Genomic Platform (GP) Testing and Adjuvant Chemotherapy (CT) Use in Early-Stage hormone receptor-positive (HR+) /HER2 negative (HER2-) Breast Cancer (BC): Real-World Insights and Prognostic Factors

PS3-10-03

Rubén García Muñoz[1]; Rocío Urbano Cubero[1]; África Beltrán de Santa Olalla[1]; Alicia Cano Jimenez[1]; Ana Jaén Morago[1], Pedro Sánchez Rovira[1]

[1]Hospital Universitario de Jaén

Introduction

Genomics platform (GP) has transformed the management of patients with early stage, HR+, HER2 negative (HER2-) BC by guiding personalised treatment decisions regarding adjuvant CT. However, real world patterns of CT used base of recurrence score (RS) remain a topic interest. Using our hospital-based database we evaluated testing patterns, factors associated with GP testing and examined predictor of CT use among patients by RS.

No. of patients	196 (%)
Median age (years)	60
Histology	Ductal: 166 (84,7%) Lobular: 21 (10,7%) Others: 9 (4,6%)
Stage	IA: 107 (54,6%) IB: 16 (8,2%) IIA: 63 (32,1%) IIB: 10 (5,1%)
Grade	G1: 23 (11,7%) G2: 155 (79,1%) G3: 18 (9,2%)
Menopausal status	Premenopausal: 51 (26%) Postmenopausal: 145 (74%)
Platform used	Oncotype DX: 159 (81,1%) Mammaprint: 34 (17,3%) Prosigna: 3 (1,5%)
Platform result	Low risk: 141 (71,9%) Intermediate risk: 24 (12,2%) High risk: 31 (15,8%)
Adjuvant chemotherapy	Yes: 32 (16,3%) No: 164 (83,7%)
Endocrine therapy	Tamoxifen: 39 (19,9%) AI: 139 (70,9%) Tamoxifen + OFS: 9 (4,6%) AI + OFS: 2 (1%) Tamoxifen → AI: 5 (2,6%)

Table 1. Baseline patient characteristics

Methods and Materials

This retrospective observational study included patients ≥ 18 years with early-stage, HR+/HER2- BC diagnosed from 2021-2024 who underwent surgery with pT1-T3, pN0-N1 staging and meet clinical guideline criteria for requesting a genomic study were included. Descriptive analyses were used, including demographic and clinical characteristics of patients. Multivariable logistic regression was used to examine factors associated with receipt of GP testing and predictors of CT use, stratified by Low risk, intermediate risk and high risk

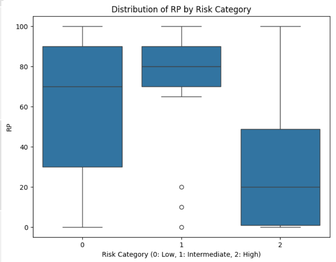


Figure 1. Distribution of Progesterone Receptor expression according to genomic risk category

