Adjuvant chemotherapy in T1a/bN0 breast cancer patients with high Oncotype DX recurrence scores (RS>25)

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Background
Recurrence score (RS) ≥ 25 is prognostic for distant recurrence and predictive for adjuvant chemotherapy (aChem) benefit in ER+HER2-negative early breast cancer (BC), independent of tumor size. For patients with tumors >0.5 cm and candidates for aChem, current NCCN guidelines recommend to strongly consider OncotypeDX testing and aChem treatment for RS ≥ 25. Herein, we sought to evaluate benefit from aChem in T1a/bN0 BC patients with high RS ≥ 25. To this end, we used the Clalit Health Services (CHS) dataset, the largest HMO in Israel, with more than 4.5 million insurers.

Methods
We identified all CHS patients tested between Feb-2006 and Dec-2019 with T1a/bN0 early breast cancer and a RS ≥ 25 (Fig 1). Demographic, clinicopathological and treatment data were extracted from the CHS centralized registry (Table 1). A preliminary comparison between patients who were treated with aCT to patients not treated with aCT found significant differences for age, Charlson comorbidity score and Oncotype Dx RS. Propensity-score matching was used to balance differences. On this matched cohort time to invasive disease-free survival (iDFS) and distant recurrence was compared between the groups by Kaplan-Meier analysis by the log-rank test. iDFS, defined to be time from RS testing to first event; any ipsilateral breast tumor recurrence, regional recurrence, distant recurrence, contralateral second primary invasive-recurrence, second primary-non-breast invasive recurrence (excluding non-melanoma skin cancers) or death without evidence of recurrence. All tests were 2-sided and p ≤ 0.05 was considered statistically significant.

Results
Out of 9015 CHS patients, 157 patients met the inclusion criteria of which 75 patients (48%) received aChem (Figure 1). Overall, the median follow-up time for the entire cohort was 121.0 (95% CI, 108.4 - 133.6) months. Patients who received aCT were characterized by a significantly younger age, less comorbidities and higher average RS (Table 1). Propensity-score matching balanced discrepancies among both treatment groups (p=0.17) resulting in 75 matched cases and controls. (Table 1). Nineteen iDFS events occurred, ten in the aCT cohort vs. nine in the non- aCT. The mean time to an iDFS was 174.7 months (95% CI, 163.2-186.3) vs 188.0 months (95% CI, 178.7-197.3); p=0.27, in the aCT and the non-aCT cohorts, respectively. Seven patients were diagnosed with distant recurrences, of which four in the aCT group. The mean time to distant recurrence was 186.3 months (95% CI, 178.1-194.5) following aCT vs. 195.5 months (95% CI, 188.3-202.7); p=0.64 (Figures 2 and 3). No significant improvement in iDFS or distant recurrence was observed in the aCT treated patients.

Conclusion: No iDFS or distant recurrence benefit were observed with aChem in patients with T1a/bN0 breast cancer and high Oncotype DX recurrence score (RS>25)

Strengths:
- We analyzed data of a large cohort of T1a/bN0 BC patients with RS>25
- Relatively long follow-up period (median 121 months)

Limitations:
- Retrospective and uncontrolled nature
- Small group of T1a
- Data on compliance with hormonal therapy was not collected