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Authors

Nechuta, Sarah Jean
Caan, Bette J
Chen, Wendy Y
[et al.](#)

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Meeting Abstract 1507

Background:

Triple negative breast cancer (TNBC), defined as ER-/PR-/HER2-, has a poor prognosis and limited targeted treatment options. Modifiable lifestyle factors, including body mass index (BMI) and physical activity (PA), have been well-studied for overall breast cancer prognosis. However, no prospective study has investigated BMI and PA in TNBC prognosis; we conducted such an analysis using data from 5 breast cancer survivor cohorts in the US, UK, and China.

Methods: The pooling project included 12,240 stage I-III breast cancer cases with known ER/PR/HER2 status from 5 cohorts, with 1,695 TNBC cases (13.9%). Clinical characteristics including treatment, and lifestyle factors collected on average 1.8 years after diagnosis, were pooled and harmonized. Self-reported recreational PA, summarized in MET-hours/week, was available for 4 cohorts; weight and height were available in all cohorts. Hazard ratios (HRs) and 95% confidence intervals (CIs) were estimated using delayed-entry Cox regression models, stratified by cohort and adjusted for known prognostic factors. Outcomes were breast cancer-specific survival (BCSS) and overall survival (OS).

Results: Among TNBCs, mean follow-up was 9.5 years (401 deaths). In adjusted models, increasing PA (MET-h/w) was associated with improved BCSS; HRs (95% CIs) by tertile (reference: < 4.1) were: 0.80(0.56-1.15) for 4.1-15.9 and 0.61(0.41-0.92) for ≥ 16.0 ; $P_{\text{trend}} = 0.02$. Similar results were observed for OS (HRs (95% CIs): 0.86(0.64-1.15) for 4.1-15.9 and 0.63(0.45-0.88) for ≥ 16.0 ; $P_{\text{trend}} = 0.007$). In adjusted models, a U-shaped association was observed for BMI (kg/m^2) and OS (ref. = 21.5-24.9). Only the HR for BMI < 21.5 was statistically significant, HR (95% CI): 1.60(1.10-2.32), however, the HR was no longer significant after exclusion of the Chinese cohort, HR (95% CI): 1.27(0.78-2.08).

Conclusions: In this prospective evaluation of PA and BMI in TNBC, a trend for increasing PA and improved BCSS and OS was observed, which was significant only for high levels of PA (equivalent to ≥ 4 h of moderate intensity PA/wk). A U-shaped pattern was observed for BMI; however, obesity was not significantly associated with survival.