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POSTER ABSTRACTS

906.OUTCOMES RESEARCH-MYELOID MALIGNANCIES

Socioeconomic Status Is a Mediator of Overall Survival in Acute Myeloid Leukemia (AML)

Cassandra Duarte, MD[1], Diana Abbott, PhD[2], Grace N Bosma, MS[3], Christine M. McMahon[3], Jonathan A Gutman, MD[2], Marc Schwartz, MD[4], Daniel Pollyea[2], Maria L Amaya, MDPhD[2]

[1] University of Colorado Cancer Center, Denver, CO
[2] University of Colorado, Aurora, CO
[3] Division of Hematology, University of Colorado School of Medicine, Aurora, CO
[4] Division of Hematology, University of Colorado, Aurora, CO

Introduction:
AML is a morbid disease with a five-year overall survival (OS) rate of 30.5%. Despite increasing treatment options and improved OS, inequities exist. Some studies cite a 3-year OS difference between Black and White AML patients (pts) at 34% versus 43% ($p < 0.001$) (Bhatnagar 2021). This study examines data from AML pts in community and academic centers across the United States to assess for differences in outcomes by demographic factors.
Methods:
This study used the nationwide Flatiron Health electronic health record derived de-identified database with a data cutoff date of June 30, 2022. Pts were over 18 years old with a diagnosis of AML were included. Pts with acute promyelocytic leukemia or therapy related AML were excluded. The primary outcome was OS defined as time between date of diagnosis and date of death or last follow up stratified by demographic factors of race, ethnicity, sex, and socioeconomic status (SES). Area-level SES is an index quintile based on an area-level measure providing insight into pts' neighborhood SES conditions with a score of 1 representing the lowest SES and 5 representing the highest (Guadamuz 2022). Secondary outcomes included first line (1L) treatment stratified by demographic factors.
Results:
3338 pts were included in the analysis. 59.8% of pts were age 65 or older, 55.9% were male, and 93.5% were non-Hispanic. 75.2% reported as White, 7.9% as Black or African American, 14.7% as other and 2.1% as Asian. Table 1 highlights key demographic features of the pts with European Leukemia Net (ELN) risk stratification.
With a median follow up of 3.33 years, the median OS for the population was 15.9 months (mos) (95% CI 15, 16.9). When broken down by race, median OS was 21.4mos for Asian pts (95% CI 12.6, 23), 18.4mos for Black pts (95% CI 15, 24), 15.4mos for other pts (95% CI 13.6, 18.2), and 16.1mos for White pts (95% CI 14.9, 17.1). These results were not statistically significant ($p = 0.67$). When stratified by age group, there was a marginally significant difference in OS with Black pts showing a decreased OS in the age group 18-40 years. Median OS for Hispanic pts was higher at 22.7mos (95% CI 17.4, 35.9) compared to non-Hispanic pts at 15.3mos (95% CI 14.4, 16.4) ($p = 0.0010$). Female sex was associated with improved OS at 17.7mos (95% CI 15.6, 19.3) versus 15mos for male (95% CI 13.8, 16.1) ($p < 0.0001$). Median OS by SES had improved OS for pts with SES status 4 or 5 at 17.2mos (95% CI 15.7, 18.6) compared to pts with SES 1 or 2 at 16.1mos (95% CI 14.1, 18.0) ($p = 0.03$) (Fig.1). The mediating effect of SES on race was explored using Cox regression analysis, multivariate models, mediation analysis, and multivariate logistic regression. Analysis indicated no significant mediating effect ($p = 0.3142$, $p = 0.1377$, $p = 0.3929$ for cde/nde, nie, and total effect respectively). 1L treatment analysis showed greater use of 7+3 in Black versus White pts (25% vs 21%) and greater use of hypomethylating agent (HMA) or HMA+venetoclax in White versus Black pts. Similar findings were seen in the Hispanic versus Non-Hispanic pts, with higher use of 7+3 in Hispanic pts (32.5% vs 21.5%). These findings will be further stratified by age group and ELN risk category. There were no significant differences in the use of 7+3, HMA or HMA+venetoclax based on SES category.
Discussion:
This is a population-based study of AML pts in academic and community centers. Prior studies demonstrated Black pts have worse OS versus White pts. Similarly, we saw a non-statistically significant trend of decreased OS in young Black pts compared to White pts, but no difference when comparing races when assessing patients with an age cut off of 65 years. Hispanic White pts had statistically significant improved OS versus non-Hispanic pts, a finding not noted previously. It is possible with novel

