Physical activity (PA) and patterns of quality of life (QOL) after adjuvant chemotherapy (CT) for breast cancer (BC)


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Background: We aimed to describe longitudinal patterns of QOL and the interplay between PA and risk of QOL deterioration among BC patients (pts).

Methods: We used a French prospective longitudinal clinical study (CANTO, NCT01993498) to identify 2525 stage I-III BC pts treated with adjuvant CT from 2012-14. PA exposure (GPAQ 16) and QOL (EORTC QLQ C30/B23) were reported by pts before CT, and at 3-6 and 12 months after CT. Pts with levels of PA > 10 MET-hours/week were considered physically active (as per WHO recommendations on PA). Poor QOL was defined by functional scores < 60 and symptoms scores > 40 (Giesinger, 2016). We used multivariate mixed models to assess patterns of QOL and group based trajectory models to identify clusters of pts with poor QOL and associated risk factors, adjusting for PA as time dependent covariate.

Results: Mean age (Standard Deviation, SD) was 52 y (11). 57%, 62% and 63% pts were physically active before CT, 3-6 and 12 months after CT, respectively. QOL scores before CT were higher among physically active vs inactive pts, including (mean [SD]): global health status (GHS) (69 [1.4] vs 65 [1.4]), physical (90 [1.1] vs 87 [1.1]) and emotional function (65 [1.9] vs 62 [1.9]) (all adjusted p < .05). QOL significantly worsened after CT, but scores remained higher among active pts (p < .001). A cluster of 33% pts had high and persistent risk of poor GHS: associated factors included comorbidities vs no (adjusted odds ratio 1.4 [95% Confidence Interval 1.1-1.9]), low income vs high (1.6 [1.2-2.0]), smoking vs no (1.3 [1.1-1.6]), mastectomy vs partial surgery (1.2 [1.1-1.6]). A significant interaction between recommended levels of PA and risk of poor GHS was observed (p < .001). Consistent with GHS, we found clusters of pts with high risk of poor QOL across physical, emotional and multiple other QOL domains, with similar risk factors and significant interactions with recommended levels of PA.

Conclusions: Among this large cohort of BC survivors, QOL significantly worsened after CT. We were able to group pts following distinct longitudinal patterns of QOL and to identify clinical, socio-economical, and treatment risk factors for poor QOL, including PA behavior. Interventional strategies that also promote PA may help prevent QOL deterioration after CT.

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