Low CD4 Counts Increase Fracture Risk in HIV

April 28, 2011

HIV-positive people who have low CD4 counts are at much higher risk of fragility fractures than people with higher CD4 counts, according to a study published online April 23 in the *Journal of Acquired Immune Deficiency Syndromes*.

An increasing number of studies have documented that low bone mineral density is occurring in HIV-positive people at greater rates and at younger ages than in their HIV-negative counterparts. One of the reasons given for these increased rates is the fact that people with HIV are often more likely to have a variety of risk factors for bone problems—they are more likely to smoke, to be underweight and to have taken corticosteroids and other medications that reduce bone mineral density. They are also more likely to take antiretroviral (ARV) drugs that are known to affect bones, such as tenofovir (found in Viread, Truvada and Atripla). Studies have found, however, that HIV increases the risk for bone abnormalities even in the absence of other risk factors.

One of the consequences of low bone density is the increased risk for bone fractures, especially from falls that don't generally cause fractures in people with healthier bones—a type of fracture called a fragility fracture. Though some studies have suggested that people with HIV might be at higher risk for fragility fractures, the specific contribution of HIV or HIV-related factors remains uncertain.

To explore this, Michelle Yong, MPH, from the Alfred Hospital in Melbourne, and her colleagues examined the medical records of 2,424 HIV-positive people who received care at the Alfred Hospital between January 1998 and June 2009. In all, Young's team found that there were 71 fragility fractures in 61 study participants over this time.

The average age of those with fractures was 50, but well over half were younger than 50 and fully 20 percent were younger than 39, which is unusually young for a fragility fracture in HIV-negative people. The vast majority of the participants were white males. Eighty-eight percent had a previous diagnosis of low bone mineral density before the time of their fracture: 32 percent with osteopenia—a milder form of bone loss—and 56 percent with the more severe osteoporosis.

After accounting for other factors, such as weight, age and race, Yong and her colleagues found that having a CD4 count under 200 increased the risk of a fragility fracture nearly five-fold. The two other prominent risk factors were use of corticosteroids and the use of anti-epileptic

medications. Contrary to previous studies, being underweight was not a risk factor for fragility fractures, nor was the use of ARV drugs.

Though the study has certain limitations—the study would be stronger if it preselected a group of people and followed them over time rather than simply looking backward at fractures that already occurred—it is the largest study of its kind to document fragility fractures in people with HIV. The study is also the largest to document an increased risk for such fractures in those with low CD4 cells.
