

INTRODUCTION

Patients with advanced NSCLC harboring EGFR L858R often respond unevenly to third-generation EGFR-TKIs. Some achieve durable benefit, whereas others progress early, and an easy pretreatment stratification tool is still lacking.

Blood-based inflammatory and nutritional markers such as NLR, LMR, and PNI are inexpensive and routinely available in clinical practice.

We asked whether combining these markers with basic clinical factors could estimate progression-free survival (PFS) risk in this L858R population receiving first-line third-generation EGFR-TKIs.

Main result

A simple nomogram using ECOG PS, hypertension, LMR, NLR, and PNI predicted 12-month PFS (AUC 0.706). Median PFS was 22.21 months in the low-risk group versus 12.42 months in the high-risk group ($P < 0.001$).

METHODS

- Retrospective cohort: 220 patients with stage IV EGFR L858R-mutated NSCLC who received a third-generation EGFR-TKI as first-line therapy (Jan 2020–Mar 2023; median follow-up 19.65 months).
- Baseline clinicopathologic data and blood indices (NLR, PLR, LMR, PNI) were collected before treatment.
- Univariate and multivariate Cox analyses identified independent predictors of PFS.
- Significant factors were used to build a nomogram for 12-month PFS probability.
- Performance assessment: bootstrap validation (200 resamples), ROC/AUC, calibration, and DCA.
- Patients were stratified by the median nomogram score into low- and high-risk groups for KM comparison.

CONCLUSIONS

- This inflammation-based nomogram provides a practical approach to estimate 12-month PFS in advanced EGFR L858R-mutated NSCLC treated with first-line third-generation EGFR-TKIs.
- Independent predictors included ECOG PS, hypertension, LMR, NLR, and PNI.
- Low-risk patients had substantially longer median PFS than high-risk patients (22.21 vs 12.42 months, $P < 0.001$).
- The model may help identify patients at higher risk of early progression who may warrant closer follow-up or consideration of alternative front-line strategies.

RESULTS

Median PFS 16.85 mo	12-mo PFS rate 66.0%	AUC 0.706	Low-risk PFS 22.21 mo	High-risk PFS 12.42 mo
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In multivariate Cox analysis, ECOG PS (HR 0.609), hypertension (HR 0.518), LMR (HR 1.064), NLR (HR 1.070), and PNI (HR 0.996) remained independently associated with PFS (all $P < 0.05$). Mean age was 62.2 ± 9.0 years; 62.3% were women and 83.6% never smokers. Brain and bone metastases were present in 49.7% and 52.8%, respectively. Progression or death occurred in 110/204 patients (53.9%).

