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A comparison of Prognostic Predictors in Node-Positive HR+/HER2- Breast Cancer

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BACKGROUND & OBJECTIVES

- Decisions about adjuvant chemotherapy (CT) in early-stage HR+/HER2- breast cancer are made with assistance of genomic assays, such as a 21-gene assay.
- In some patient groups, such as premenopausal, node-positive women, or women with multiple positive lymph nodes, it is unclear which women might be spared CT.
- RSClinN+ is an online calculator that was recently introduced to integrate Oncotype DX scores (ODX) with baseline clinicopathologic data.
- Ataraxis Breast RISK (ATX) is a novel prognostic test that combines morphological features from H&E slides with baseline clinical data to predict risk of recurrence.
- In this study, we measure the prognostic accuracy of ATX, and compare it to RSClin and ODX in node-positive patients.

METHODS

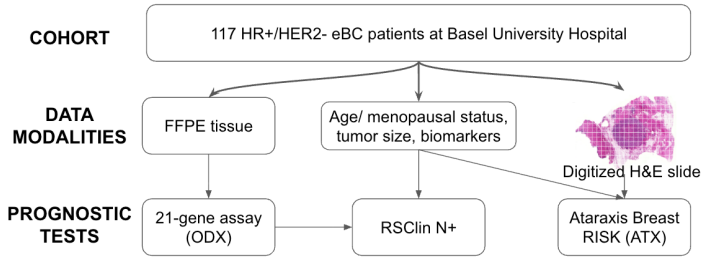


Fig 1. Study set up. We analyzed 117 HR+/HER2- patients with available ODX scores, baseline clinical data, and H&E slides, and generated all prognostic scores (RSClin, ODX, ATX) for the analysis. Prognostic accuracy was measured using hazard ratios and Harrell's concordance index with 95% confidence intervals. 112/117 patients had 1-3 positive LNs and 5 patients had more than 3 positive LN.

RESULTS

- We evaluated ATX, RSClin and ODX for overall recurrence as the primary endpoint (disease-free interval; DFI).
- ATX was significantly associated with DFI ($p<0.01$) with a hazard ratio of 1.67 (95% CI: 1.44-2.44).
- In a head-to-head comparison, ATX had the highest accuracy for recurrence prediction with C-index of 0.74 (0.61-0.86). RSClin N+ was also more accurate than ODX (0.67 vs. 0.53).

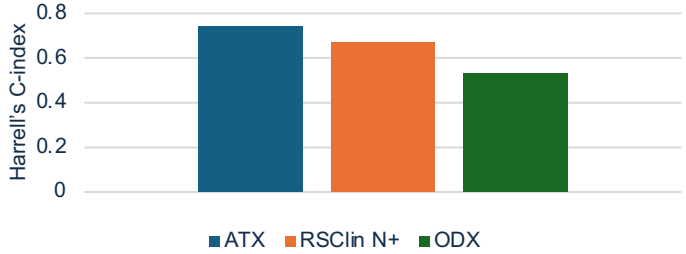


Fig 2. Harrell's concordance index (C-index) scores for three evaluated prognostic tests. C-index of 0.5 means that the prognostic model makes random predictions, meanwhile a C-index of 1.0 means perfect ordering of patients with regards to their recurrence risk.

- In multivariable Cox analysis including both ATX and RSClin, ATX added independent prognostic information (LR $\chi^2 = 4.81$, $p=0.028$).

CONCLUSION

ATX and RSClinN+, two multi-modal prognostic tools, were more accurate than ODX alone. ATX had the greatest prognostic accuracy, outperforming both RSClin+ and ODX in a real-world cohort of N+ patients.

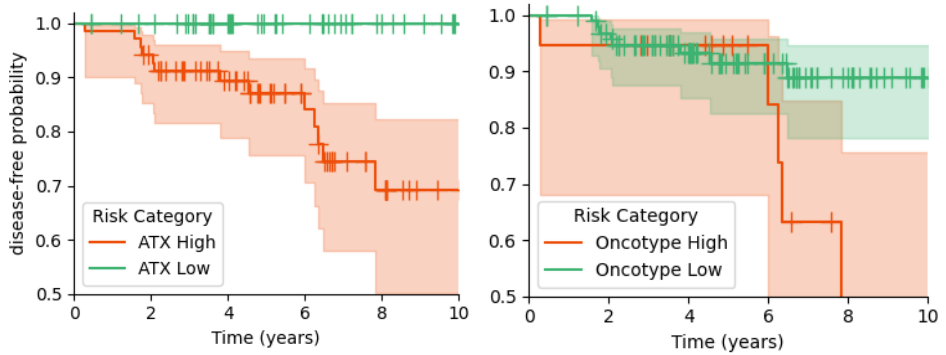


Fig 3. Stratification of pN1 patients in the evaluated cohort based on ATX (left) and ODX scores (right). We used TAILORx thresholds for ODX categorization (25 and lower as "low" risk).

ATX classified 64 pN1 patients as high-risk and 48 as low-risk. Meanwhile, ODX classified 16 pN1 patients as high- and 96 patients as low-risk (Fig. 2).

All N+ patients in ATX classified as low-risk were recurrence-free (100% NPV). Patients classified as high-risk by ATX had 13.8% 5-year recurrence rate and 30.6% 9-year recurrence rate.

REFERENCES

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