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REDUCED BONE DENSITY IN HIV-INFECTED WOMEN

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BACKGROUND: Reduced bone density has been demonstrated among HIV-infected men, yet little is known regarding bone density in the growing population of HIV-infected women.

METHODS: We performed an observational study of 84 ambulatory HIV-infected females and 63 healthy female control subjects similar in age (41 ±1 vs 41 ±1 years, *P*=0.83), BMI (26.0 ±0.6 vs 27.0 ±0.5 kg/m^2, *P*=0.44) and racial background (% non-Caucasian, 61 vs 51%, *P*=0.24, HIV-infected vs control). Bone density and body composition were measured by DEXA and hormonal indices and bone turnover were assessed.

RESULTS: Bone density was reduced at the lumbar spine [1.02 ±0.02 vs 1.07 ±0.02 g/cm^2, *P*=0.03 (T scores, –0.62 ±0.14 vs –0.13 ±0.14 SD, *P*=0.02)] and total hip [0.93 ±0.01 vs 0.99 ±0.01 g/cm^2, *P*=0.004 (–0.33 ±0.11 vs 0.15 ±0.11 SD, *P*=0.003)] in HIV-infected subjects compared to control subjects. Osteopenia was demonstrated in 54 vs 30%, *P*=0.004 and osteoporosis in 10 vs 5% HIV-infected vs control, *P*=0.27. 1,25-dihydroxyvitamin D (25.4 ±2.3 vs 33.8 ±2.5 pg/ml, *P*=0.01) was reduced, whereas urinary NTx (39.6 ±3.5 vs 29.9 ±2.0 nM/mM urine creatinine, *P*=0.03), and osteoprotegerin (OPG) (4.76 ±0.23 vs 3.39 ±0.17 pmol/l, *P*≤0.0001) were increased in the HIV-infected group compared to the control subjects. Serum calcium, phosphorous, estradiol, FSH, PTH, osteocalcin and 25-hydroxyvitamin D levels were not different between the two groups, but oligomenorrhoea was more common in the HIV-infected patients (38 vs 21%) (*P*=0.03). Among the HIV-infected women, bone density was positively correlated with lean body mass (r=0.40, *P*<0.001) and total body fat (r=0.37, *P*<0.001), and negatively correlated with urinary NTx (r= –0.28, *P*=0.01). Bone density

did not differ by current or prior protease inhibitor (PI) or nucleoside reverse transcriptase inhibitor (NRTI) use, or differ by past or current medication status.

CONCLUSIONS: HIV-infected women demonstrate reduced bone density in comparison to age- and BMI-matched female subjects of similar weight and racial composition. Increased bone resorption and altered nutritional status, hormonal function and body composition may contribute to the observed reduction in bone density in HIV-infected women. Consideration should be given to testing bone density in HIV-infected women with significant risk factors for osteopenia.

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