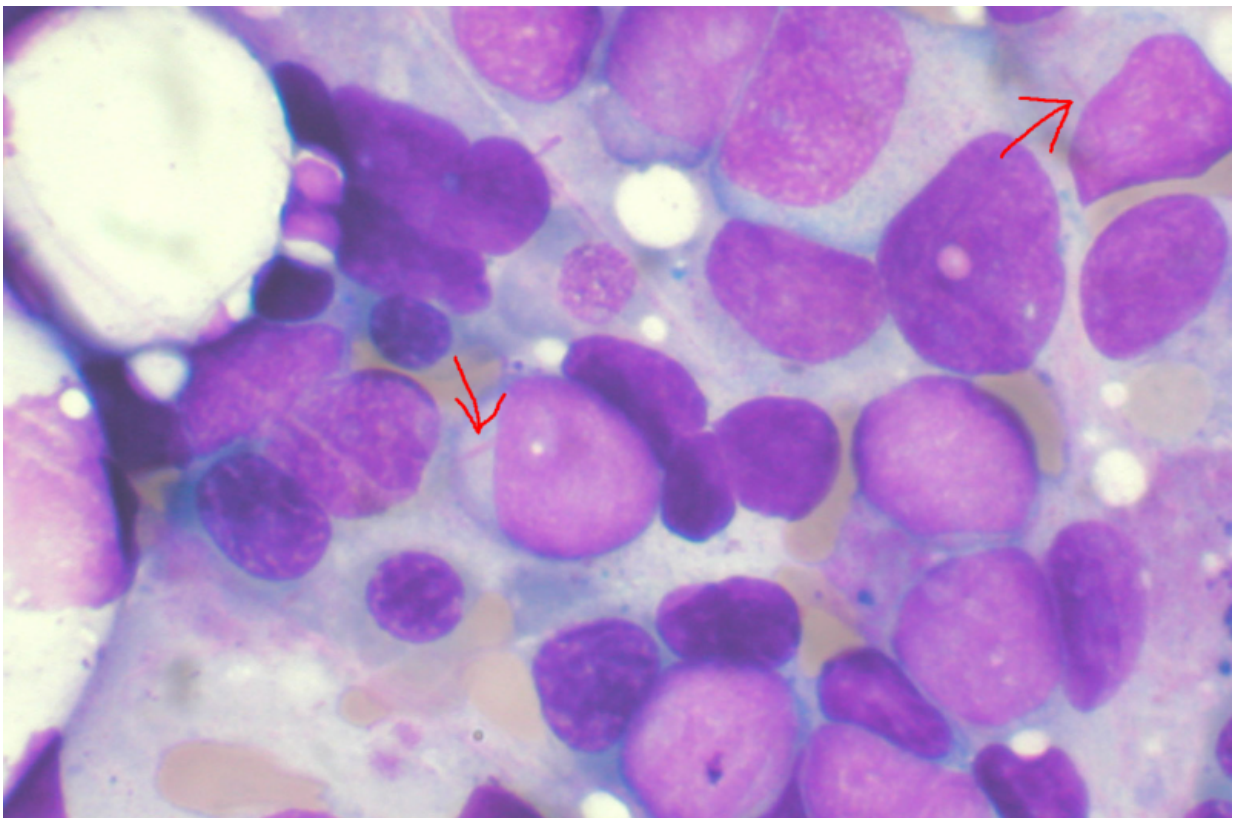


Young Black patients with AML face significantly worse outcomes than white patients of the same age

July 5 2022



Bone marrow aspirate showing acute myeloid leukemia. Several blasts have Auer rods. Credit: Wikipedia

New research published today in *Blood Advances* finds that young adult

Black patients with acute myeloid leukemia (AML), an aggressive and fast-growing form of blood cancer, were five times more likely than comparable white patients to die within 30 days of beginning treatment and twice as likely to die within five years, despite receiving similar state-of-the-art treatment.

"To our knowledge, this is the first study to examine how molecular genetic alterations contribute to outcomes in young Black people with AML compared with their white counterparts," said study author Karilyn Larkin, MD, a hematologist with The Ohio State University Comprehensive Cancer Center—Arthur G. James Cancer Hospital and Richard J. Solove Research Institute, and lead author of the study.