regimens such as HMA/venetoclax are responsible for improved outcomes, particularly in the elderly population, although this needs to be further explored. Molecular analysis could yield additional information on the effect of certain mutations and OS. Abraham et al (2022) demonstrated structural racism played a significant role in AML treatment outcomes in pts treated at Chicago academic centers. In our study, lower SES had a negative impact on OS, even when accounting for other factors. These findings are similar to a study by Rebechi et al (2023) and reveal the need for prospective research to mitigate structural barriers to care for AML pts.

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Table 1. Patient Demographics

Demographic Characteristic	Population N = 3338 N (%)	Asian Pts	Black Pts	White Pts	Other Pts	p-value	Hispanic/Latino	Non-Hispanic/Latino	p-value
Age at Diagnosis Median (years) Mean (years) Standard Deviation	68 64.79 15.17	59 59.05 15.04	61.5 58.91 16.19	69 65.61 14.66	68 64.62 15.47	**<0.0001**	59 57.43 17.10	69 65.54 14.79	**<0.0001**
Age Range >=65 years < 65 years	1996 (59.8%) 1342 (40.2%)	23 (39.0%) 36 (61.0%)	95 (41.7%) 133 (58.3%)	1391 (62.0%) 853 (38.0%)	263 (58.4%) 187 (41.6%)	**<0.0001**	66 (39.1%) 103 (60.9%)	1467 (61.6%) 915 (38.4%)	**<0.0001**
Age Categories 18 – 40 years 40 – 60 years >= 60 years	279 (8.4%) 708 (21.2%) 2346 (70.3%)	6 (10.2%) 25 (42.4%) 28 (47.5%)	36 (15.8%) 70 (32.0%) 119 (52.2%)	163 (7.3%) 444 (19.8%) 1634 (72.8%)	39 (8.7%) 100 (22.2%) 311 (69.1%)	**<0.0001**	31 (18.3%) 55 (32.5%) 83 (49.1%)	178 (7.5%) 481 (20.2%) 1719 (72.2%)	**<0.0001**
Sex Female Male	1643 (44.1%) 2078 (55.9%)	24 (40.7%) 35 (59.3%)	117 (51.3%) 111 (48.7%)	922 (41.1%) 1322 (58.9%)	191 (42.4%) 259 (57.6%)	0.0608	75 (44.4%) 94 (55.6%)	995 (41.8%) 1387 (58.2%)	0.5069
Race Asian Black or African American Hispanic or Latino White Other Race	71 (2.1%) 264 (7.9%) <5 (0.1%) 2511 (75.2%) 491 (14.7%)						<5 (0%) <5 (1.9%) <5 (1.3%) 68 (43.9%) 82 (52.9%)	48 (2.1%) 172 (7.4%) 0 (0%) 1886 (81.1%) 220 (9.5%)	**<0.0001**
Ethnicity Hispanic or Latino Non-Hispanic or Latino	187 (6.5%) 2684 (93.5%)	0 (0%) 48 (100%)	3 (1.7%) 172 (98.3%)	68 (3.5%) 1886 (96.5%)	82 (27.1%) 220 (72.9%)	**<0.0001**			
