Radiation and/or Endocrine therapy? Recurrence and survival outcomes in women over 70 with early breast cancer after breast conserving surgery

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Background:

Women over 70 with early breast cancer treated with breast-conserving surgery are typically offered **adjuvant endocrine and radiation therapy.**

There has been interest in **de-intensifying treatment in older, low-risk patients** treated with adjuvant endocrine therapy by omitting adjuvant radiation, but this remains controversial.

CALGB 9343 and PRIME-II have shown that in low-risk older patients who receive adjuvant endocrine therapy, **adjuvant radiation could potentially be omitted,** as it provides only a modest benefit.

While this approach is supported by clinical trials, it may not hold true in a real-world scenario where adherence to endocrine therapy may not be as strict.

Objectives

- To determine the **5 and 10 year local recurrence-free survival,** loco-regional recurrence-free survival, distant metastasis-free survival, disease-free survival and overall survival in low-risk T1N0 breast cancer patients over the age of 70, treated with lumpectomy with or without adjuvant endocrine therapy and with or without adjuvant radiation therapy.

Methods:

- 1,363 breast cancer patients over the age of 70 were treated with a breast-conserving surgery from 2003 until 2018 in the Nova Scotia Cancer Registry.
- 460 patients met inclusion criteria of T1N0, negative margins and no chemotherapy.

Results:

Table 1: Patient characteristics

Variable	No adjuvant	Endocrine alone	XRT alone	Both endocrine and XRT	p*
N	99	169	69	123	
Age (years)	79.3	78.8	76.0	75.0	**<0.001**
Tumor size (cm)	9.4	12.9	10.0	13.4	0.212
Close Margin (%)	17.2	20.1	24.6	25.2	0.135
ER neg (%)	10.1	1.2	14.5	2.4	0.303
HER2 pos (%)	14.1	14.8	14.5	10.6	**0.004**
LVI pos (%)	10.1	11.8	10.1	11.4	1.00
Grade 3 (%)	9.1	14.2	20.3	21.1	**0.019**

