer survivors by the American College of Sports Medicine2. Nevertheless, a significant proportion of BC survivors remain insufficiently physically active.

• Objectives: To describe longitudinal patterns of PA in breast cancer survivors and to define long-term trajectories of risk of poor QoL, and explore their associations with PA among BC survivors treated with (neo)adjuvant CT.

Methods and data sources

• Prospective: Longitudinal cohort of patients (pts) with BC treated since 2012 across 20 French BC centers (CANcer Treatment Quality in France [CANT], NCT02934908). Pts that received (neo)adjuvant CT were included for the present study (Fig. 1).

• Variables of interest: Independent variable: PA exposure as per Global Physical Activity Questionnaire (GPAQ)3. Outcome variable: QoL assessed by QLQ-C30 (European Organization for Research and Treatment of Cancer [EORTC])4. Covariates: Demographic, clinical, tumor and treatment characteristics (Table 1).

• Schedule of long-term follow-up: In this cohort, reassessments occurred at BC diagnosis and baseline and at a median time interval (interquartile range, IQR) of 12 months (11-13) and 24 months (22-26) post baseline.

• Statistical analysis: Longitudinal mixed-effect models analyzed outcome changes in QoL scores according to baseline level of PA (as per WHO recommendations: <10, ≥10 <15, ≥15 MET-hours/week). Multivariate group-based trajectory models assessed risk of poor QoL (defined by a score ≤40 on functional scales [poor physical or emotional function], or ≥1 symptom scales [severe symptom of EORTC-QLQ-C30]5). Multivariate logistic regression examined the associations with membership to high risk vs. low risk trajectory.

• References: 1Ballard-Barbash R, 2Holford TR, 3Stern KO, 4Kim KJ, 5Knechtle B, 6Haggren C, 7Muggeo V, 8Glasziou P, 9Ganz PA, 10André F, 11Partridge AH, 12Jones LW, 13Vaz-Luís I.

Table 1. Baseline characteristic in the overall cohort (n=1072).<ref>

Table 2. Mean scores over time according to exposure to sufficient vs. insufficient levels of PA. Bolded values indicate statistically significant differences between sufficient and insufficient levels of PA (p<.05).

Table 3. Characteristics associated with membership to high risk vs. low risk trajectory of poor Global Health Status; OR (95% CI) adjusted for baseline characteristics.

Table 4. % pts meeting WHO PA recommendations and median (IQR) n. of MET-hours/week during follow-up 12 months post baseline.

Table 5. % pts meeting WHO PA recommendations and median (IQR) n. of MET-hours/week during follow-up 12 months post baseline.

Conclusions

• More than 1/3 of pts would not engage in ≥10 MET-hours/week of PA after BC diagnosis, therefore not meeting WHO recommended PA levels.

• In clinical practice, patients were feeling worse in QL in those who did not meet the WHO recommendations for PA. In terms of QL, these patients are at risk of poor QL, particularly of poor global health status and poor physical function.

• The utilization of several analytic methods including exploratory clustering techniques allowed the identification of BC pts whose QoL will be worst afflicted by CT and who are most suitable for dedicated interventions, hence identifying pts that would benefit the most from increasing exposure to PA during the survivorship period.

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