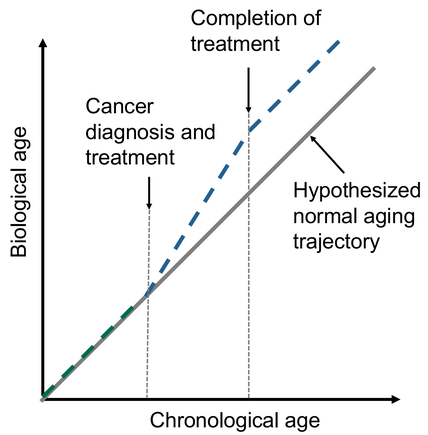
AGING AND INFLAMMATORY BIOMARKERS IN BREAST CANCER SURVIVORS WITH AND WITHOUT TREATMENT-INDUCED MENOPAUSE

Shuo Wang,[1] Susan A. Everson-Rose,[1] Anna Prizment,[1] Anne H. Blaes[1,2]
[1]University of Minnesota, [2]Masonic Cancer Center

INTRODUCTION

- Young estrogen-receptor positive (ER+) breast cancer patients often receive hormone therapy that induces menopause.
- Menopause has been previously linked with accelerated aging, indicated by increased aging and inflammatory biomarkers (e.g., IL-6 and CRP).
- It is unclear whether treatment-induced menopause accelerates the aging process to the same extent as natural menopause.
- This study compared aging (*P16^{ink4a}*, a cellular senescence marker) and inflammatory biomarkers (IL-6 and CRP) in breast cancer survivors with treatment-induced menopause vs. natural menopause.



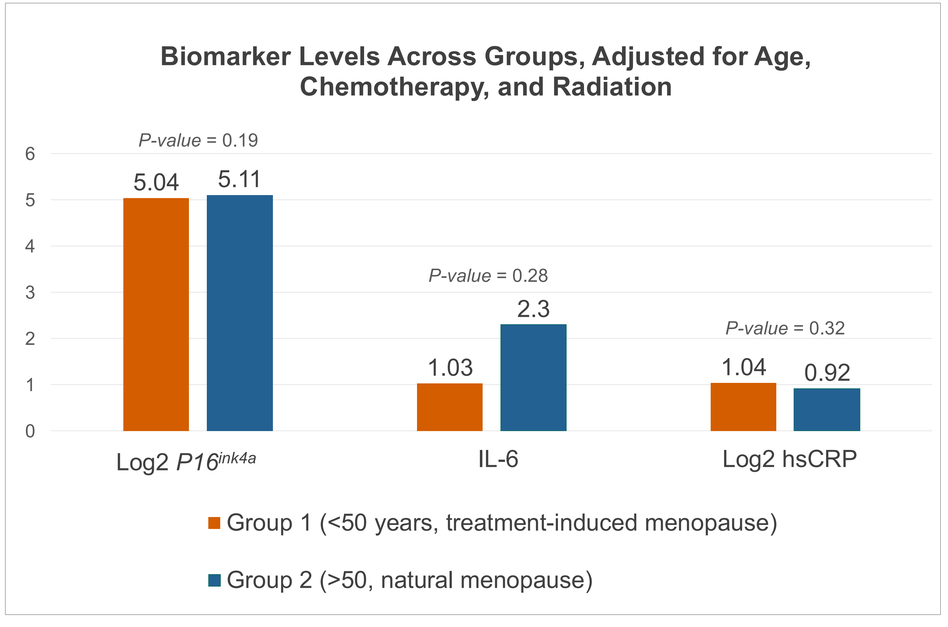
METHODOLOGY

- Study population: 25 women participated in an 8-week Mindfulness-Based Stress Reduction (MBSR) study.
  - All participants had locally advanced, ER+ breast cancer, had surgery, and took an aromatase inhibitor that induced menopause.
- Participants were divided into two groups:
  - Group 1: 8 females <50 years, experiencing treatment-induced menopause
  - Group 2: 17 females >50 years, with natural menopause
- Blood samples were collected at baseline and 8-week follow up.
  - *P16^{ink4a}* expression in T cells
  - Two inflammatory biomarkers: IL-6 (pg/mL) and high-sensitivity CRP (hsCRP, mg/L).
- Statistical analysis: Compared biomarker levels between the two groups.

RESULTS

Table 1. Distributions of Participants' Characteristics Across Groups

	Group 1 (<50 years, treatment-induced menopause)	**Group 2** (>50 years, natural menopause)	***P-value***
No. of participants	8	17	
Mean age, yrs (SD)	43.7 (2.5)	61.9 (7.8)	<0.01
White, %	85.7%	100%	0.11
College degree, %	100%	88.9%	0.65
Mean time since diagnosis, yrs (SD)	3.8 (2.3)	4.2 (1.9)	0.64
Chemotherapy, %	100%	38.9%	0.01
Radiation, %	85.7%	83.3%	0.88



Funding & Acknowledgement: This study was funded by the Hourglass Fund, Masonic Cancer Center, University of Minnesota; University of Minnesota Foundation (immune function protocol); National Institutes of Health Office of Women's Health Building Interdisciplinary Research Careers in Women's Health (BIRCWH) NIH # K12-HD055887; and National Center for Advancing Translational Sciences grant UM1TR004405. We acknowledge all of the MBCR facilitators who helped make this study possible and from whom the participants specifically benefited.

CONCLUSIONS

- In our study, although breast cancer patients with treatment induced menopause were, on average, 18 years younger than those with natural menopause, both groups showed similar biological aging profiles.
- However, our study has a limited sample size.
- Future studies with a larger sample size are needed to replicate these findings.
- In the future, we plan to investigate longitudinal aging trajectories among young breast cancer patients experiencing treatment-induced menopause.

CONTACT INFORMATION

Shuo Wang
Translational Research Development Program (TRDP) Scholar
Postdoctoral Associate | University of Minnesota
wang8310@umn.edu