

Baseline Laboratory Markers Improve Prognostic Discrimination in Advanced NSCLC: A Multicenter Real-World Analysis

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INTRODUCTION

Clinical context

Advanced NSCLC outcomes remain *heterogeneous* despite *EGFR-targeted* therapy and *immunotherapy-based 1L* regimens.

Why baseline labs?

Albumin, *NLR*, sodium, and hemoglobin are inexpensive, routinely available, and may reflect *inflammation*, *nutrition*, *organ reserve*, and systemic disease burden.

Study question

We tested whether routine *baseline laboratory markers* add *incremental prognostic discrimination* beyond clinicopathologic features.

METHODS

Cohort and predictors

Multicenter real-world advanced NSCLC cohort: ***N=613*** with baseline clinical variables and *pretreatment laboratory markers* at 1L initiation.

Model framework

Three Cox models were compared: *clinical-only*, *laboratory-only*, and *combined* clinicopathologic-plus-laboratory model.

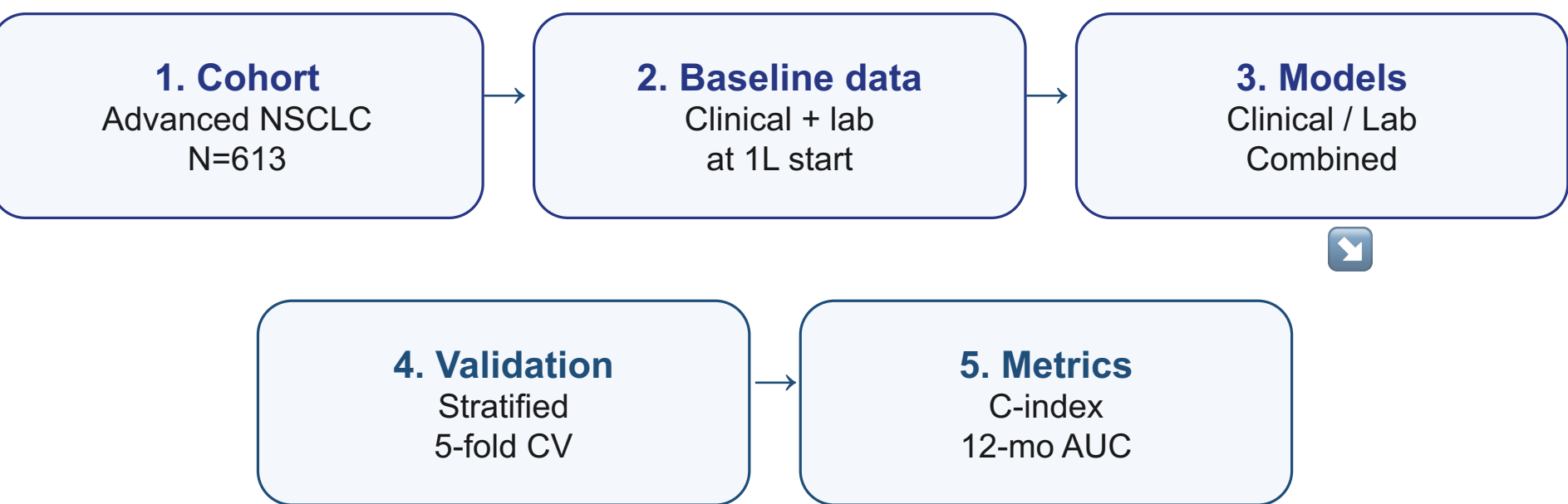
Validation and metrics

Internal validation used stratified *5-fold cross-validation*; performance was assessed by Harrell *C-index* and 12-month time-dependent AUC.

Model comparison

Fold-wise paired comparisons quantified the *incremental value* of adding laboratory markers to clinical predictors.

Workflow



BASELINE CHARACTERISTICS

Characteristic	Overall	TKI	ICI	CT/other
N	613	267	133	213
Age, median (range)	62 (14-88)	61 (33-85)	64 (34-82)	62 (14-87)
Male sex, n (%)	372 (60.7)	112 (41.9)	107 (80.5)	153 (71.8)
Ever smoker, n (%)	204 (33.3)	45 (16.9)	62 (46.6)	97 (45.5)
Never smoker, n (%)	304 (49.6)	173 (64.8)	45 (33.8)	86 (40.4)
Adenocarcinoma, n (%)	460 (75.0)	242 (90.6)	72 (54.1)	146 (68.5)
Squamous, n (%)	97 (15.8)	11 (4.1)	44 (33.1)	42 (19.7)
Stage IV, n (%)	536 (87.4)	257 (96.3)	117 (88.0)	162 (76.1)
Metastatic sites, median (IQR)	2.0 (1.0-3.0)	3.0 (2.0-4.0)	2.0 (1.0-3.0)	2.0 (1.0-3.0)
Bone metastasis, n (%)	350 (57.1)	185 (69.3)	72 (54.1)	93 (43.7)
Liver metastasis, n (%)	157 (25.6)	76 (28.5)	28 (21.1)	53 (24.9)
Brain metastasis, n (%)	225 (36.7)	128 (47.9)	37 (27.8)	60 (28.2)
1L duration, d, median (IQR)	30.0 (1.0-136.0)	53.5 (1.0-422.8)	34.5 (4.5-113.8)	22.0 (1.0-68.0)
Death events, n (%)	219 (35.7)	89 (33.3)	45 (33.8)	85 (39.9)
OS from 1L, mo, median (IQR)	21.2 (9.6-40.0)	29.1 (13.2-47.3)	16.1 (8.9-24.6)	17.3 (7.2-33.3)

