Survival Outcome in Premenopausal ER+/PR+ HER2− Breast Cancer Stratified by Nodal Status: a National Cancer Database (NCDB) Experience

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Background

- The comparative benefit of chemotherapy (CT) vs. endocrine therapy (ET) in premenopausal women with stage I-III estrogen receptor-positive (ER+), progesterone receptor-positive (PR+), and HER2-negative (HER2-) breast cancer (BC) remains unclear.
- This study examined differences in survival outcomes among patients with node-negative (N0) and node-positive (N1) disease stratified by treatment modality.

Methods

- NCDB, 2005-2018; women < 50 years
- ER+ and/or PR+, and HER2−; Stage I-III BC
- Variables: tumor size, grade, nodal status, lymphovascular invasion (LVI), Charlson-Deyo comorbidity score, and treatment history (ET, CT, radiation therapy [RT])
- Analysis: Overall survival (OS) was estimated using Kaplan-Meier analysis. Multivariable Cox models were used to identify independent predictors of OS.

Conclusion

- ET alone was associated with superior OS in N0 disease.
- In contrast, CT improved OS in patients with N1 disease.
- The consideration of ET monotherapy as a potential alternative to CT in carefully selected N0 premenopausal patients is reasonable.
- This work was limited by the inability to evaluate the role of ovarian function suppression. Future studies should explore the addition of ovarian suppression to ET as a strategy for safely omitting CT in N0 population.

Results

- Among 376,303 eligible patients, 168,741 (44.8%) had N0 and 83,428 (22.2%) had N1 disease. Median age was 45 years (range: 18-50). Inthe N0 group, 71,733 (42.5%) received ET alone and 97,008 (57.5%) received CT.
- OS trend was listed in Table 1.
- Multivariable cox proportional model was listed in Table2.

Table 1. Five-year survival difference in early-stage ER+ and/or PR+ and HER2- BC patients receiving monotherapy ET vs. CT

	OS (%)					
	4-year			6-year		
	ET	CT	P	ET	CT	P
N0	99.2	96.4	<0.0001	97.3	92.7	<0.0001
N1	96.9	93.5	<0.0001	91.0	87.0	<0.0001

Table 2. Multivariable cox proportional model for OS by nodal status (HR, 95%CI)

	N0		N1	
Covariates	Univariate	Multivariate	Univariate	Multivariate
Age	0.98 (0.98-0.98)	1.00 (1.00-1.00)	0.98 (0.98-0.98)	0.99 (0.98-0.99)
Grade (4 vs. 1)	8.29 (6.86-9.90)	1.86 (1.38-2.51)	3.00 (2.22-3.98)	4.66 (4.18-5.20)
Tumor size (T4 vs. T0-1)	3.93 (2.90-5.19)	5.31 (4.34-6.49)	4.96 (4.47-5.50)	1.89 (1.40-2.54)
PR negative status	2.38 (2.27-2.44)	1.54 (1.45-1.61)	2.08 (2.04-2.17)	1.78 (1.69-1.85)
Comorbidities (score 2 vs. 0)	2.96 (2.53-3.43)	2.84 (2.43-3.31)	2.02 (1.70-2.37)	2.07 (1.74-2.46)
CT vs. ET	2.61 (2.48-2.75)	1.43 (1.34-1.52)	1.47 (1.34-1.62)	0.91 (0.82-1.00)
RT	0.67 (0.63-0.72)	0.70 (0.65-0.75)	0.71 (0.67-0.75)	0.73 (0.68-0.77)