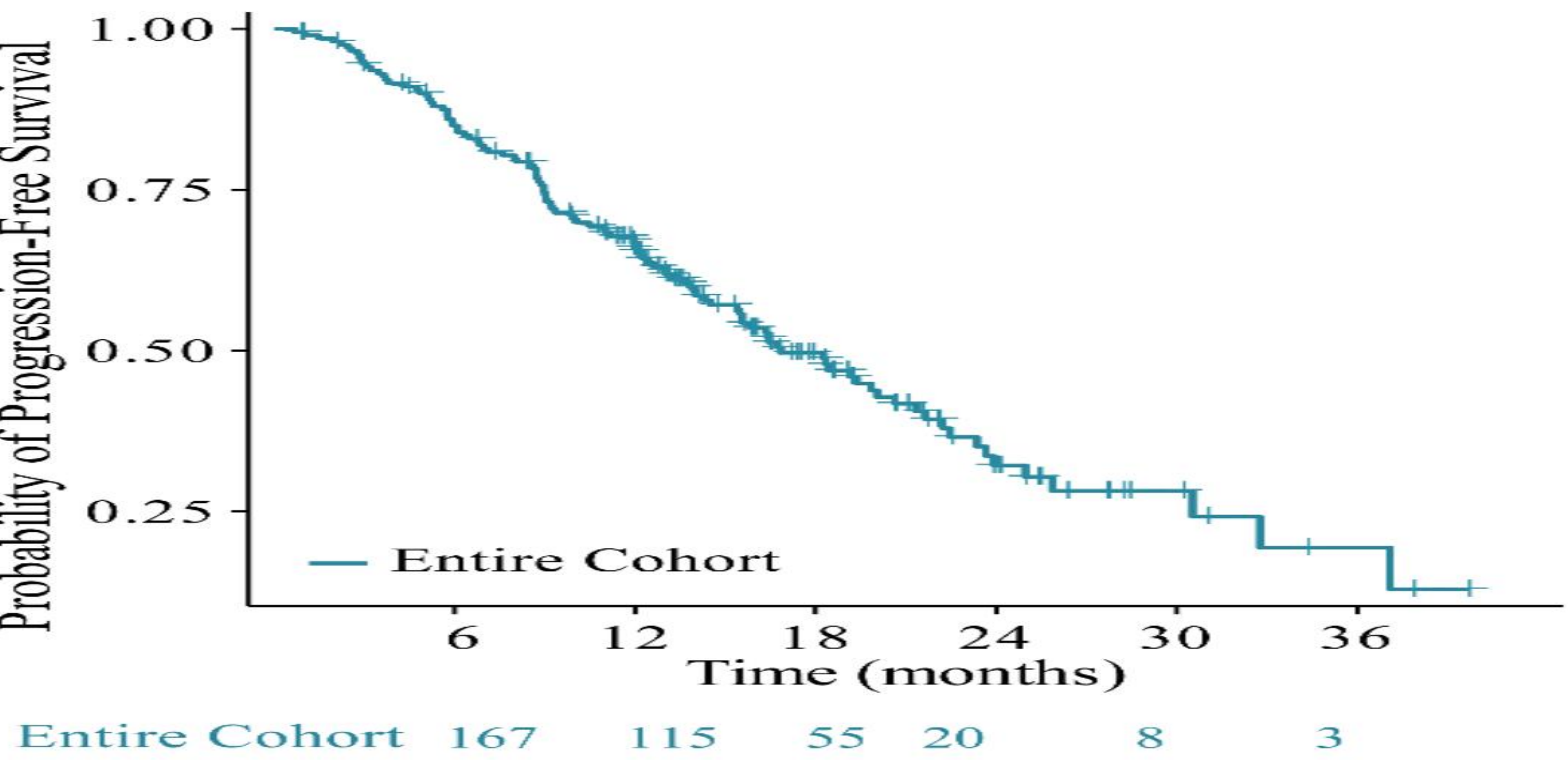


Figure 1. Kaplan-Meier curve of PFS for the whole cohort

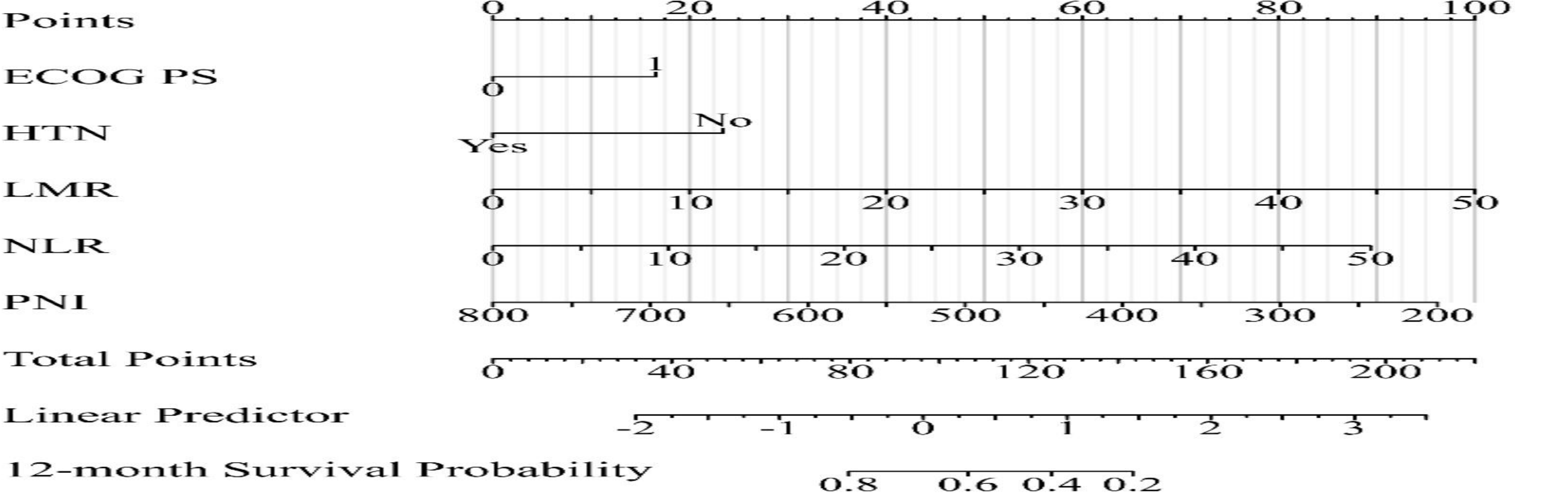