REFERENCES & ACKNOWLEDGEMENTS

Selected references

Soria et al. N Engl J Med. 2018; Gandhi et al. N Engl J Med. 2018; Collins et al. Ann Intern Med. 2015.

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AI use disclosure

OpenAI Codex was used for poster layout, language, and formatting support. Statistical analyses, numerical results, and clinical interpretations came from the authors' materials and were not generated or altered by Codex. The authors retain responsibility for the final content and clinical judgment.

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RESULTS, CONCLUSIONS AND DISCUSSION

Increment over clinical-only model

Validation C-index: ***0.697*** → ***0.717*** (Δ ***+0.020***; ***P=0.017***)

Validation 12-month AUC: ***0.685*** → ***0.732*** (Δ ***+0.047***; ***P=0.008***)

Conclusion: routine labs added modest *incremental prognostic discrimination*.

Clinical meaning

Baseline labs add systemic information not fully captured by stage or metastasis pattern.

Limitations

Internal validation only; external validation is required before clinical use.

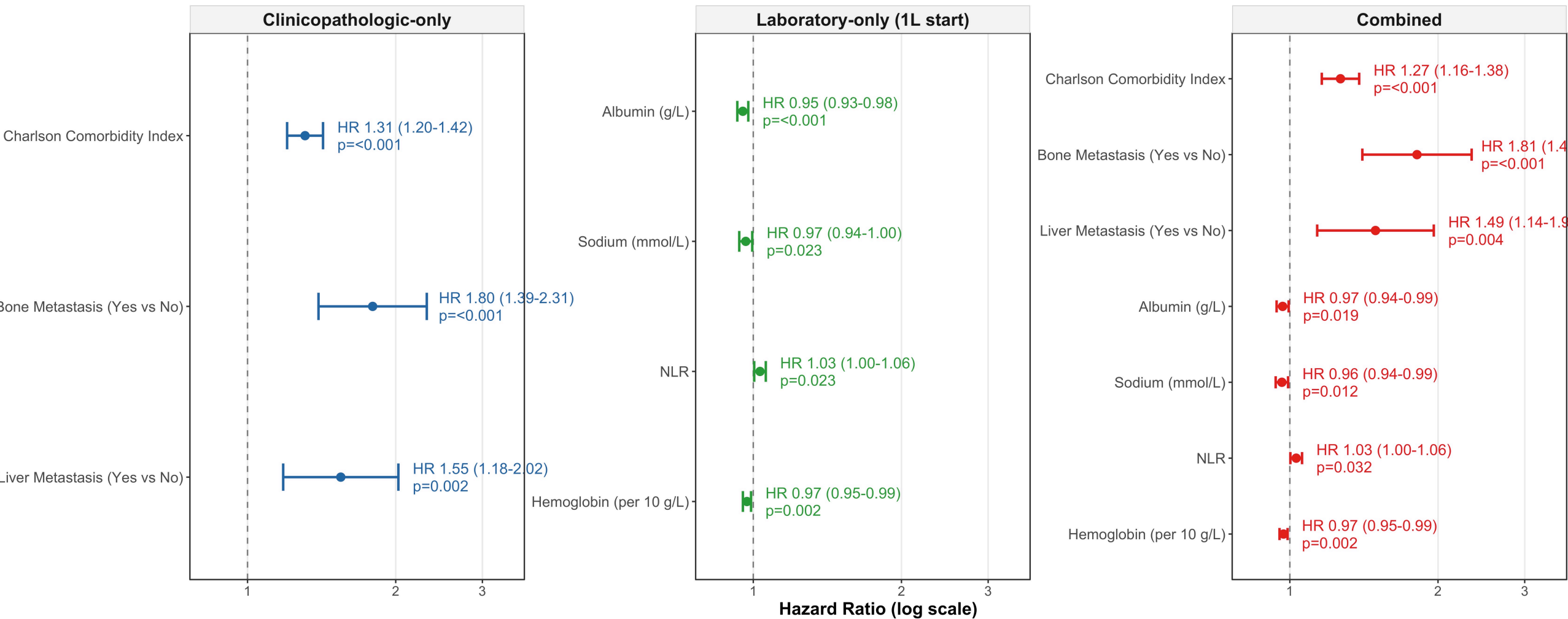


Figure 1. Prognostic factors across the three Cox models.

