Impact of Competing Mortality on Survival Outcomes in Patients Aged ≥75 With HR+/HER2- Early Breast Cancer

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Background

- In older adults with early-stage breast cancer, clinical decisions must weigh the benefits of systemic therapy against age-related comorbidities and competing causes of death.
- We assessed age-stratified treatment patterns and outcomes in a Jordanian cohort, where national life expectancy approximates 75 years.

Methods and Materials

- We retrospectively analyzed 716 women aged ≥60 years with stage I-III hormone receptor-positive, HER2-negative early breast cancer treated at King Hussein Cancer Center (2015-2021).
- Patients were grouped as follows: 328 (45.8%) aged 60-65 years, 296 (41.3%) aged 66-74 years, and 92 (12.8%) aged ≥75 years.
- We compared tumor features, systemic therapy use, and survival.
- Kaplan-Meier methods estimated overall survival (OS) and breast cancer-specific survival (BCSS).
- Causes of death were classified as breast cancer-related or non-cancer-related.

Results

- Tumor characteristics were similar across age groups: 91.9% ER-high and 62.6% grade 2.
- cT2 tumors (52.5%) and cN+ nodal status (39.1%) were comparably distributed.
- Chemotherapy use declined with age: 70.7% (60–65), 50.0% (66–74), 10.9% (≥75) (P < .001).
- Endocrine therapy was nearly universal (>97%), mainly aromatase inhibitors (79.4%).
- Median follow-up: 66.7 months.
- 5-year BCSS remained high: 96.2%, 94.2%, 91.8% (P = .40).
- 5-year OS declined with age: 91.1%, 88.8%, 78.0% (P = .0012).
- Non-cancer mortality rose significantly: 6.1%, 10.1%, 18.5% (P = .005), totaling 67 deaths (9.4%).
- Breast cancer deaths remained stable: 7.6–9.8% across groups, 61 deaths (8.5%) overall.

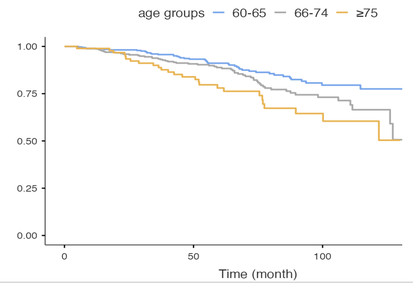
Patient's characteristics

		60-65	66-74	≥75	Total	p
Total N (%)		328 (45.8)	296 (41.3)	92 (12.8)	716	
ER-category	high	299 (91.2)	272 (91.9)	87 (94.6)	658 (91.9)	0.217
Grade	1	52 (16.8)	35 (12.2)	14 (16.3)	101 (14.8)	0.581
	2	187 (60.3)	187 (65.4)	53 (61.6)	427 (62.6)	
	3	71 (22.9)	64 (22.4)	19 (22.1)	154 (22.6)	
cT	cT1	67 (20.4)	70 (23.6)	15 (16.3)	152 (21.2)	0.440
	cT2	172 (52.4)	155 (52.4)	49 (53.3)	376 (52.5)	
	cT3	41 (12.5)	31 (10.5)	11 (12.0)	83 (11.6)	
	cT4	16 (4.9)	15 (5.1)	10 (10.9)	41 (5.7)	
cN	cN+	127 (38.7)	127 (42.9)	26 (28.3)	280 (39.1)	0.090
Chemotherapy	No	96 (29.3)	148 (50.0)	82 (89.1)	326 (45.5)	<0.001
	adjuvant or neoadjuvant	**232 (70.7)**	**148 (50.0)**	**10 (10.9)**	390 (54.5)	

Cause of death

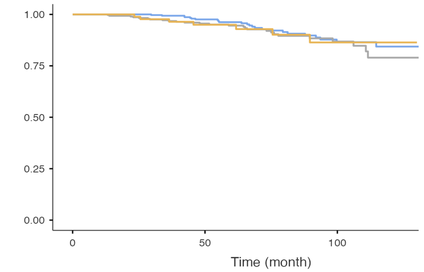


5-year overall survival according to age



Levels	at Risk	Events	Survival
60-65	198	26	**91.1%** (95% CI, 87.9–94.5%)
66-74	172	30	**88.8%** (95% CI, 85.1–92.7%)
≥75	45	18	**78.0%** (95% CI, 69.4–87.7%)

5-year breast cancer specific survival according to age



Levels	at Risk	Evens	Survival
60-65	198	10	**96.2%** (95% CI, 93.9–98.6%)
66-74	172	15	**94.2%** (95% CI, 91.4–97.1%)
≥75	45	6	**91.8%** (95% CI, 85.5–98.5%)

Conclusions

- In our cohort, the decline in overall survival among patients aged ≥75 years was primarily driven by non-cancer-related mortality, rather than deaths from breast cancer.
- Despite this, breast cancer-specific survival remained excellent in this age group, even with markedly reduced use of chemotherapy.
- These findings support age-tailored treatment strategies that allow for safe de-escalation of systemic therapy while preserving oncologic outcomes, with careful consideration of national life expectancy in treatment planning.

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