Does the use of adjuvant anthracyclines improve outcomes in older women with node-negative triple negative breast cancer: a SEER Medicare study

Anna R Schreiber, MD[1], Jodi A. Kagihara, MD[2], Megan Eguchi, MPH[3], Peter Kabos, MD[2], Christine M. Fisher, MD, MPH[4], Elisabeth Meyer, MPH[3], Elizabeth Molina, MPH[3], Lavanya Kondapalli, MD[5], Cathy J. Bradley, PhD[3], Jennifer R. Diamond, MD[2]

1: Department of Medicine, 2: Division of Medical Oncology, 3: School of Public Health, Department of Health Systems Management and Policy, 4: Department of Radiation Oncology, 5: Division of Cardiology , University of Colorado Anschutz Medical Campus

BACKGROUND:

- Triple negative breast cancer (TNBC) makes up 10-15% of breast cancers.
- Around one-third of patients with TNBC are > 65 years old.
- Adjuvant chemotherapy reduces recurrence in early stage TNBC patients.
- The incorporation of an anthracycline in early stage TNBC has found to be advantageous, however elderly patients are not well represented in these trials.
- It is unclear how to treat older patients who have node negative TNBC.
- The purpose of this study was to use the SEER-Medicare database to investigate if age, tumor size, and presence of comorbidities impacted chemotherapy selection; specifically looking at anthracycline+taxane (ATAX) versus taxane based (TAX) regimens.

METHODS:

- We selected female patients from the SEER-Medicare database that were > 66 years or older diagnosed with Stage 1-4N0M0 invasive TNBC between 2010-2015 (N=3,348).
- Patient demographics were summarized across treatment groups and logistic regression was used to estimate odds ratios (OR) and 95% confidence intervals (CIs) for the association between covariates and treatment groups.
- Kaplan-Meier survival curves and adjusted Cox proportional hazard models were used to estimate 3-year overall survival (OS) and cancer specific survival (CSS) for treatment groups and for patients by age groups.
- OS was defined as death due to any cause determined by the time from the month of diagnosis to death. CSS was defined as death from cancer determined by the time from the month of diagnosis to death.
- Forest plots were generated using multivariate analysis and adjusted Cox proportional hazards models to identify independent factors associated with use of ATAX compared to TAX.

OUTCOMES:

Table 1: Logistic regression analysis estimating OR of chemotherapy vs. no chemotherapy and taxane + anthracycline-containing regimen vs. taxane-containing regimen across variables, SEER-Medicare 2010-2015.

Variable	Chemotherapy vs. No Chemotherapy N = 3348		Taxane + Anthracycline vs. Taxane N = 1404	
	OR (95% CI)	p-value	OR (95% CI)	p-value
Age at Diagnosis				
66 to 75 (ref)	.	.	.	.
76 and older vs 66 to 75	0.16 (0.13, 0.18)	<.0001	0.25 (0.17, 0.38)	<.0001
Ethnicity				
White (ref)	.	.	.	.
Black vs White	1.01 (0.79, 1.31)	0.9128	1.04 (0.71, 1.52)	0.8514
Other vs White	0.88 (0.67, 1.16)	0.3643	1.02 (0.66, 1.58)	0.9271
Region				
West (ref)	.	.	.	.
Midwest vs West	0.91 (0.70, 1.19)	0.4917	1.84 (1.23, 2.75)	0.0031
Northeast vs West	1.12 (0.90, 1.41)	0.3183	1.75 (1.24, 2.48)	0.0014
South vs West	0.91 (0.74, 1.13)	0.3998	1.32 (0.94, 1.84)	0.1077
Tumor Size				
T1a/T1b (ref)	.	.	.	.
T1c vs T1a/T1b	3.40 (2.75, 4.20)	<.0001	1.67 (1.10, 2.55)	0.0171
T2 vs T1a/T1b	4.30 (3.45, 5.35)	<.0001	3.33 (2.19, 5.06)	<.0001
T3/T4 vs T1a/T1b	4.16 (2.93, 5.92)	<.0001	5.19 (2.85, 9.46)	<.0001
Facility Type				
Other (ref)	.	.	.	.
NCI Center vs Other	1.11 (0.86, 1.43)	0.4329	1.14 (0.78, 1.68)	0.5075
Teaching Hospital vs Other	0.99 (0.82, 1.19)	0.9285	0.75 (0.56, 1.02)	0.0626
Prior Cardiac Conditions				
No (ref)	.	.	.	.
Yes vs No	0.98 (0.78, 1.21)	0.8196	0.76 (0.56, 1.04)	0.0822
Prior Non-Cardiac Conditions				
No (ref)	.	.	.	.
Yes vs No	0.63 (0.53, 0.75)	<.0001	0.73 (0.53, 1.00)	0.0528