Figure 2. Nomogram to estimate 12-month PFS probability

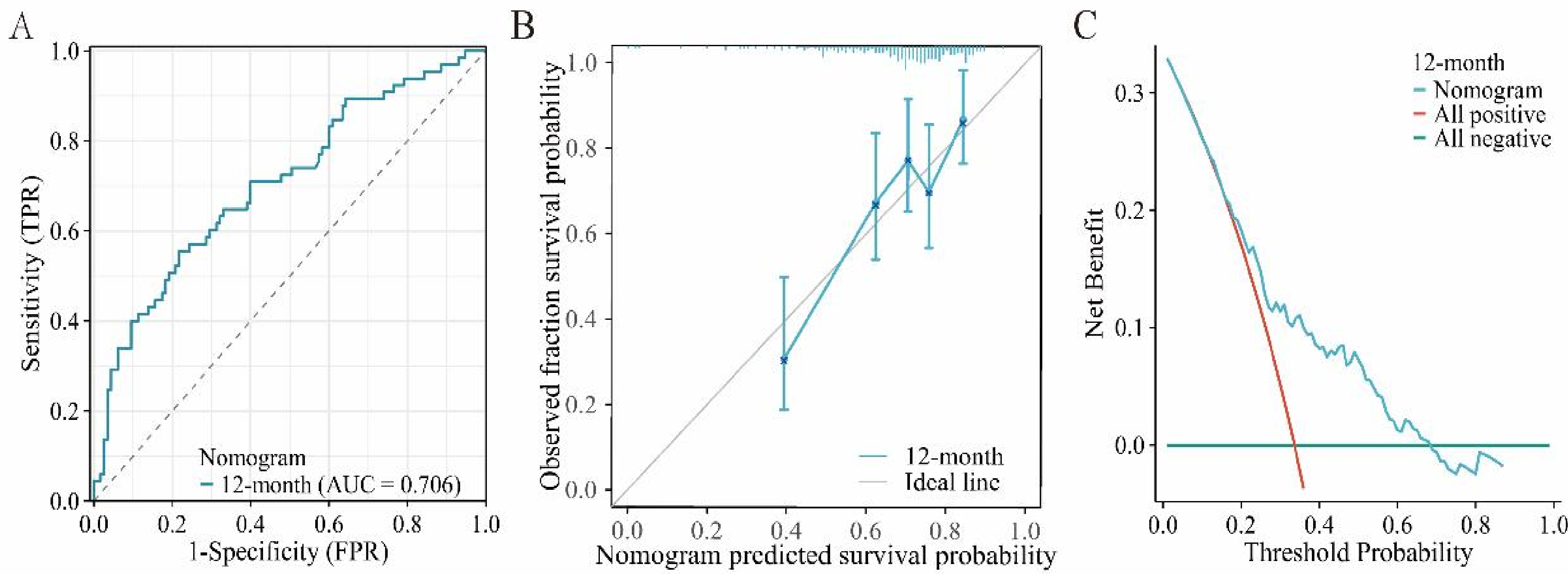


Figure 3. Discrimination (A, AUC = 0.706), calibration (B), and DCA (C)

