

# Chemotherapy refusal and subsequent survival in older women with high genomic risk, estrogen-receptor positive breast cancer

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**Background:** Patients with estrogen receptor (ER)-positive breast cancer (BC) and high-risk 21-gene recurrence score (RS) benefit from chemotherapy. We evaluated chemotherapy refusal and subsequent survival in older women with high-RS, ER-positive BC.

**Methods:** A retrospective review of the National Cancer Database (2010-2017) identified women  $\geq 65$  years old with ER-positive, HER2-negative, high-RS ( $\geq 26$ ) BC. Exclusion criteria were Charlson Comorbidity Index  $\geq 1$ , stage III/IV disease, and patients with incomplete data. Women were compared by chemotherapy receipt or refusal using the Cochrane-Armitage test, multivariable logistical regression modeling, the Kaplan-Meier method, and Cox's proportional hazards modeling.

**Results:** 6,827 women met study criteria; 5,449 (80%) received chemotherapy, 1,378 (20%) refused. Compared to women who received chemotherapy, women who refused were older (median age 71 vs 69 years), were diagnosed more recently (2014-2017, 67% vs 61%), and received radiation less frequently (67% vs 71%) ( $p \leq 0.05$ ). Refusal was significantly associated with decreased 5-year overall survival (OS) for women 65-74 (92% vs 95%) and 75-79 (85% vs 92%) ( $p \leq 0.05$ ), but not for women  $\geq 80$  years old (84% vs 91%;  $p = 0.07$ ). When controlling for patient factors, hazard of death with refusal was significantly increased overall (HR 1.12, CI 1.04-1.2); but, when stratified by age, was not increased for women  $\geq 80$  years.

**Conclusions:** Among healthy women with high-RS, ER-positive BC, chemotherapy refusal was significantly associated with decreased OS for women ages 65-79. Chemotherapy refusal did not impact the OS of women  $\geq 80$  years old, suggesting limited utility to obtaining genomic testing in this population.