

## Clinical use of the 21-gene assay and patient experiences in early-stage breast cancer.

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Background: The 21-gene assay enables oncologists to tailor chemotherapy in early-stage, estrogen-receptor positive breast cancer. Few studies have studied the impact of test results on chemotherapy recommendations and receipt, and on patient experiences. Methods: We surveyed 3781 women with breast cancer treated in 2013-14 selected by the Georgia and Los Angeles SEER Registries (response n=2593, 69%). Women reported their oncologist's recommendations, chemotherapy receipt, and treatment decision satisfaction. SEER registries linked Genomic Health, Inc test results to patients. We selected 1287 patients with Stage I/II, ER+, HER2- disease and categorized them into 3 groups 1) node-negative favorable (no high-risk features); 2) node-negative, less favorable (age at diagnosis < 50 yrs or Grade 3 tumor); and 3) node-positive. Regression models - adjusted for comorbidity, education, income, race, location, and sampling design - examined test scores and clinical factors on chemotherapy recommendation and receipt. Those tested rated their satisfaction on a 5-point Likert scale (1=not satisfied, 5=totally satisfied). Results: Overall 53% of selected women were tested (57%, 65%, and 31%, for groups 1, 2, & 3). Recommendations for chemotherapy and chemotherapy receipt were consistent with risk scores (Table), and racial differences were not significant in regression models. Most (82%) tested patients reported that the test helped decision making yet 14% did not recall their test status. The  $\bar{x}$ (SD) testing satisfaction score was 4.6(0.7). Conclusions: Oncologists personalize treatment based on assay results, even in node-positive disease. High satisfaction and absence of disparities suggests that precision medicine advances have improved the quality of systemic breast cancer treatment.

	Node-neg, favorable (n=718)		Node-neg, unfavorable (n=283)		Node pos (n=286)	
	Recommended Against/ Neutral/For	Got Chemo	Recommended Against/ Neutral/For	Got Chemo	Recommended Against/Neutral/For	Got Chemo
<b>No test</b> (n=608)	54 / 21 / 25	14	25 / 9 / 66	59	9 / 9 / 82	83
<b>RS</b>						
<b>0-17</b> (n=427)	78 / 10 / 12	3	64 / 11 / 25	6	49 / 12 / 39	22
<b>18-30 (n=204)</b>	38 / 19 / 43	38	20 / 25 / 55	52	9 / 22 / 69	64
<b>&gt;30 (n=48)</b>	0 / 0 / 100	100	3 / 5 / 92	94	0 / 0 / 100	100

%s reported. RS: Recurrence Score