NCI Center (National Cancer Institute (NCI)-Designated Cancer Center), radiation therapy (RT), odds ratio (OR), reference (ref), tumor size is AJCC 7th edition

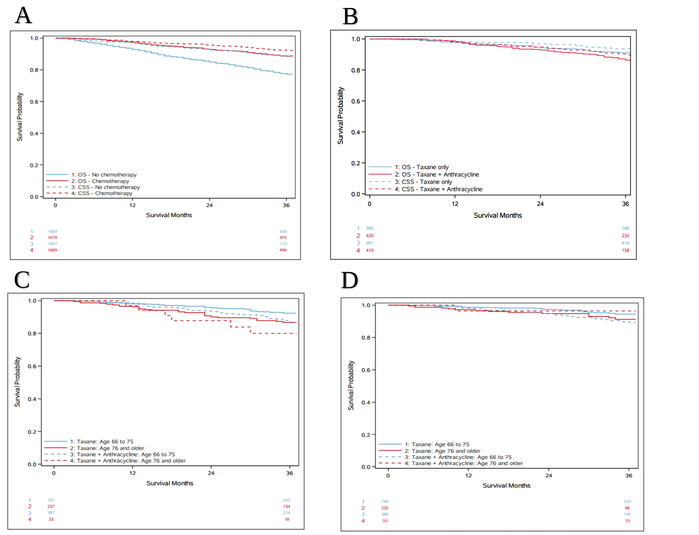

Figure 1: A) CSS and OS for patients who received chemotherapy and those who did not B) CSS and OS for patients who received ATAX vs. TAX C) OS distributed by those who received ATAX vs.TAX aged 66 to 75 and 76 and older D) CSS distributed by those who received ATAX vs. TAX aged 66 to 75 and 76 and older.

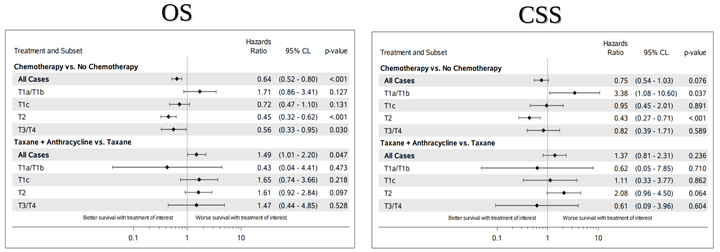

Figure 2: Forest plots showing survival. Hazard ratios shown overall and by stage after reflecting for all other covariates.

CONCLUSION:

- Younger patients with larger tumors and no prior combordities were more likely to receive chemotherapy. Younger patients with larger tumors and no prior cardiac and non-cardiac conditions were more likely to receive ATAX.
- Patients who received chemotherapy when compared to no chemotherapy had an observed improvement in CSS (92.2% versus 88.9%, p=0.0018) and OS (88.6% versus 77.2%, p<0.0001).
- Patients who received ATAX had inferior CSS (89.8% versus 93.7%, p=0.048) and OS (86.4% versus 91.0% p=0.032) compared to patients receiving TAX.
- There was inferior 3-year CSS (89.2% versus 94.4%, p=0.0105) and OS (87.0% versus 92.4%, p=0.0113) in patients aged 66-75 when treated with ATAX compared to TAX. This trend was observed for OS in patients >76 years old, however the result was not statistically significant.
- When controlling for covariates, OS across all cases was worse with treatment of ATAX compared to TAX (HR 1.49, 95% CI 1.01-2.20, p=0.047).
- We did not find a survival benefit with use of ATAX compared to TAX in an elderly, node-negative TNBC population.
- Efforts should be put towards developing large, randomized trials that include elderly patients to better understand the benefits and pitfalls of therapies in elderly patients.

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WOMEN'S CANCER DEVELOPMENTAL THERAPEUTICS