SURVIVAL OUTCOMES AND RACIAL DISPARITIES IN ADOLESCENT AND YOUNG ADULT CLASSIC PHILADELPHIA-NEGATIVE MYELOPROLIFERATIVE NEOPLASMS: A SEER ANALYSIS, 2000–2023

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INTRODUCTION

Adolescent and young adult (AYA) patients with classic myeloproliferative neoplasms are often perceived to have favorable long-term outcomes; however, population-level data evaluating subtype-specific survival and racial disparities remain limited.

AIM

To evaluate subtype-specific survival outcomes and racial disparities among AYA patients with classic Philadelphia-negative myeloproliferative neoplasms.

METHOD

We performed a retrospective cohort study using the Surveillance, Epidemiology, and End Results database (2000–2023). Patients aged 15–39 years with classic Philadelphia-negative myeloproliferative neoplasms — polycythemia vera (PV), essential thrombocythemia (ET), and primary myelofibrosis (PMF) — were identified using ICD-O-3 histology codes. Overall survival (OS) was estimated using Kaplan–Meier methods and compared using log-rank testing. Multivariable Cox proportional hazards models adjusted for subtype, age, sex, and race/ethnicity.

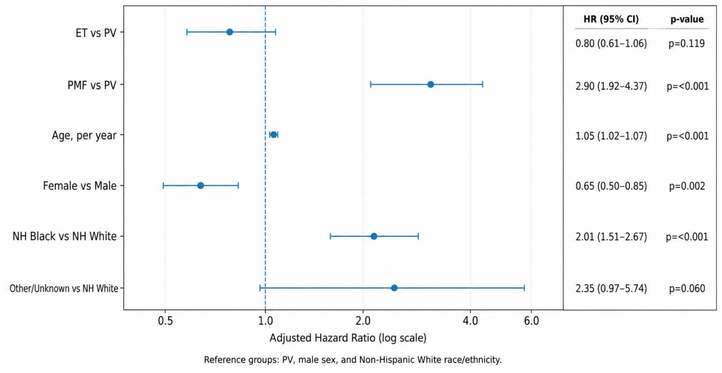
RESULTS

Table 1. Baseline Characteristics of the AYA Classic MPN Cohort

Characteristic	Overall N=3,195	PV n=1,170	ET n=1,894	PMF n=131
Age, median (IQR), years	33 (27–37)	33 (27–37)	33 (27–36)	35 (30–38)
Sex, n (%)				
Male	1,527 (47.8)	810 (69.2)	655 (34.6)	62 (47.3)
Female	1,668 (52.2)	360 (30.8)	1,239 (65.4)	69 (52.7)
Race/ethnicity, n (%)				
Non-Hispanic White	2,554 (79.9)	1,010 (86.3)	1,444 (76.2)	100 (76.3)
Non-Hispanic Black	603 (18.9)	145 (12.4)	428 (22.6)	30 (22.9)
Other/Unknown	38 (1.2)	15 (1.3)	22 (1.2)	1 (0.8)

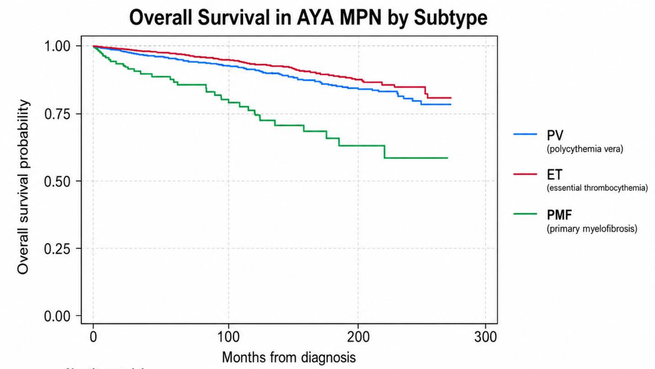
AYA: adolescent and young adult; PV: polycythemia vera; ET: essential thrombocythemia; PMF: primary myelofibrosis.

Figure 3. Multivariable Cox Regression for Overall Survival



Reference groups: PV, male sex, and Non-Hispanic White race/ethnicity.

Overall Survival in AYA MPN by Subtype



Number at risk	0	100	200	300
PV	1170	654	258	0
ET	1894	818	249	0
PMF	131	57	20	0

PV, polycythemia vera; ET, essential thrombocythemia; PMF, primary myelofibrosis.

Among 3,195 AYA patients with classic Philadelphia-negative MPN, 1,170 had PV, 1,894 ET, and 131 PMF. Median age was 33 years; 52.2% were female and 18.9% were Non-Hispanic Black. Ten-year OS was 92.0% for PV, 93.8% for ET, and 76.4% for PMF (p<0.001). PMF was associated with inferior OS versus PV (HR 2.90, 95% CI 1.92–4.37), while ET had similar survival (HR 0.80, 95% CI 0.61–1.06). Non-Hispanic Black patients had approximately twofold higher mortality than Non-Hispanic White patients (HR 2.01, 95% CI 1.51–2.67).

CONCLUSIONS

In this contemporary population-based analysis of adolescent and young adult patients with classic myeloproliferative neoplasms, survival was generally favorable but varied significantly by subtype, with primary myelofibrosis conferring substantially worse outcomes. Non-Hispanic Black patients experienced approximately twofold higher adjusted mortality, highlighting persistent racial disparities in young patients with myeloproliferative neoplasms.

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