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The Glasgow Prognostic Score adds Prognostic Information in Elderly AML Patients Ineligible for Intensive Treatment Independently from the Molecular Risk Profile – a Retrospective Multicenter Analysis

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INTRODUCTION

The Glasgow prognostic Score (GPS) combines C-reactive protein (CRP) and albumin as biomarkers of inflammation and catabolia.

It has shown prognostic value in various solid tumors and some hematological malignancies.

Its prognostic impact in elderly patients with acute myeloid leukemia (AML) or high-risk myelodysplastic neoplasms (MDS) treated with hypomethylating agents (HMA) is less well studied.

Hence, we investigated its prognostic value in this patient group.

METHODS

We conducted a multicentric retrospective chart review of all newly diagnosed elderly patients with AML or MDS/AML, who were ineligible for intensive treatment and were diagnosed and treated between 2017 and 2024 at the participating centers.

Patients were eligible if they had received at least one cycle of an HMA-based treatment. Cases with secondary AML following a myeloid neoplasm who had been pretreated with HMA were excluded.

Levels of CRP and albumin were documented at time of diagnosis (+/- 30 days).

Patients were stratified according to treatment modalities, presence of infection at time of diagnosis and by the molecular prognostic scoring system (mPRS, ref. 1).

The risk groups according to GPS were assigned as follows (ref. 2):

CRP and Albumin values	Risk group
CRP ≤ 10 mg/l and Albumin ≥ 35 g/l	0
CRP > 10 mg/l	1
Albumin < 35 g/l	1
CRP > 10 mg/l and Albumin < 35 g/l	2

Table 1: Risk groups according to GPS.

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RESULTS I

Variable	All pts. (n = 153)	GPS 0 (n = 62)	GPS 2 (n = 91)	p-value
Female (n,%)	65 (43%)	27 (44%)	38 (42%)	0.826
Age (median, range)	78 (61 - 91)	78 (67 - 91)	77 (61 - 91)	0.202
AML (n,%)	131 (86%)	51 (82%)	80 (88%)	0.328
MDS/AML (n,%)	22 (14%)	11 (18%)	11 (12%)	0.328
Baseline Albumin (median, range)	39 (19 - 57)	42 (36 - 57)	36 (19 - 46)	< 0.001
Baseline CRP (median, range)	16 (0 - 500)	2 (0 - 9)	52 (3 - 500)	< 0.001
Infection at time of diagnosis (n,%)	31 (20%)	0 (0%)	31 (34%)	< 0.001
Treatments				
BSC	27 (18%)	6 (10%)	21 (23%)	
HMA or HMA + Hydroxycarbamid or Ibrutinib*	34 (22%)	13 (21%)	21 (23%)	
HMA + Venetoclax	91 (60%)	42 (68%)	49 (54%)	
Venetoclax mono	1 (1%)	1 (2%)	0 (0%)	

*HOVON135/SAKK30/15 trial

Table 2: Patient characteristics

RESULTS II

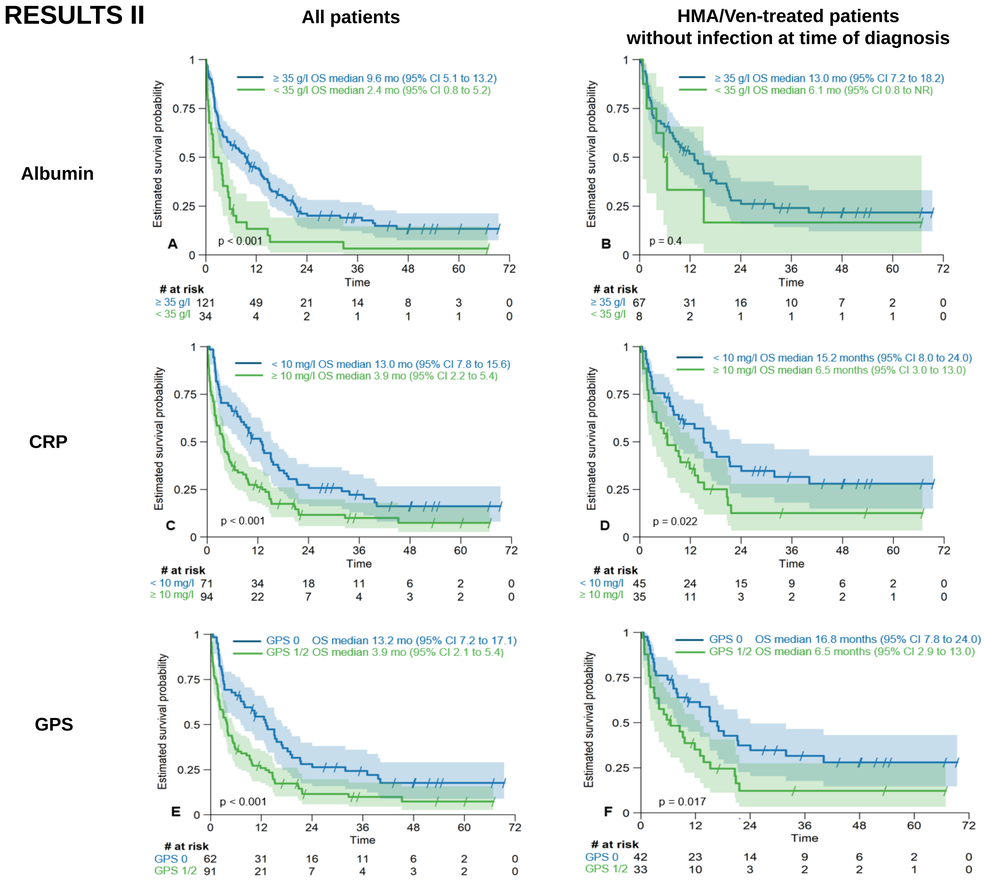

Figure 1: Kaplan Meier estimates of OS for the whole cohort (left) and for patients treated with HMA/Ven without infection at time of diagnosis (right) stratified by albumin (A and B), CRP (C and D) and GPS (E and F)

RESULTS III

Variable	Hazard Ratio	95% Confidence Intervall	p-value
GPS			
0	—	—	
1	1.71	1.15, 2.56	0.008
mPRS			
higher benefit	—	—	
intermediate benefit	1.43	0.82, 2.49	0.2
lower benefit	2.42	1.55, 3.77	<0.001

Table 3: Bivariable Cox regression model for OS by GPS and mPRS for the whole population (n=153).

Variable	Hazard Ratio	95% Confidence Intervall	p-value
GPS			
0	—	—	
1	2.35	1.27, 4.36	0.007
mPRS			
higher benefit	—	—	
intermediate benefit	1.59	0.72, 3.49	0.3
lower benefit	3.28	1.63, 6.64	<0.001

Table 4: Bivariable Cox regression model for OS by GPS and mPRS for patients without infection at diagnosis treated with HMA plus Ven (n=75).

CONCLUSION

According to this retrospective analysis, the GPS, which is easily available in daily clinical routine, provides prognostic information for elderly AML-patients independently from the molecular risk profile.

Taking CRP and albumin into account may help to identify an especially vulnerable population of AML-patients, even in the context of treatment with HMA+Ven as current standard of care.

Further analyses will include other risk scores ([modified] ELN2024, Beat-AML2024) and the CRP/albumin ratio.

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