HIV and Bone Loss at Menopause Go Hand in Hand

For menopausal women with HIV, calcium supplementation may not be enough to maintain bone health.

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We already know that some HIV medicines can take their toll on bones and that osteoporosis increases with age. But data recently published in the journal Clinical Infectious Diseases suggest that for menopausal women with HIV, the likelihood of bone loss is even higher.

Anjali Sharma, MD, of Albert Einstein College of Medicine, and colleagues looked at changes in bone density among participants in the Women's Interagency HIV Study. The researchers previously reported lower bone mineral density (BMD) among premenopausal women living with HIV compared to HIV-negative women, and the rate of bone loss may be even greater for women with HIV during the menopausal transition.

In this analysis, 158 HIV-positive women and 86 HIV-negative women across the menopause spectrum agreed to undergo whole-body dual-energy X-ray absorptiometry (DXA) and quantitative computed tomography (CT) scans to assess their bone mineral density (BMD).

Nearly two thirds of the women were in the later stages of perimenopause or already in menopause. About half of the women with HIV were using an antiretroviral regimen that contained tenofovir disoproxil fumarate, which is associated with bone loss, and 49% were taking a protease inhibitor. HIV-positive women were more likely than their HIV-negative counterparts to be taking calcium supplements (12% versus 1%), and they were less likely to smoke, a known risk factor for bone loss (49% versus 65%). Women with HIV were also more likely to have high vitamin D levels, which are associated with better calcium absorption.

Despite this, the HIV-positive women's bone mineral density was lower on almost every measure. Women with HIV had lower areal BMD (5% to 9% lower) at the lumbar spine, femoral neck (hip bone joint), total hip and radius (forearm bone). Volumetric BMD was more than 15 points lower at the L1 lumbar vertebra and 20 points lower at the hip. Osteopenia, the precursor to osteoporosis, was also more common in women living with HIV compared with HIV-negative women at every site in the body, though in most cases the difference did not reach the threshold for statistical significance.

Low bone mineral density was more common in HIV-positive women who were at the end of perimenopause or entering menopause. Even after adjustment to account for race, body mass index, smoking, alcohol use, diabetes and hepatitis C status, HIV was independently associated with reduced areal and volumetric BMD at the lumbar spine and hip, among other sites. Overall, being HIV positive, postmenopausal and white were all associated with lower bone mineral density.

“Although not statistically significant, deficits in BMD by menopausal status appear to be greater between women with HIV than those without HIV, such that the difference in BMD between late peri-/postmenopausal women and pre-/early perimenopausal women is nonsignificantly wider for [women with HIV], particularly at the distal radius and spine,” wrote the authors. “A larger sample size would be needed to determine whether these differences truly exist. In our analysis, these differences cannot be attributed to traditional osteoporosis risk factors or increased inflammatory cytokines.”

Click here to read the study abstract.

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