Correlation Between Breast Cancer Index (BCI) and RSClin Late in Assessing 5-10 Year Recurrence Risk in Early-Stage Hormone Receptor-Positive Breast Cancer

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BACKGROUND

- Hormone receptor-positive (HR+), HER2-negative early-stage breast cancer constitutes approximately 70-80% of all breast cancers.
- However, despite favorable short-term outcomes with adjuvant endocrine therapy, a subset of patients remain at risk for late recurrence beyond 5 years, necessitating personalized decisions about extending endocrine therapy.
- Genomic assays have emerged as valuable tools for refining risk estimates and guiding clinical decision-making in this setting. Two such tools—Breast Cancer Index (BCI) and RSClin Late—are often used to assess the likelihood of distant recurrence from years 5 to 10, avoiding unnecessary endocrine therapy in patients with low risk and extending it in those with high risk.
- BCI combines two independent biomarkers, HOXB13:IL17BR (H:I) and the 5-gene molecular grade index (MGI), that assess estrogen-mediated signaling and tumor grade, respectively, to provide both prognostic and predictive information for late recurrence and extended endocrine therapy benefit.
- RSClin Late integrates the Oncotype DX 21-gene recurrence score with clinical and pathologic features (age at surgery, tumor size, tumor grade) to generate individualized 5- to 10-year risk estimates.
- Despite overlapping indications, the degree of concordance between these two tools remains unclear.

STUDY DESIGN

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Retrospective Review

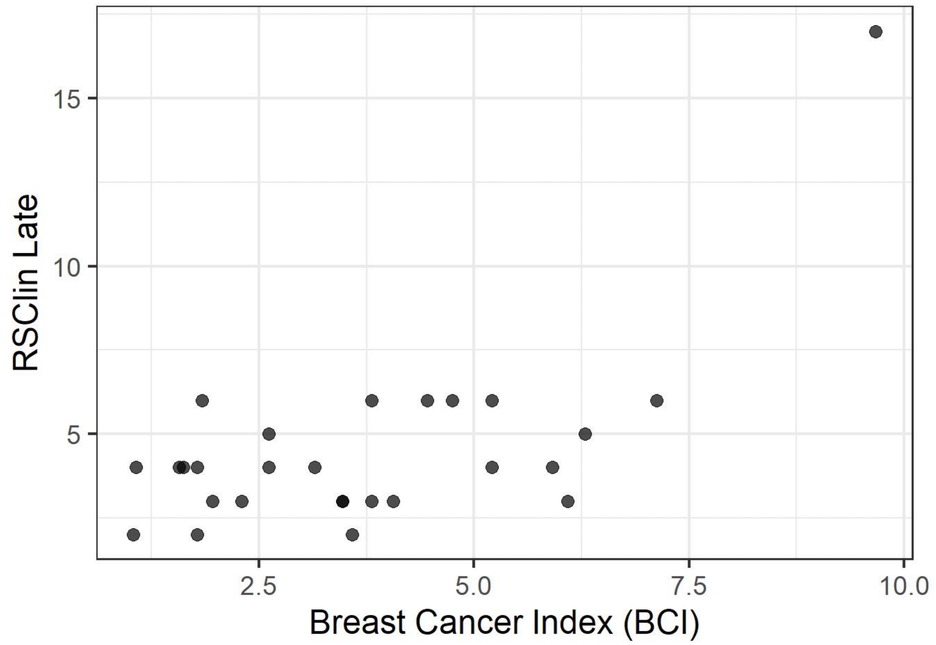
Patient cohort: HR+, HER2-negative early-stage breast cancer without lymph node involvement who underwent BCI testing

Data Collection:
- BCI Prognostic Results (risk of recurrence with 5 total years of adjuvant endocrine therapy)
- RSClin Late scores

Statistical analysis: Spearman rank correlation coefficient was calculated with a 95% confidence interval (CI) to assess the monotonic relationship between the two scoring systems

RESULTS

Figure 1: Spearman correlation coefficient between the BCI Prognostic Result and RSClin Late



- The Spearman correlation coefficient (ρ) between the BCI Prognostic Result and RSClin Late was 0.413 (95% CI 0.039 to 0.685), with a p-value of 0.032.
- This indicates a **moderate, statistically significant positive correlation between the two measures.**
- These findings suggest that while the tests may grossly align in terms of risk stratification, clinically meaningful discordance may occur in individual cases.

DISCUSSION

- Our study is limited by a small sample size and larger analyses are needed to better characterize the degree and clinical impact of discordance between these tools.
- The moderate but statistically significant correlation observed highlights that BCI and RSClin Late, although both designed to predict late recurrence, are complementary but not interchangeable.
- BCI is a purely genomic assay focused on tumor biology, while RSClin Late integrates genomic (Oncotype DX) and traditional clinical and pathologic data, leading to possible variation in risk assignment.
- Both assays have been independently validated to inform decisions regarding extended endocrine therapy, but their moderate correlation raises questions about how to interpret conflicting results.

CONCLUSIONS

- In this real-world cohort of patients with early-stage HR+ N0 breast cancer, BCI and RSClin Late scores demonstrated a moderate but statistically significant correlation.
- This supports a degree of concordance but also underscores that the tests may not be interchangeable.
- Incorporating both genomic and clinical-pathologic perspectives into shared decision-making discussions may help personalize extended endocrine therapy decisions, avoid unnecessary toxicity, and improve long-term outcomes.

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