"We found that among young Black and white patients who received similar intensive therapy on [clinical trials](#), outcomes were dramatically inferior for Black patients compared with white patients—and this disparity occurred predominantly among patients aged 18 to 29 years."

AML is a cancer of the blood and bone marrow that often progresses very quickly. Most people receive their diagnosis within a few weeks after developing symptoms. Doctors traditionally advise most of their patients to start chemotherapy immediately, often within days of diagnosis.

Decades of research have also generated a body of knowledge about the influence of many acquired genetic variants—changes in structural chromosomes as well as mutations in [specific genes](#)—on the risk for relapse and death in patients with AML, Dr. Larkin said. However, most of the data come from patients of European ancestry. Because Black patients continue to be underrepresented in cancer clinical trials, there remain critical gaps in knowledge. Understanding how these disease-specific genetic variants, which are acquired during a lifetime, differ between patients can help doctors identify effective treatment options on

an individual or population basis.

The study also identifies clear differences in pretreatment molecular genetic profiles between young Black and white Americans with AML that may contribute to these widely varying outcomes and urgently need further study. The study did not address how structural racism and [health care disparities](#) may contribute to different outcomes among Black patients with AML.

"From a genetic perspective, we are underserving these patients, on top of all of the other [health care](#) inequities this historically underserved population faces," Dr. Larkin said.

For this study, Dr. Larkin and her colleagues analyzed data for 566 white and 89 Black patients between the ages of 18 and 39 with newly diagnosed AML who were treated in clinical trials run by the National Cancer Institute–supported research group (now known as the Alliance) between 1983 and 2016. The proportions of Black patients enrolled closely matched that of the general U.S. population, Dr. Larkin explained. The researchers also performed cytogenetic and molecular analyses of bone marrow and blood cell specimens that were collected from the patients before they were treated and after achieving remission. Samples were then stored for future research use.

They found that, among all the Black participants, 11% died within 30 days of beginning treatment, compared with 2% of white participants. Five-year survival was 32% for Black patients compared with 46% for white patients. Among Black patients between the ages of 18 and 29, the rate of early death was 16%, compared with only 3% for white patients in the same age group. Black patients in this age group survived for a median of just 1.3 years compared with a median of 10.2 years for white patients aged 18 to 29. By contrast, among patients in the 30 to 39 age group there were no significant differences in survival between Black

and white participants.

Among people with a type of AML known as core-binding factor AML, Black patients had a higher rate of early death (12% vs 3%) and shorter five-year survival (54% vs 70%) compared with [white patients](#). The researchers could not identify any obvious clinical differences in pretreatment characteristics between the two groups to explain the Black patients' higher rate of early death.

Explanations for the high rates of early death among Black people with AML may include treatment delays or suboptimal care, which may reflect historical cultural biases and structural racism, other existing [health conditions](#) or more aggressive disease, Dr. Larkin said.

"Our findings support the need for additional prospective studies of Black young adult patients with AML to identify the reasons driving poor outcomes, as well as for heightened monitoring of individual Black patients being treated for AML today," she said. "They also raise the question of why these young patients, who we would assume are healthy enough to tolerate intensive therapy, don't survive."

Although the answers are beyond the scope of this study, Dr. Larkin says it could be related to more advanced disease at presentation; an imbalance of other medical conditions that could potentially affect tolerability of intense chemotherapy among our patients; increased susceptibility to negative effects of chemotherapy; or implicit bias affecting the care of these patients, and further study is needed.

A limitation of the study is a small number of records that omitted information about patient demographics and causes of early death precluded additional analysis that might have helped to explain the health outcomes inequities identified. Further study is needed to investigate the other social, environmental, and economic factors, aside

from genetic differences, that may contribute to poorer outcomes among Black patients with AML.

More information: Karilyn Larkin et al, High early death rates, treatment resistance, and short survival of Black adolescents and young adults with AML, *Blood Advances* (2022). [DOI: 10.1182/bloodadvances.2022007544](https://doi.org/10.1182/bloodadvances.2022007544)

Provided by American Society of Hematology

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