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Cardiometabolic Risk Factors Between Postmenopausal Women With and Without Breast Cancer

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Purpose:

Due to advances in early detection and multi-modal treatment, an increasing number of women survive breast cancer (BC), making them the largest (23%) cancer group in the United States. The majority of the survivor group are postmenopausal women with early stage, hormone receptor-positive BC, who are highly likely to die from aging-related chronic conditions, such as cardiovascular disease (CVD), not from BC. Several epidemiological studies have shown that CVD is the leading cause of death among older BC survivors, including the Women's Health Initiative cohort of postmenopausal women. Moreover, older women have high prevalence of CVD risk factors (e.g., hypertension, obesity, hyperlipidemia, and diabetes) prior to their BC diagnoses, which has shown to significantly increase risks of all-cause and CVD mortality. Similarly, a group of these CVD risk factors as known as metabolic syndrome (MetS) has shown to increase CVD, CVD death, and all-cause death. However, it is unclear whether BC survivors are more susceptible to cardio-metabolic risk indicated by MetS risk factors compared to age-matched cancer-free women.

The aim of this descriptive pilot study using repeated measures was to examine the association of BC survivorship with MetS in postmenopausal BC survivors and cancer-free women (i.e., healthy comparisons). The defining criteria for MetS include 3 of the 5 following components: increased waist circumference (WC; ≥ 88 cm), elevated triglycerides (≥ 150 mg/dL or lipid-lowering medication), hypertension (≥ 130/85 mm Hg or blood pressure-lowering medication), elevated fasting glucose (≥ 100 mg/dL or glucose-lowering medication), and low high-density lipoprotein (HDL) cholesterol (≤ 50 mg.dL or lipid-lowering medication).

Methods:

A total of 102 postmenopausal women (64 BC survivors and 38 cancer-free women) were recruited through the UPMC Cancer Center and the University of Pittsburgh communities during Sep. 2013 – June 2015. Clinical and bio-behavioral data, relevant to cardio-metabolic risk and BC, were collected twice over a 6-months study period, using self-report questionnaires, physical assessments, medical record reviews, and blood draws. Blood pressure, WC, weight and height were measured following the standardized protocols. Lipid panels, fasting glucose and C-reactive protein (CRP) were assessed with fasting blood samples. For MetS criteria, we used the average of two measures for each MetS factor over 6 months.

Results:

Women with BC included in this study had lived for average 5.4 years since their diagnosis of early-stage, hormone receptor-positive BC. Sixteen BC survivors (25.0%) and 6 cancer-free women (15.8%) were identified to have MetS, the difference of which was not significant. However, BC survivors had the increased number of MetS risk factors compared to cancer-free women ($p < .001$). Particularly, a higher prevalence of hypertension was noted in BC survivors than cancer-free women (57.8% vs. 28.9%, $p = .005$), including 11 BC survivors with untreated hypertension (28.9% vs. 12.9% in cancer-free women). Fifty percentage of BC survivors had WC ≥ 88 cm vs. 42.1% of cancer-free women with no statistical significance. Dyslipidemia and diabetes were similar between both groups. Both groups had similar baseline demographic characteristics and health behaviors (e.g., education, smoking, drinking), except for current age (62 vs. 57 years, $p < .001$) and CRP (4.2 vs. 1.8 mg/dL, $p = .006$). There was no association of BC survivorship and MetS, after controlling for age and CRP, in a regression analysis.

While over 60% of BC survivors were still on aromatase inhibitor therapy, MetS and hypertension in BC were not associated with any tumor and treatment characteristics.

Conclusion:

Cardio-metabolic risk factors, particularly hypertension, were highly prevalent in postmenopausal BC survivors. More BC survivors had hypertension, including untreated disease, than healthy comparisons, indicating suboptimal management of hypertension among BC survivors. Given the significant link between cardio-metabolic risk factors and mortality, identifying and managing cardio-metabolic risk factors should be a priority in BC survivorship care and incorporated into the standard of care for postmenopausal women with BC.

Title:

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Keywords:

Breast cancer survivorship, Metabolic syndrome and Women

References:

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Abstract Summary:

At the end of presentation, participants are expected to understand about the importance of optimal management of cardiometabolic risk factors, including metabolic syndrome, for postmenopausal women with breast cancer.

Content Outline:

I. Introduction:

1) breast cancer survivors are the largest cancer group in the U.S.

2) cardiovascular disease is a great concern in this growing breast cancer survivors group.

3) Older postmenopausal women have high levels of cardiovascular risk (i.e., metabolic syndrome), which has shown to be linked survival outcomes of these survivors.

4) Little is known on the relationship between breast cancer survivorship and metabolic syndrome.

II. Body

1) Aims of the study & definition of metabolic syndrome

2) Methods: Recruitment, data collection, study variables, etc.

3) Results:

- No significant association between cardiometabolic risk and breast cancer survivors, but the higher number of cardiometabolic risk factors was found in breast cancer survivors at $p < .0001$.

- Among risk factors, hypertension was significantly higher in breast cancer survivors.

- No significant differences in other risk factors, such as abdominal obesity, dyslipidemia, and diabetes between 2 groups.

- No relationship between breast cancer survivorship and cardiometabolic risk after controlling for covariates (age and CRP).

- No relationship with tumor and treatment characteristics.

III. Conclusion

1) Cardiometabolic risk factors, particularly hypertension, were highly prevalent in postmenopausal BC survivors.

2) We also found that breast cancer survivors have inappropriate management of risk factors, including hypertension.

3) Identifying and managing cardiometabolic risk factors should be a priority in breast cancer survivorship care and incorporated into the standard of care for postmenopausal women with breast cancer.

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