

Conference Abstracts

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Predictors of Early Mortality After Induction Chemotherapy in Acute Myeloid Leukemia: Experience from a Latin American Cancer Center

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Abstract

Background

Early mortality, defined as death within 30 days of induction chemotherapy, remains a critical barrier to improved outcomes in acute myeloid leukemia (AML) in Latin America. We aimed to identify pre-treatment patient and disease related factors that predict early death in adults receiving intensive induction therapy at a major cancer center in Peru.

Methods

We conducted a retrospective cohort study of 325 adults (≥ 18 years) with newly diagnosed AML treated with intensive chemotherapy at the Instituto Nacional de Enfermedades Neoplásicas (INEN), Lima, Peru, from 2014 to 2019. Baseline clinical, laboratory, cytogenetic, and molecular data were collected from medical records. Early mortality was defined as death within 30 days of induction. Associations between baseline variables and early death were assessed using univariable and multivariable logistic and Cox regression models.

Results

Among 325 newly diagnosed AML patients, early mortality occurred in 79 (24.3%). The cohort was a median age of 43 years; patients experiencing early death were older ($p=0.03$). Comorbidities were more frequent among patients with early mortality (28% vs. 18%, $p=0.07$). Fifteen patients had ECOG 3–4 at diagnosis; 11 of these died within 30 days, demonstrating a strong association between poor performance status and early mortality ($p<0.001$). Infection prior to chemotherapy was markedly more common in the early mortality group (58% vs. 24%, $p<0.001$). Patients experiencing early mortality were more likely to have adverse ELN risk disease (21% vs. 9.5%), while favorable risk was less frequent (9.7% vs. 27%). Albumin levels were significantly lower among patients with early mortality. Complications during induction were frequent, with pneumonia being significantly more common in the early mortality cohort ($p<0.001$). Bloodstream infections were predominantly caused by Gram-negative organisms, with no significant differences in multidrug-resistant pathogens. In univariable

analysis, age ≥ 45 years was associated with increased 30-day mortality (HR: 2.02; 95% CI: 1.17–3.50; $p=0.011$). Poor performance status (ECOG 3–4) was the strongest predictor of early death in univariable (HR: 8.91; 95% CI: 3.73–21.27; $p<0.001$) and multivariable analyses (HR: 8.45; 95% CI: 3.37–21.19; $p<0.001$). Comorbidities remained independently associated (HR: 2.44; 95% CI: 1.36–4.39; $p=0.003$), as did adverse cytogenetic risk (HR: 3.17; 95% CI: 1.02–9.84; $p=0.045$) and active infection prior to chemotherapy (HR: 3.42; 95% CI: 1.96–5.98; $p<0.001$).

Table 1. Univariate and multivariate analysis for preclinical factors that are associated with early mortality

Characteristic	Univariate analysis		Multivariate analysis	
	HR	P value	HR	P value
Age (years)				
< 45	—		—	
≥ 45	2.04 (1.18 to 3.53)	0.010	—	
ECOG Performance Status				
≤ 2	—		—	
3–4	8.95 (3.75 to 21.37)	<0.001	8.23 (3.29 to 20.62)	<0.001
Comorbidities (any)				
No	—		—	
Yes	2.11 (1.19 to 3.76)	0.011	2.23 (1.23 to 4.04)	0.008
Risk status				
Favorable	—		—	
Intermediate	2.81 (1.11 to 7.11)	0.030	2.29 (0.89 to 5.87)	0.084
Adverse	3.46 (1.13 to 10.59)	0.029	3.25 (1.05 to 10.07)	0.041
Infection before chemotherapy				
No	—		—	
Yes	3.66 (2.12 to 6.33)	<0.001	3.44 (1.97 to 6.01)	<0.001
Albumin	0.95 (0.91 to 0.99)	0.017	—	

Abbreviations: CI, Confidence Interval; ECOG, Eastern Cooperative Oncology Group; HR, Hazard Ratio

Conclusion

Early mortality remains a substantial challenge in AML in resource-limited settings, even among relatively young patients. Poor performance status, comorbidities, adverse cytogenetics, and infection prior to therapy are strong, independent predictors of early death.

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