Medical Xpress

Diabetes may accelerate blood cancer growth, yet survival outcomes differ by race

September 29 2023

Credit: Unsplash/CC0 Public Domain

Patients with multiple myeloma (a blood cancer of plasma cells in the bone marrow) who also have diabetes have a reduced overall survival when compared to those without diabetes. But in a subgroup analysis,

this difference in survival due to diabetes was seen in white patients but not in Black patients, according to a study published today in *Blood Advances*.

According to the Centers for Disease Control and Prevention, diabetes affects 13% of the U.S. population, and this prevalence is growing rapidly. Multiple myeloma is the second most common blood cancer in the U.S. and disproportionately affects non-Hispanic Black adults, in whom it is the most common blood cancer.

While investigators have long been aware of the increased risk of multiple myeloma in patients with diabetes, this is the first study to examine racial disparities in survival rates among those living with these comorbid conditions.

"We knew from prior studies that patients with multiple myeloma and diabetes have lower survival rates," explained Urvi Shah, MD, a multiple myeloma specialist at Memorial Sloan Kettering Cancer Center. "But what we did not know is how these outcomes differ between races. Diabetes is much more common in Black individuals versus white individuals, and we wanted to understand whether this difference may play a role in health outcomes among patients with both conditions."

Researchers conducted a retrospective study, collecting data from electronic health care records of 5,383 patients with multiple myeloma from two academic medical centers: Memorial Sloan Kettering Cancer Center and Icahn School of Medicine at Mount Sinai. Fifteen percent of patients included had a diabetes diagnosis (12% of white and 25% of Black patients).

Across the board, Dr. Shah and colleagues observed that among patients with myeloma, those with diabetes had poorer survival rates than those without. When analyzing results by race, however, they found that while

white patients with myeloma and diabetes had lower survival rates than those without diabetes, they did not observe this finding among Black patients.

"What we did not expect to see here was that diabetes was actually associated with worse survival outcomes among white individuals with myeloma, but not Black individuals," said Dr. Shah.

Dr. Shah added that generally, one's risk of developing diabetes increases with age. Study findings also show that overall survival decreased with age. Notably, however, in this cohort, diabetes was 50% more prevalent among Black patients 45-60 years old than white patients over 60 years old. Younger patients may tolerate multiple myeloma treatments better than older individuals, and these differences could explain some of the racial differences investigators observed in survival outcomes.

When investigating the mechanisms behind these findings, Dr. Shah and colleagues observed that in genetically engineered mouse models, multiple myeloma tumors grew more rapidly in non-obese diabetic mice than in non-diabetic controls.

After studying the biological mechanisms underlying tumor growth in these mice, researchers found that an insulin-related signal was overactivated in the diabetic mice, leading them to believe that higher insulin levels associated with diabetes may accelerate cancer growth.

"In my own practice, I work with many patients with both multiple myeloma and diabetes. And usually treating multiple myeloma involves many rounds of chemotherapy," said Dr. Shah. "But this study suggests that we may also improve patient outcomes further by treating diabetes at the same time."

Of note, this study was retrospective, and its findings do not account for how the quality of care patients with diabetes receive may impact survival outcomes, something Dr. Shah strives to better understand with future research. Further limitations include that race was self-reported and limited to the academic centers the patients included were referred to for care.

Going forward, Dr. Shah and colleagues aim to identify therapies that stop both the development of multiple myeloma and the overactive insulin signaling pathway they believe may be prevalent in patients with multiple myeloma and diabetes. Dr. Shah is also investigating how modifiable risk factors like the microbiome and one's diet can be altered to improve cancer outcomes.

"While drugs are important, as oncologists, we need to also look at comorbidities and modifiable risk factors to improve patient survival outcomes. Therapies and lifestyle changes can go hand in hand," Dr. Shah emphasized.

More information: Urvi A Shah et al, Prevalence and impact of diabetes on survival of patients with multiple myeloma in different racial groups, *Blood Advances* (2023). DOI: 10.1182/bloodadvances.2023010815 , doi.org/10.1182/bloodadvances.2023010815

Provided by American Society of Hematology