Figure 2. Training and validation discrimination across models.

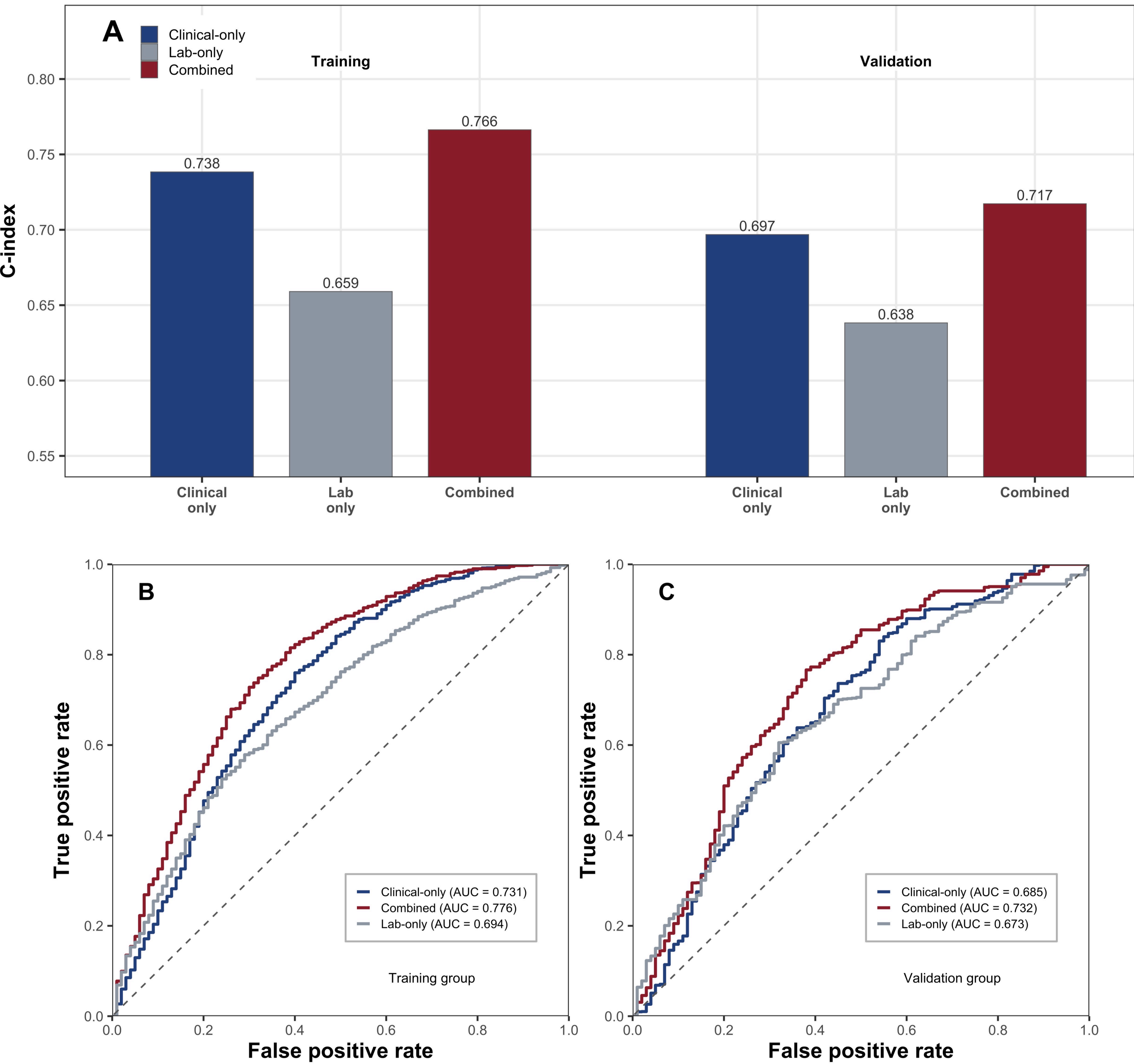


Fig. 1 key

Albumin remained *protective* in the combined model (HR≈0.97, ***P=0.019***).

Bone and *liver metastases* were consistent *adverse predictors*.

Fig. 2A key

Combined model had the best validation C-index: ***0.717*** vs ***0.697*** clinical-only. Increment: Δ ***+0.020***; ***P=0.017***.

Fig. 2B–C key

Validation *12-month AUC* was highest for the *combined model*: ***0.732***. Δ ***AUC*** vs clinical-only: ***+0.047***; ***P=0.008***.