Validation of a Prognostic Score in Blast-Phase CML: An HJK Cure CML Consortium Analysis

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INTRODUCTION

We have previously reported a median overall survival (OS) of 19.7 months in patients with CML in blast phase (CML-BP), with a 5-year OS of 38%. A recent ELN Blast Phase Registry analysis derived a prognostic risk score from six independent factors.

AIM

To validate this prognostic model in an independent, contemporary cohort using the Cure CML Consortium blast-phase dataset.

METHODS

All patients diagnosed with CML-BP between 2010 and 2025 by modified MD Anderson criteria (≥30% blasts or extramedullary disease) were included in this multi-institution retrospective study.

Prognostic risk score

S = 0.061 × (blasts % / 10) − 0.082 × platelets [per 100×10⁹/L] + 0.034 × age² / 100 − 0.405 [if de novo BP] − 0.865 [if lymphoid phenotype] + 0.541 [if extramedullary disease]

Score per Lauseker M et al. Leukemia. 2026;40:751–758.

RESULTS

284	50 yrs	47 mo	P<0.0001
Patients with CML-BP	Median age (16–86)	Median follow-up	OS across risk groups

PATIENT & DISEASE CHARACTERISTICS

Disease onset

Progressed from CP/AP 72.2% (n=205) | De novo BP 27.8% (79)

Blast phenotype

Myeloid 63.4% (n=180) | Lymphoid 36.6% (104)

Sex

Male 65.5% (n=186) | Female 34.5% (98)

Extramedullary disease at BP

Present 27.1% (n=77) | Absent 72.9%

BCR::ABL1 transcript (of n = 238 tested)

p210 95.8% (n=228)

p190 3.4% (n=8) p230 0.8% (n=2)

PROGNOSTIC RISK GROUPS — OVERALL SURVIVAL

HIGH	INTERMEDIATE	LOW
Median OS	Median OS	Median OS
10.3 mo	25.9 mo	Not reached
n = 77 (27.1%)	n = 137 (48.2%)	n = 22 (7.7%)

Risk score not evaluable in 48 patients (16.9%) owing to missing variables. Log-rank P < 0.001.

SURVIVAL BY RISK GROUP

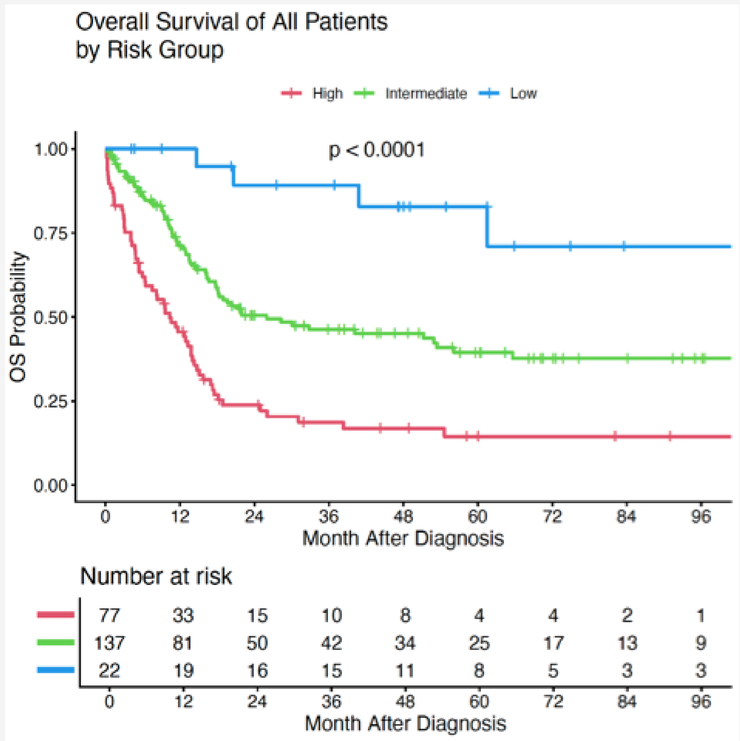

Figure 1. Overall survival by ELN Blast-Phase Registry risk group (high vs intermediate vs low). Median OS 10.3 vs 25.9 months vs not reached; P<0.0001.

CONCLUSIONS

In this large multi-institutional cohort of patients with CML-BP, the ELN Blast Phase Registry prognostic model showed significant prognostic discrimination for OS in an external dataset. Although treatment-related variables (e.g., TKI, chemotherapy and allogeneic stem cell transplantation) were not incorporated, the model retained clinical utility across a contemporary treatment landscape and may aid risk stratification at diagnosis and in future clinical-trial design..

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REFERENCES

1. Lauseker M, et al. Leukemia. 2026;40:751–758.
2. Jain AG, et al. Blood (2025) 146 (Supplement 1): 904.