*p value compares patients receiving XRT to those not receiving XRT

5 year local recurrence rate

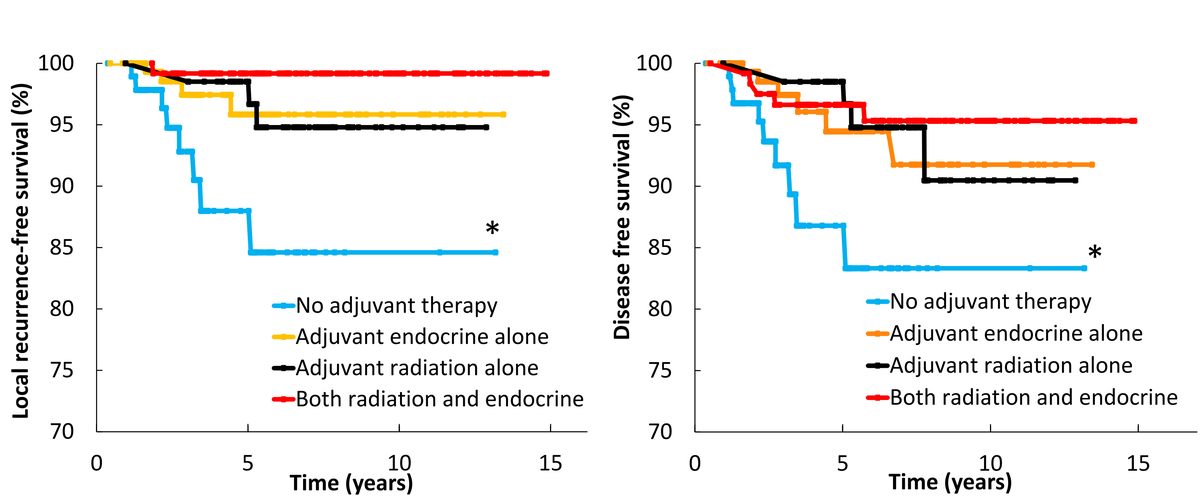
0.8% - both HRT and XRT

1.5% - XRT alone

4.2% - HRT alone

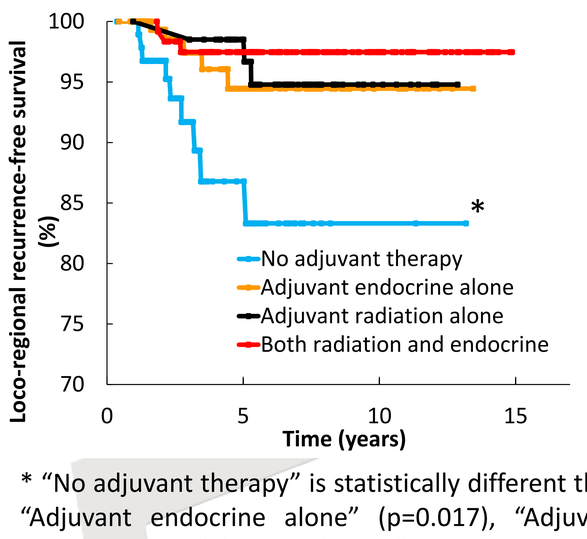
12% - no adjuvant

- Radiation therapy delivered doses of 42.4 Gy – 53.4 Gy in 16 - 20 fractions in 99% of cases with 2 patients receiving 60 Gy in 29 fractions.
- Median follow-up was 4.96 years. 12.4% of cases had more than 10 years of follow up.

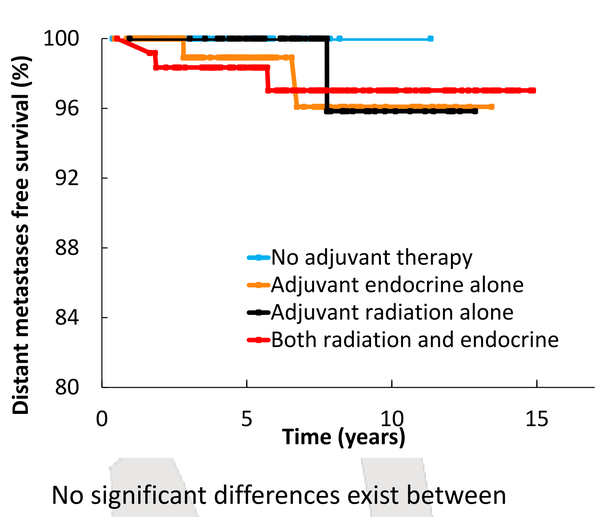


* "No adjuvant therapy" is statistically different than "Adjuvant endocrine alone" (p=0.019), "Adjuvant radiation alone" (p=0.036) and "Both radiation and endocrine" (p=0.000). No other statistical differences exist between groups.

* "No adjuvant therapy" is statistically different than "Adjuvant endocrine alone" (p=0.029), "Adjuvant radiation alone" (p=0.031) and "Both radiation and endocrine" (p=0.032). No other statistical differences exist between groups.



* "No adjuvant therapy" is statistically different than "Adjuvant endocrine alone" (p=0.017), "Adjuvant radiation alone" (p=0.022) and "Both radiation and endocrine" (p=0.002). No other statistical differences exist between groups.



No significant differences exist between groups.

Table 2: Univariate and Multivariate Cox Proportional Hazard Model for local recurrence-free survival

Variable	Univariate HR (95% CI)	p	Multivariate HR (95% CI)	p
Age	0.98 (0.88-1.08)	0.62		
Tumor size	1.02 (0.92-1.13)	0.77		
Close Margin	1.02 (0.31-3.3)	0.97		
ER neg	17000 (0 - >10000)	0.95		
HER2 pos	0.00 (0 - >10000)	0.98		
LVI pos	11.4 (1.27-102)	**0.03**	10.1 (1.1-93.1)	0.07
Grade 3	27800 (0->10000)	0.94		
Endocrine received	3.93 (1.36-11.3)	**0.01**	3.4 (1.2-9.9)	**0.03**
Radiation received	3.78 (1.21-11.8)	**0.02**	4.1 (1.3-13.0)	**0.02**

HR = Hazard Ratio, CI = confidence interval

Conclusion:

- Adjuvant Endocrine therapy alone and Radiation therapy alone led to equivalent outcomes.
- Receiving no adjuvant therapy led to poorer outcomes (12% 5-year local recurrence rate).
- Many patients would be candidates for Accelerated Partial Breast Irradiation (~ 5 fractions).

Clinicians and patients must decide based on convenience and side effect profile between:

5 years HRT vs. 5 days XRT

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