PrEP Use May Stunt Bone Growth in Young Men

After losing bone density during a year on PrEP, young men recouped their losses a year later but didn't catch up with norms.

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Truvada (tenofovir/emtricitabine) as pre-exposure prophylaxis (PrEP) may stunt bone growth among young men, the National AIDS Treatment Advocacy Project reports. Even though they may regain bone mineral density lost while taking PrEP, young men who have not yet reached peak bone mass may miss out on key periods of bone development.

An initial small drop in bone mineral density is a common side effect of PrEP, but studies have shown this loss is reversible upon stopping Truvada. (Research has not shown, however, if bone loss coming from very long-term use of PrEP is reversible.) Bone mineral density typically peaks during individuals' late teens and twenties. That peak level helps predict future fracture risk.

Researchers in the ATN 110 study recruited 200 HIV-negative 18- to 22-year-old men who have sex with men (MSM) in the United States who were at high risk of contracting HIV. The men, who had a median age of 20, were given PrEP for 48 weeks.

An initial report on bone growth among the participants was given at the 15th European AIDS Conference and the 17th International Workshop on Comorbidities and Adverse Reactions in HIV in 2015. An update was presented at the 21st International AIDS Conference in Durban, South Africa (AIDS 2016).

Findings from further follow-up of the young men were recently presented at the 2016 edition of the comorbidities workshop in New York City.

In addition to examining the young men's spine, hip and total body bone mineral density, the researchers looked at what's known as a Z score, which compares bone mineral density with a norm established according to age, sex and race.

The participants had their bone mineral density tested by DXA scans at the start of the study and at weeks 24 and 48. On average, the participants started the study with below-normal bone mineral density in the spine, hip and total body.

By week 48, the men's average bone mineral density dropped by 1 percent in the hip and 0.6

percent in the whole body and remained constant in the spine. Blood tests showed a correlation between these declines and adherence to the daily Truvada regimen.

Then, 135 men who had the week 48 DXA scan were considered for an extension phase of the study. A total of 102 of them (76 percent) met the criteria for entry based on their bone mineral density or kidney tests. Six men who contracted HIV were excluded from this group, and 16 men who kept taking PrEP through other physicians were analyzed separately.

Those six infections meant that the study group had a very high infection rate of 7.2 percent per year.

After excluding men lost to follow-up, the final analysis included 72 men who had at least one DXA scan conducted during the 48 weeks after stopping PrEP. Among this group, bone mineral density dropped by an average 0.2 percent in the spine (this shift was not statistically significant, meaning it may have occurred by chance), 1.4 percent in the hip and 0.6 percent in the whole body. During the 48 weeks after stopping PrEP, these men's bone mineral density rose 1.1 percent in the spine, 1 percent in the hip and 0.6 percent in the whole body.

These shifts meant that after 48 weeks on PrEP and 48 weeks off, the men saw no net change in their bone mineral density (in other words, they regained the density they lost). However, according to their Z scores, their bone mineral density dropped 0.18 percent in the spine and 0.08 percent in the whole body and did not change in the hip.

The researchers believe that the participants experienced some stunted bone growth, which is particularly worrisome for young men who already had below-normal bone mineral density before taking Truvada.

To read the NATAP report, click here.
