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ORAL ABSTRACTS

906.OUTCOMES RESEARCH-MYELOID MALIGNANCIES

Racial and Ethnic Differences in Acuity and Cumulative Frontline Organ Toxicity at the Time of Relapse in Pediatric Acute Myeloid Leukemia

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Introduction: Racial and ethnic disparities in survival outcomes exist in pediatric acute myeloid leukemia (AML), but the role of relapse and its potential contribution to outcome disparities is unknown. We sought to examine differences in relapse-free

survival (RFS) and clinical characteristics at the time of relapse by race and ethnicity using a real-world multi-institution cohort of pediatric AML patients.

Methods: A retrospective cohort including all pediatric (age <19 years) patients treated for AML from 2011-2019 at 13 institutions in the United States was established and is being actively expanded to include diagnoses through 2023. Data collection was accomplished by detailed chart abstraction performed by trained study personnel. We additionally merged resource utilization data from the Pediatric Health Information System to ascertain patient acuity and cumulative organ toxicity. Analyses were restricted to patients identified in the medical record as Hispanic, non-Hispanic Black (NHB), and non-Hispanic White (NHW) to specifically assess historically marginalized patient populations. Other racial/ethnic groups including multi-racial were excluded due to small numbers. Kaplan-Meier survival curves were generated for RFS by race/ethnicity. Adjusted Cox models compared the hazard of relapse by race/ethnicity. Models adjusted for age at diagnosis, sex, initial risk classification, weight category at diagnosis, and acuity at initial presentation. To assess misspecification of outcome, we performed sensitivity analyses restricted to relapses occurring within 1 year of diagnosis (early RFS). Among the patients who relapsed, descriptive frequencies for clinical and treatment characteristics were reported by race/ethnicity.

Results: A total of 437 pediatric patients with AML (28% Hispanic, 18% NHB, median follow-up time 3.0 years) were included in the analytic cohort. There were no statistically significant differences in RFS or early RFS by race/ethnicity (Figure 1). However, among relapsed patients, important qualitative differences were noted at the time of relapse (Table 1). Hispanic and NHB patients were older at relapse than NHW patients. Greater proportions of Hispanic and NHB patients (compared to NHW) experienced cardiovascular, respiratory, and renal failure during frontline therapy. Cumulative prevalence of organ failure in 2 or more systems since initial diagnosis was higher for both Hispanic (50%) and NHB (50%) patients compared to NHW patients (29%). Overweight/obesity at relapse was more prevalent among Hispanic (41%) and NHB (50%) compared to NHW (21%) patients. NHB patients were also more likely to present at relapse with higher acuity, defined as requiring ICU-level resources for 2 or more organ systems within 72 hours of admission, compared to NHW patients (75% vs. 57%).

Conclusions: Our data suggest a similar risk of relapse by race and ethnicity. However, differences in cumulative frontline organ toxicity and acuity of presentation may lead to differential treatment at the time of relapse and drive subsequent overall survival disparities for Hispanic and NHB patients with pediatric AML.

Future Directions: This was a planned interim analysis, and chart abstraction is ongoing to expand this cohort (anticipated N ~1000). We intend to pursue a series of formal mediation analyses regarding the role of relapse, cumulative organ toxicity during frontline treatment, and selection of salvage regimen on disparities in survival outcomes with the expanded cohort.

Disclosures Elgarten: *Allovir:* Other: one time advisory committee. **Fisher:** *Pfizer:* Research Funding; *Merck:* Research Funding; *Allovir:* Research Funding; *Astellas:* Other: Membership on Data safety monitoring board.

Figure 1.

