Teens and Young Adults With Lifelong HIV Face Higher Cancer Risk

Early and sustained antiretroviral treatment could help reduce the risk.

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Adolescents and young adults who acquire HIV around the time of birth are 13 times more likely to develop cancer and nine times more likely to die of any cause, according to research presented at the 22nd International AIDS Conference (AIDS 2018) last week in Amsterdam. The risk was linked to the nadir, or lowest-ever CD4 T-cell count and detectable viral load.

“Most youth with perinatally acquired HIV and a malignancy had a low nadir CD4 count and many years of sustained HIV viremia. It is hoped that early, sustained suppressive antiretroviral therapy will reduce the excess risk of malignancy in this cohort,” the researchers concluded.

Prior studies have shown that people living with HIV have a higher risk of developing several types of cancer. Although AIDS-defining cancers such as Kaposi sarcoma and non–Hodgkin lymphoma (NHL), which are linked to advanced immune suppression, have declined dramatically since the advent of effective antiretroviral therapy, even HIV-positive people with well-preserved or restored immune function remain at elevated risk for certain cancers as they age.

However, cancer rates among young people who have lived with HIV for their entire life have not been well studied.

Srishti Chhabra, MBBS, of Imperial College London, and colleagues looked at the incidence of cancer and the all-cause mortality rate for youth with perinatally acquired HIV infection, comparing it with rates for the U.K. general population of the same age.

This retrospective analysis included 290 adolescents and young adults ages 10 to 24 who received care at Imperial College London between January 2004 and December 2017. They were followed from age 10 (or whenever they joined the study) through age 25. During this time, 14 transferred to other care and two were lost to follow-up.

Eight young people (2.8 percent) were diagnosed with cancer during follow-up. The median age at the time of cancer diagnosis was 19. Seven of those diagnosed with cancer were boys or young men and six were Black or African.

The incidence rate for all cancers together was 3.0 per 1,000 person-years. Compared with the rate of 0.2 per 1,000 person-years in the general population of the same age, this represents a 12.9-fold excess risk.

The increased cancer risk was largely driven by lymphoma, Chhabra said. Six participants developed lymphoma, including three with NHL and three with Hodgkin lymphoma. The NHL rate was 69 times higher than that of the general population, while the Hodgkin lymphoma rate was 33 times higher. Four of the lymphoma cases were diagnosed at advanced stages.

In addition, one participant developed hepatocellular carcinoma (HCC), a type of primary liver cancer often associated with hepatitis B or C, and one had gastrointestinal adenocarcinoma.

The median CD4 count at the time of cancer diagnosis was 453 cells/mm^3. The median CD4 nadir was much lower, at 220. However, three people developed cancer with a CD4 count above 500, often considered the threshold for normal immune function.

Four of the eight adolescents and young adults with cancer had a detectable HIV viral load (below 50 copies per milliliter) at the time of cancer diagnosis. The group had had unsuppressed viral load for a median of 15 years. Chhabra said that all participants had effective antiretroviral regimens available and HIV care is free in the United Kingdom, but most had a longstanding history of poor treatment adherence.

Six participants (2.1 percent) died during follow-up, at a median age of 17. The overall mortality rate for the HIV-positive young people was 2.3 per 1,000 person-years, or 9.4 times higher than the 0.2 per 1,000 person-years rate for the general population. Half of them died of cancer, two died of HIV/AIDS related to poor treatment adherence and another died of cryptococcal meningitis, an opportunistic infection.

Looking more closely at outcomes, five of the youth were in remission from cancer, for a median duration of about a year and a half. One experienced lymphoma recurrence twice, after chemotherapy and after an autologous stem cell transplant, but was in remission after receiving a maternal bone marrow transplant. One person with B-cell NHL died at age 13 and the person with gastrointestinal cancer died at age 15. The young adult with HCC had metastatic cancer spread beyond the liver and died at age 20, despite having HIV and hepatitis B virus suppressed for more than a decade.

Speaking from the audience, one of the study co-investigators said some of the participants had been unable to receive cancer treatment in the early years of the study because of their HIV, but this had changed with the advent of modern antiretroviral therapy.

Considering the mechanisms that might drive increased cancer risk in people with perinatal HIV infection, Chhabra suggested that lifelong HIV-related inflammation—especially among those with unsuppressed virus—might increase the risk of developing malignancies.

She added that medication adherence can be a big challenge for HIV-positive adolescents and

young adults at a time of physical, social and psychological change, and she recommended more support for young people living long-term with HIV.

Click here to read the study abstract.

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