

Outcome disparities by age and 21-gene recurrence score (RS) in hormone receptor positive (HR+) breast cancer (BC).

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Background: BC diagnoses in older patients (pts) are rising as population demographics change and life expectancy increases. The TEAM study (N = 9,766) reported worse outcomes for older pts with HR+ BC (JAMA. 2012;307:590). To confirm this finding and to examine the role of tumor biology, SEER and Genomic Health, Inc. collaborated to electronically supplement SEER registries with RS results and evaluate BC-specific mortality (BCSM). Methods: Oncotype DX RS results were provided to SEER, per registry linkage methods. Eligible pts were diagnosed (Jan 2004 – Dec 2011) with NO HR+ BC, and had no prior malignancy or multiple tumors. BCSM, defined previously (JNCI. 2010;102:1584), was analyzed separately for pts < 70 y and ≥70 y. Mortality estimates were compared using a log-rank test. Results: Of 184,190 eligible pts, 70%/30% were < 70 y/≥70 y. 35,487 of 128,712 pts < 70 y (28%) had RS results (median age 55 y; 29%/54% grade 1/2; 26%/54% ≤1 cm/ > 1-2 cm). 4,647 of 55,478 pts ≥70 y (8%) had RS results (median age 73 y; 25%/55% grade 1/2; 20%/48% ≤1 cm/ > 1-2 cm). Reported CT use and 5-y BCSM are shown in Table. CT use was lower for pts ≥70 y (p < 0.001). Continuous RS result was associated with BCSM for pts both < 70 y and ≥70 y (p < 0.001). As expected, 5-y other-cause mortality was higher in pts ≥70 y (11%) than in pts < 70 y (4%), but was not associated with RS results (p = 0.92). 5-y BCSM was worse for pts ≥70 y, particularly for those with RS ≥18 (p < 0.001). For pts ≥70 y with no RS assay (50,422 pts; 4% CT use), 5-y BCSM was 5.4% (95%CI, 5.2%-5.6%). Conclusions: This large population-based observational study of NO HR+ BC indicates that unacceptably high BCSM persists in US clinical practice for pts ≥70 y with either no 21-gene RS assay done or an RS ≥18 (but not RS < 18). Further research and actions are urgently needed to understand and address the factors behind this outcome disparity.

	RS < 18			RS 18-30			RS ≥31		
	N	CT (% of N)	5-y BCSM (95% CI)	N	CT (% of N)	5-y BCSM (95% CI)	N	CT (% of N)	5-y BCSM (95% CI)
All pts	21760	7%	0.4 (0.3,0.5)	15152	35%	1.4 (1.1,1.7)	3222	70%	4.5 (3.5,5.8)
< 70 y	19137	8%	0.3 (0.2,0.4)	13549	37%	1.2 (0.9,1.5)	2801	72%	3.7 (2.8,4.9)
≥70 y	2623	2%	1.2 (0.6,2.2)	1603	15%	2.8 (1.9,4.2)	421	53%	11.7 (7.1,18.9)