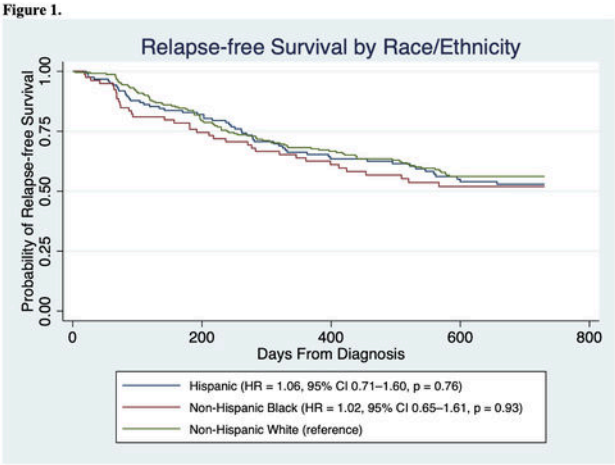

Table 1. Clinical and Treatment Characteristics of Pediatric AML Patients at Relapse

	Overall	Hispanic	Non-Hispanic Black	Non-Hispanic White	*P* value
	N=126	N=34	N=20	N=72	
At initial diagnosis and presentation					
Risk classification					0.42
Low	57.1%	53.0%	40.0%	63.9%	
Intermediate	2.4%	2.9%	0.0%	2.8%	
High	29.4%	35.3%	45.0%	22.2%	
Not risk stratified/Unknown	11.1%	8.8%	15.0%	11.1%	
Acuity					0.04
Lower acuity	95.2%	94.1%	85.0%	98.6%	
Higher acuity	4.8%	5.9%	15.0%	1.4%	
During frontline therapy					
Frontline bone marrow transplant					0.73
No	73.0%	70.6%	80.0%	72.2%	
Yes	27.0%	29.4%	20.0%	27.8%	
Significant cardiac toxicity[a]					0.35
No	58.7%	64.7%	45.0%	59.7%	
Yes	41.3%	35.3%	55.0%	40.3%	
Cardiovascular failure					0.10
No	57.9%	52.9%	40.0%	65.3%	
Yes	42.1%	47.1%	60.0%	34.7%	
Neurologic failure					0.47
No	98.4%	100.0%	100.0%	97.2%	
Yes	1.6%	0.0%	0.0%	2.8%	
Renal failure					0.07
No	74.6%	73.5%	55.0%	80.6%	
Yes	25.4%	26.5%	45.0%	19.4%	
Respiratory failure					0.08
No	67.5%	61.8%	50.0%	75.0%	
Yes	32.5%	38.2%	50.0%	25.0%	
Liver failure					0.71
No	67.5%	61.8%	70.0%	69.4%	
Yes	32.5%	38.2%	30.0%	30.6%	
Any organ system failure					0.08
0	31.7%	26.5%	25.0%	36.1%	
1	30.2%	23.5%	25.0%	34.7%	
2 or more	38.1%	50.0%	50.0%	29.2%	
At relapse					
Age (years)	8.0 (6.1)	9.7 (5.8)	11.8 (6.7)	6.5 (5.7)	0.005
Length of first remission (days)	250.4	334.2	242.8	194.6	0.13
Relative timing					0.83
Relapse <1 Year	64.3%	61.8%	70.0%	63.9%	
Relapse >/=1 Year	35.7%	38.2%	30.0%	36.1%	
Acuity					0.13
Lower acuity	42.9%	52.9%	25.0%	43.1%	
Higher acuity	57.1%	47.1%	75.0%	56.9%	
Weight category[b]					0.03
Healthy weight	45.2%	41.2%	30.0%	51.4%	
Obese	18.3%	26.5%	25.0%	12.5%	
Overweight	12.7%	14.7%	25.0%	8.3%	
Underweight	3.2%	8.8%	0.0%	1.4%	
Missing	20.6%	8.8%	20.0%	26.4%	

[a] Significant frontline cardiac toxicity defined as shortening fraction <28% or ejection fraction <55%; criteria consistent with therapy modification on AAML1031

[b] Body mass index (BMI) percentiles for age at diagnosis and gender were computed from reported weight and height based on 2000 Centers for Disease Control (CDC) growth chart data (patients aged 2 to 20 years) and the World Health Organization reference (patients aged <2 years) and were classified into weight categories as follows: obese (≥95th percentile), overweight (85th to <95th percentile), healthy weight (5th to <85th percentile), and underweight (<5th percentile).

Figure 1

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