Bone Fracture Risk Higher Among People Living With HIV

February 25, 2010 By Tim Horn

People living with HIV face a higher risk of bone fractures than people of similar ages in the general population, according to data from the U.S. Centers for Disease Control and Prevention's (CDC's) HIV Outpatient Study (HOPS) presented Thursday, February 18, at the 17th Conference on Retroviruses and Opportunistic Infections (CROI) in San Francisco.

Though there has been no shortage of data indicating that people living with HIV are more likely to have decreased bone mineral density (BMD)—osteopenia and, when more serious, osteoporosis—compared with HIV-negative people of similar ages, it hasn't been clear that HIV-positive people with bone loss are any more likely to experience serious fractures. Considering that HIV-positive people with osteoporosis are generally younger than those with bone mineral loss in the general population, they are generally believed to be less prone to accidents—which often stem from reduced strength, balance problems and poor dexterity—than elderly adults.

Unfortunately, new data reported by Christine Dao, MPH, of the CDC and her colleagues indicate that people living with HIV do, in fact, face a higher risk of bone fractures, notably at "fragility" sites—the spine (vertebrae), the hip and the wrist—than age-matched individuals in the general population.

HOPS has been following HIV-positive individuals since 1993, making it one of the longest and most comprehensive cohorts of people living with HIV being conducted in the United States. Ten sites in eight U.S. cities are participating in the study.

Dao's team compared fracture rates in the HOPS with fracture rates in the adult general population, drawing upon data from the National Hospital Discharge Survey (hospitalized patients) and the National Hospital Ambulatory Medicare Care Survey (outpatients).

Of the 5,826 patients in the HOPS cohort—79 percent of whom were male, their average age was 40, and 73 percent were receiving antiretroviral therapy—a total of 236 fractures were documented between 2000 and 2008. HOPS volunteers who experienced fractures were on average 45 years old at the time, 51 percent of whom were on ARV therapy.

Dao explained that this translated in a higher fracture rate among HOPS participants, compared with the general population, among adults 25 to 54 years old.

She also said that rates of fractures requiring hospitalization have been increasing among HOPS participants. Whereas there were 110 fractures requiring hospitalization per 10,000 HIV-positive individuals in 2000, the rate was 160 per 10,000 in 2008. This difference was statistically significant, meaning it wasn't likely due to chance. In the National Hospital Discharge Survey, however, the rate of fractures in the general population remained consistent: 25 per 10,000 from 2000 to 2006.

Rates of fractures, treated on an outpatient basis, were also increasing among HOPS participants: 60 per 10,000 in 2000 compared with 85 per 10,000 in 2008. Here, too, the difference was statistically significant. In the general population, the rate remained stable—35 per 10,000 people—from 2000 to 2006.

Fragility fractures were more likely to be documented among HOPS patients compared with those in the general population. For example, vertebrae fractures were documented in 10 percent of HIV-positive men and 18 percent of HIV-positive women between 2000 and 2006, compared with 1 percent and 4 percent of men and women in the general population. Conversely, non-fragility fractures remained more common among those in the general population compared with the HIV-positive individuals participating in HOPS.

As for risk fractures among people living with HIV, those with a lowest-ever (nadir) CD4 count of fewer than 200 cells, coinfection with hepatitis C virus, diabetes and a history of substance abuse were more likely to experience a fracture. The researchers did not measure the severity of bone mineral density loss, as it relates to fracture risk.

In conclusion, Dao pointed out that the actual number of fractures in HOPS has been low. However, she said, the rates are clearly higher among people living with HIV than in the general U.S. population, particularly among younger adults. There are likely a number of reasons why bone fracture rates—notably fragility bone breaks—are higher among people living with HIV, all of which, Dao said, should be explored in greater detail.

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