ECOG 0 1 2 3 4	579 (29.8%) 938 (48.3%) 341 (17.6%) 81 (4.2%) <5 (0.1%)	11 (30.6%) 20 (55.6%) <5 (8.3%) <5 (5.6%) 0 (0%)	40 (36.7%) 51 (46.8%) 14 (12.8%) <5 (2.8%) <5 (0.9%)	368 (27.9%) 649 (49.2%) 237 (18.0%) 64 4.9%) <5 (0.1%)	73 (29.0%) 123 (48.8%) 44 (17.5%) 10 (4.0%) <5 (0.8%)	0.2521	20 (25.3%) 40 (50.6%) 13 (16.5%) 5 (6.3%) <5 (1.3%)	409 (28.2%) 713 (49.2%) 258 (17.8%) 67 (4.6%) <5 (0.1%)	0.2269
SES Quintile 1 - Lowest SES 2 3 4 5 - Highest SES	481 (14.2%) 630 (18.6%) 765 (22.6%) 837 (24.7%) 673 (19.9%)	<10 (5.5%) <10 (16.4%) <10 (12.7%) 12 (21.8%) 24 (43.6%)	71 (34.1%) 40 (19.2%) 43 (20.7%) 36 (17.3%) 18 (8.7%)	243 (12.0%) 368 (18.1%) 472 (23.2%) 527 (25.9%) 422 (20.8%)	80 (20.0%) 71 (17.7%) 90 (22.4%) 98 (24.4%) 62 (15.5%)	**<0.0001**	46 (28.9%) 38 (23.9%) 35 (22.0%) 23 (14.5%) 17 (10.7%)	285 (13.3%) 375 (17.5%) 490 (22.8%) 562 (26.2%) 436 (20.3%)	**<0.0001**
European LeukemiaNet Risk Favorable Intermediate Adverse	606 (16.3%) 754 (20.3%) 2361 (63.5%	14 (23.7%) 12 (20.3%) 33 (55.9%)	48 (21.1%) 37 (16.2%) 143 (62.7%)	362 (16.1%) 496 (22.1%) 1386(61.8%)	87 (19.3%) 85 (18.9%) 278 (61.8%)	**0.0171**	41 (24.3%) 38 (22.5%) 90 (53.3%)	385 (16.2%) 505 (21.2%) 1492 (62.6%)	
1L Treatment azacitidine or decitabine venetoclax + azacytidine or decitabine cytarabine + daunorubicin or idarubicin None of these	643 (19.3%) 502 (15.0%) 676 (20.3%) 1517 (45.5%)	<10 (15.3%) <10 (3.4%) 13 (22.0%) 35 (59.3%)	33 (14.5%) 27 (11.8%) 57 (25.0%) 111 (48.7%)	445 (19.8%) 322 (14.3%) 471 (21.0%) 1006 (44.8%)	80 (17.8%) 90 (20.0%) 102 (22.7%) 178 (39.6%)	**< 0.0001**	23 (13.6%) 17 (10.1%) 55 (32.5%) 74 (43.8%)	498 (20.9%) 338 (14.2%) 511 (21.5%) 1035 (43.5%)	**0.0020**
Received allogenic HSCT Yes No	857 (25.7%) 2481 (74.3%)	14 (23.7%) 45 (76.3%)	49 (21.5%) 179 (78.5%)	618 (27.5%) 1626 (72.5%)	90 (20.0%) 360 (80.0%)	**0.0062**	47 (27.8%) 122 (72.2%)	619 (26.0%) 1763 (74.0%)	0.6019

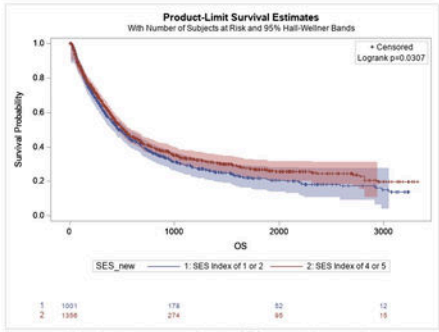

Figure 1. OS by Socioeconomic Status. SES 1 and 2 (blue line): 16.1 months, 95% CI: (14.1 months, 18.0 months). SES 4 and 5 (red line): 17.2 months, 95% CI: (15.7 months, 18.6 months). Comparison of SES 1 and 2 versus SES 4 and 5 is significant: p = 0.03.

Figure 1

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