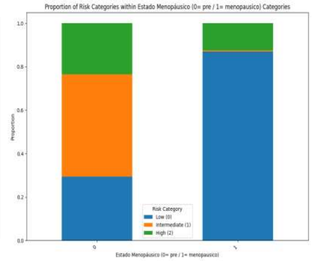


Figure 2. Figure 3. Distribution of genomic risk categories by menopausal status

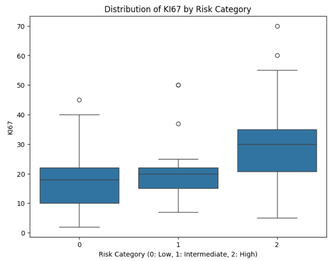


Figure 3. Distribution of Ki-67 index according to genomic risk category

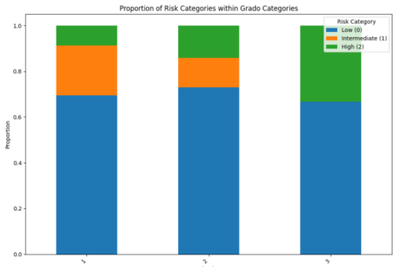


Figure 4. Distribution of genomic risk categories by histological grade

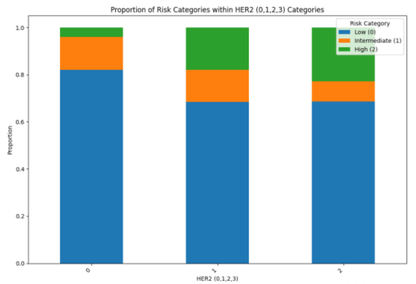


Figure 5. Distribution of genomic risk categories by HER2 expression

Results

A total of 196 patients were included, with a median age of 60 years. The majority had stage IA (54%), grade 2 (79%) tumors, and infiltrating ductal histology (84.7%), with 36% presenting Ki67 ≥20%. Twenty-six percent were premenopausal, and 27% had axillary involvement. Oncotype DX was the most commonly used genomic platform (81%) followed by MammaPrint (17.1%) and Prosigna (1.7%). Risk stratification showed 72% low risk, 12% intermediate risk, and 15% high risk. All high-risk patients, except one, received adjuvant chemotherapy, while no intermediate-risk patients received chemotherapy. With a median follow-up of 34 months, only two local recurrences were observed, both in low-risk patients. Low progesterone levels, Ki67 >20%, and premenopausal status were significantly associated with high risk (p<0,0001).

Lymph node involvement and tumor grade were not significantly associated with high risk, although grade 3 showed a trend toward statistical significance (p=0.057).

Regarding HER2 status, only 4% of HER2 0 patients were high risk, whereas 20% of HER2 1+/2+ patients were high risk; this association was not statistically significant (p=0.1).

Discussion

Our study confirms the utility of genomic platforms, particularly Oncotype DX, in guiding adjuvant chemotherapy decisions for early-stage, HR+/HER2- breast cancer, with 81% of patients tested using this platform. The high proportion of low-risk patients (72%) and the absence of chemotherapy in intermediate-risk patients align with clinical guidelines, reflecting risk-stratified treatment de-escalation. The significant association of low progesterone levels, Ki67 >20%, and premenopausal status with high risk underscores their role as prognostic factors, consistent with prior literature. The trend toward significance for grade 3 tumors (p=0.057) and the higher proportion of high-risk patients among HER2 1+/2+ cases (20% vs. 4% in HER2 0, p=0.1) warrant further investigation, as these may indicate subgroups with distinct biological behavior. Limitations include the single-center design and relatively short follow-up, which may limit generalizability and detection of late recurrences. Larger, multicenter studies with longer follow-up are needed to validate these findings and refine the role of HER2 status in risk stratification.

Conclusions

Retrospective study (n=196, early-stage HR+/HER2- BC, 2021-2024) confirms utility of Oncotype DX (81%) for adjuvant CT de-escalation: 72% low (no CT), 12% intermediate (0% CT), 15% high (93% CT), aligned with TAILORx.

High risk associated with low progesterone, Ki67 >20%, premenopause (p<0.0001); trend in grade 3 (p=0.057) and HER2 1+/2+ (20% vs. 4%, p=0.1), suggesting subgroups to investigate.

Median FU 34 months: 2 local recurrences (low risk).
Limitations: single-center, short FU; multicenter studies with longer FU needed.

Contact

Rubén García Muñoz
Hospital Universitario de Jaén
Email: ruben_gm7@hotmail.com

References

1. Albain KS, Barlow WE, Shak S, et al. Prognostic and predictive value of the 21-gene recurrence score assay in postmenopausal women with node-positive, oestrogen-receptor-positive breast cancer on chemotherapy: a retrospective analysis of a randomised trial. N Engl J Med. 2010;362(3):205-211.
2. Sparano JA, Gray RJ, Makower DF, et al. Adjuvant chemotherapy guided by a 21-gene expression assay in breast cancer. N Engl J Med. 2018;379(2):111-121.
3. Cardoso F, van't Veer LJ, Bogaerts J, et al. 70-gene signature as an aid to treatment decisions in early-stage breast cancer. Lancet Oncol. 2021;22(4):474-483.

This presentation is the intellectual property of the author/presenter. Contact them at ruben_gm7@hotmail.com for permission to reprint and/or distribute.

© Poster Template by Genigraphics® 1.800.790.4001 www.genigraphics.com