CLINICAL AND MOLECULAR PROFILES AND OUTCOMES IN IDH1- VERSUS IDH2-MUTATED AML: A SINGLE-CENTER COHORT STUDY

A. O'LEARY[1], K. ALBAKRI[1], J. ANDERSON[1], A. MOHAMEDI[1], A. SUNDERRAJ[1], A. PATEL[1], Y. MADANAT[1]

1. UT Southwestern Medical Center, Dallas, Texas

UT Southwestern Medical Center

INTRODUCTION

- Acute myeloid leukemia commonly harbors actionable IDH1 gene and IDH2 gene mutations.
- Targeted IDH inhibitors have expanded treatment options, but the impact of IDH isoform on clinical presentation, treatment selection, and survival in routine clinical practice remains incompletely defined.
- We evaluated clinicogenomic characteristics and outcomes of patients with IDH1- versus IDH2-mutated AML treated at a single tertiary center.

AIM

- Compare baseline clinical and molecular characteristics of IDH1- and IDH2-mutated AML.
- Evaluate frontline treatment patterns and remission rates according to treatment intensity.
- Compare overall survival (OS) and relapse-free survival (RFS) by IDH isoform and frontline treatment strategy.
- Assess the independent association between treatment intensity and OS after adjustment for hematopoietic cell transplantation (HCT).

METHODS

- Retrospective single-center study of adults with IDH-mutated AML.
- Compared baseline characteristics, treatment, response, OS, and RFS by IDH isoform and treatment intensity.
- Survival analyzed using Kaplan–Meier and Cox regression (adjusted for HCT).

CONCLUSIONS

- IDH1- and IDH2-mutated AML had similar remission rates and survival, although IDH2-AML presented with higher disease burden.
- Intensive frontline chemotherapy was associated with superior OS, particularly in IDH2-AML after HCT adjustment.
- Treatment intensity may be a stronger predictor of outcome than IDH isoform alone.

RESULTS

Table 1: Patient characteristics

Characteristic	N = 118	IDH1 N = 48 (41%)	IDH2 N = 70 (59%)	p-value
Age at diagnosis (years)	118	66 (59, 72)	65 (60, 73)	0.87
Prior_ChemoRT_Exposure	118			0.73
N		35 (73%)	49 (70%)	
Y		13 (27%)	21 (30%)	
ELN_2024_Risk	116			0.34
Adverse		5 (11%)	4 (5.8%)	
Favorable		31 (66%)	54 (78%)	
Intermediate		11 (23%)	11 (16%)	
WBC_x10^9_L	110	3 (1, 6)	5 (2, 20)	0.015
ANC_x10^9_L	105	0.4 (0.1, 0.9)	0.9 (0.3, 2.9)	0.015
Peripheral_Blasts_%	102	17 (2, 35)	19 (3, 59)	0.48
LDH_U_L	86	222 (173, 472)	344 (228, 576)	0.025
BM_Cellularity_% (average)	97	70 (42, 90)	90 (65, 95)	0.070
Blasts (%)	109	48 (27, 60)	48 (27, 75)	0.66
Allo HSCT (Y/N)	118			0.73
N		35 (73%)	49 (70%)	
Y		13 (27%)	21 (30%)	
Relapse at any point (Y/N) after IDH date	91			0.68
N		17 (45%)	26 (49%)	
Y		21 (55%)	27 (51%)	

Figure 1: OS IDH1 vs. IDH2-mutated

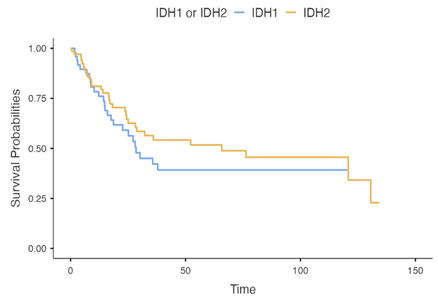


Figure 2: OS by frontline treatment strategy

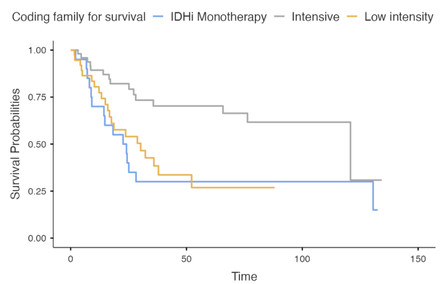


Figure 3: RFS IDH1 vs. IDH2-mutated

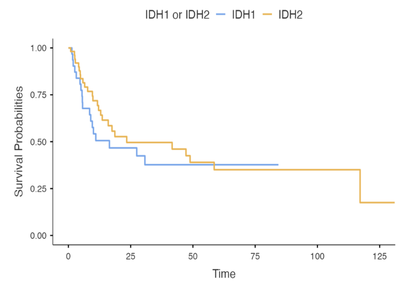


Figure 4: RFS by frontline treatment strategy

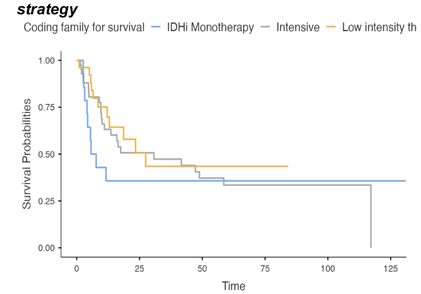
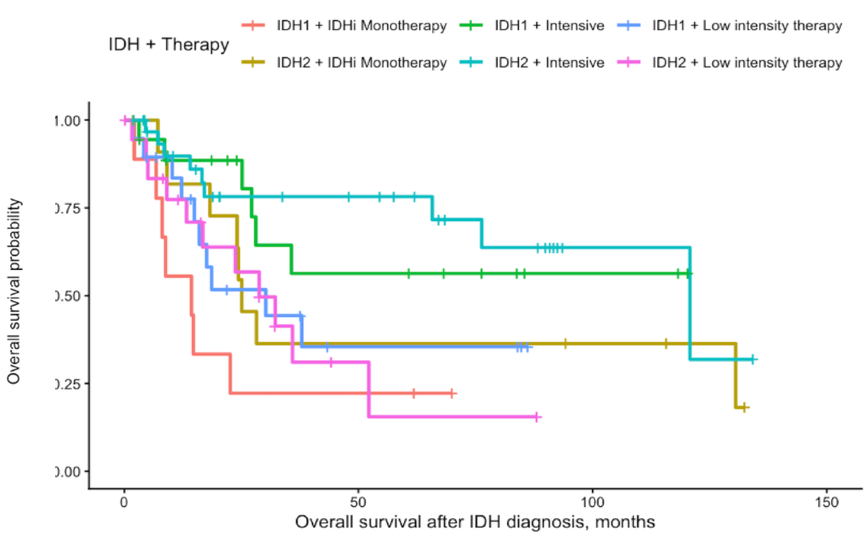


Figure 5: OS IDH1 vs. IDH2-mutated by treatment intensity



CONTACT INFORMATION

Ashlyn O'Leary, MD

UT Southwestern Medical Center, Dallas, TX, USA

ashlyn.oleary@utsouthwestern.edu