Racial Differences in Risk and Latency of Secondary Hematologic Malignancies Following Multiple Myeloma: A Population Based Study

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INTRODUCTION

Multiple myeloma (MM) is the second most common hematologic malignancy in the United States, with a disproportionately higher incidence and mortality among Black patients compared to White patients.
MM survivors face an elevated risk of developing secondary hematologic malignancies (SHMs), including leukemias and lymphomas, due to the immunosuppressive effects of the disease itself and its treatments.

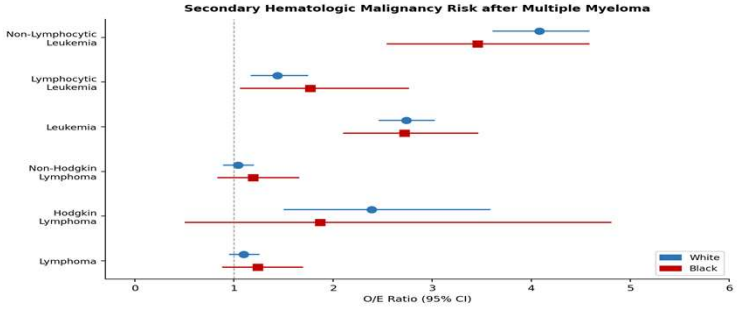
AIM

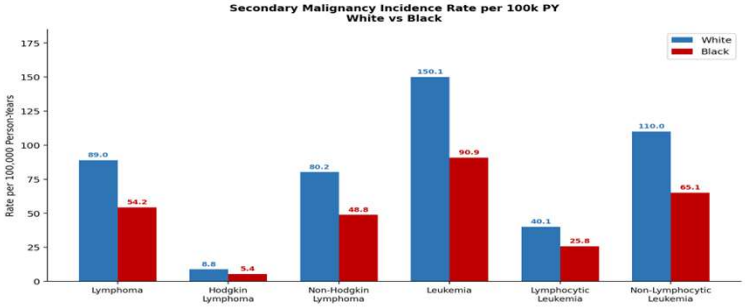
To characterize racial differences in the risk and latency of secondary hematologic malignancies — specifically lymphoma and leukemia subtypes — following a diagnosis of multiple myeloma.

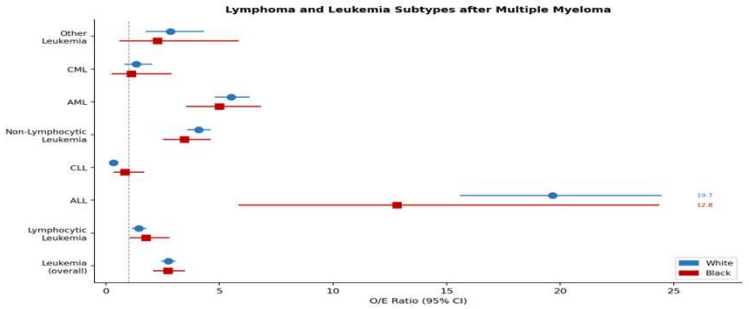
Specifically, we compared standardized incidence ratios (O/E ratios with 95% confidence intervals), incidence rates per 100,000 person-years, and time-to-SHM (latency) between non-Hispanic White and Black MM survivors using a large, population-based national registry cohort.

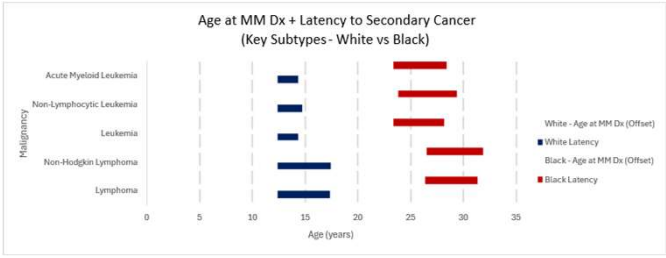
METHOD

Data source: SEER Research Data, 17 Registries; Multiple Primary-Standardized Incidence Ratio (MP-SIR) sessions (2000–2019).
Cohort: 59,368 non-Hispanic White and 16,799 Black male and female patients diagnosed with multiple myeloma.
Analysis: Observed-to-expected (O/E) ratios with 95% confidence intervals were computed for combined and subtype-specific secondary hematologic malignancies (Hodgkin lymphoma, Non-Hodgkin lymphoma, lymphocytic leukemia, non-lymphocytic leukemia, AML, ALL, CLL, CML).
Incidence rates per 100,000 person-years were calculated for each malignancy category by race.
Latency was defined as mean age at SHM diagnosis minus mean age at MM diagnosis. Statistical significance required a 95% CI excluding 1.0.









CONCLUSIONS

Black and White MM survivors share substantially elevated risks of secondary leukemias, particularly acute myeloid leukemia (AML; White O/E 5.52, Black O/E 4.99) and acute lymphocytic leukemia (ALL; White O/E 19.67, Black O/E 12.82).

Despite being diagnosed with MM at a younger mean age (64.1 vs. 67.4 years), Black survivors develop secondary leukemias 2–3 years later than White survivors (latency: 4.79 vs. 1.97 years for overall leukemia), suggesting biologic, treatment-exposure, or post-MM surveillance differences.

Lymphoma risk was modestly elevated without statistical significance in either group, while Hodgkin lymphoma risk was significantly elevated only among White patients (O/E 2.39).
These findings support extended hematologic monitoring for all MM survivors and underscore the need for equity-focused survivorship strategies and prospective study of post-SHM outcomes.

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