Incidence of Cytogenetic Abnormalities in Myelodysplastic Syndrome in the African American Population: A Decade-Long Single-Center Real-World Experience

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Introduction

- Myelodysplastic syndrome (MDS) results from hematopoietic stem cell clonal mutations presenting as bone marrow (BM) dysplasia, ineffective hematopoiesis, and peripheral cytopenias.
- Cytogenetics plays a critical role in the prognosis and treatment of MDS.
- The incidence of cytogenetic abnormalities in MDS is 45% in the general population.
- The incidence of cytogenetic abnormalities in the African American (AA) population is not well established.
- **Aim**: To add to the cytogenetic profile of a minority population.

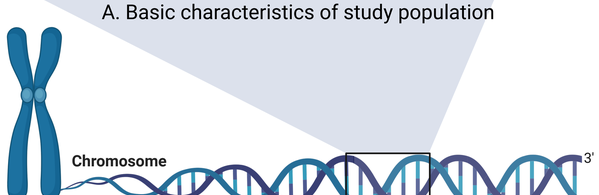
Method

- **Design:** We retrospectively reviewed records of all adult patients with MDS who presented to a cancer clinic between January 2012 and December 2023.
- **Setting:** The study was conducted in a community clinic setting in Brooklyn, New York.
- **Patients:** Adult AA patients with available cytogenetics were included in the study.
- **Outcome Measures:** We extracted demographic (age, ethnicity, and sex) and laboratory data (complete blood count, BM biopsy, and cytogenetic results). Data were analyzed and stratified into 5 risk categories: very low, low, intermediate, high, and very high, based on the revised International Prognostic Scoring System (IPSS-R) risk score.

Results

Characteristic	Value
Age (years)	
Mean ± Std. Deviation	75.8 ± 12.15
Median (range)	79 (51–95)
Gender (n, %)	
Male	12 (66.6%)
Female	6 (33.3%)
Hemoglobin (gm/dl)	
Mean ± Std. Deviation	10.166 ± 2.53
Absolute Neutrophil Count (×10^9/L)	
Mean ± Std. Deviation	1.51 ± 0.759
Platelet Count (×10^9/L)	
Mean ± Std. Deviation	114.72 ± 51.488
BM Blasts (n, %)	
<5%	15 (83.3%)
5%–9%	1 (5.5%)
10%–19%	2 (11.1%)
Karyotype	
Normal	14 (77%)
Abnormal	4 (22%)

A. Basic characteristics of study population



Results:

- Among the 48 patients identified, 18 met the inclusion criteria.
- CGs were abnormal in 22% of patients.
- Distribution in the IPSS-R risk categories :
  Very low: 38% Low: 44% Intermediate: 5%
  High: 0% Very high: 11%

Overall Cytogenetic Risk Category	Risk Score	No. of patients(%) in general population (n=2754)	No. of patients(%) in AA study population (n=18)
Very Good	0	81 (2.9 %)	0 (%)
Good	1	1809 (65.7 %)	17 (94%)
Intermediate	2	529 (19.2 %)	0 (%)
Poor	3	148 (5.4%)	0 (%)
Very Poor	4	187 (6.8 %)	1 (6%)

B. Population distribution according to cytogenetic risk category

Overall IPSS-R Risk Category	Risk Score	% of patients in the IPSS-R population	No. of patients (%) in AA study population (n=18)
Very Low	<=1.5	19 %	7 (38%)
Low	>1.5 - 3	38 %	8 (44%)
Intermediate	>3 - 4.5	20 %	1 (5%)
High	>4.5 - 6	13 %	0 (%)
Very high	>6	10%	2 (11%)

C. Population distribution according to IPSS-R risk category

Conclusion

Our data adds to the MDS cytogenetic profile of a minority population and suggests that abnormal cytogenetics in the AA population are not more frequent than in the general population. We need further studies with a larger sample size.

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