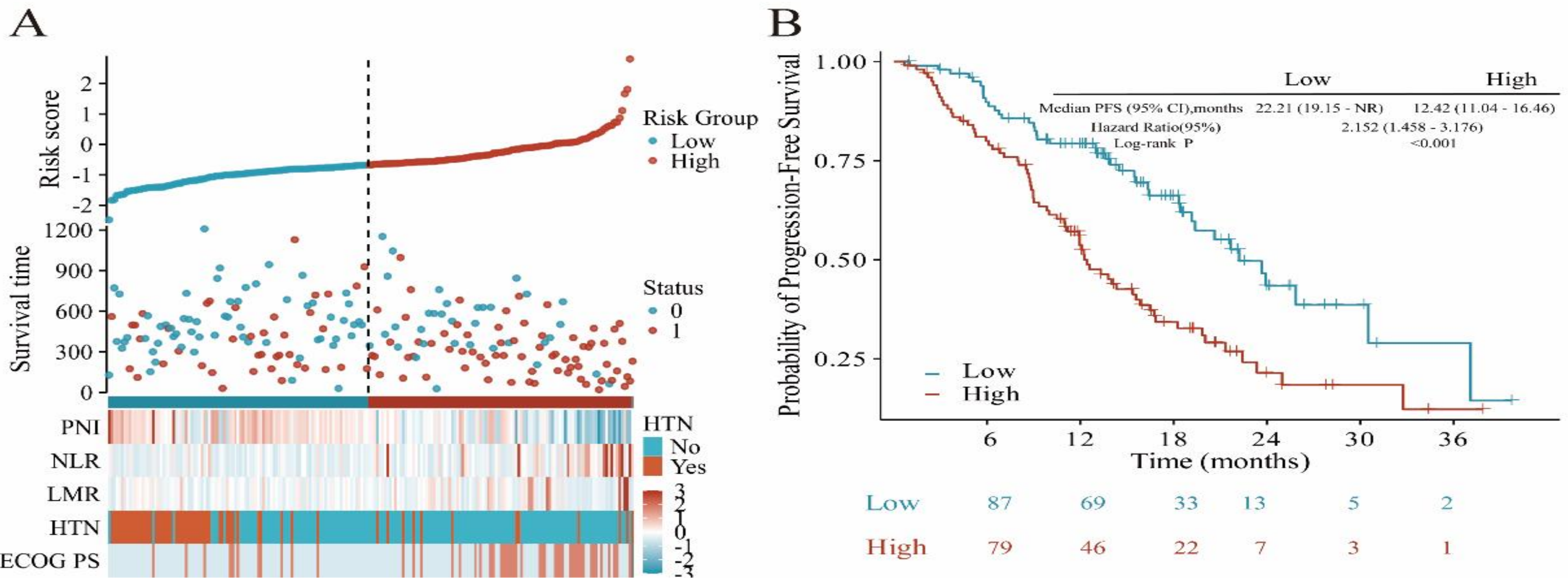


Figure 4. Risk scores/heatmap (A); PFS by low- vs high-risk group (B)

COLLABORATIONS

Participating / Affiliated Institutions

- Shandong Cancer Hospital and Institute
- Shandong First Medical University
- Shandong Academy of Medical Sciences

Study focus
Advanced EGFR L858R-mutated NSCLC treated with first-line third-generation EGFR-TKIs.

Correspondence: yintaoli@fudan.edu.cn

Presenting Author

Yintao Li
Dept. of Medical Oncology
Shandong Cancer Hospital and Institute
E-mail: yintaoli@fudan.edu.cn

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