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Statin use, clinical fracture, and bone density in postmenopausal women: results from the Women's Health Initiative Observational Study.

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Abstract

BACKGROUND: 3-hydroxy-3-methylglutaryl coenzyme A reductase inhibitors (statins) have been shown to stimulate bone formation in laboratory studies, both in vitro and in vivo. While early epidemiologic studies showed lower risk for hip fracture among statin users than nonusers, subsequent studies have produced mixed results.

OBJECTIVE: To examine the association of statin use with incidence of hip, lower arm or wrist, and other clinical fractures and with baseline levels of bone density.

DESIGN: Prospective study.

SETTING: Women's Health Initiative Observational Study conducted in 40 clinical centers in the United States.

PARTICIPANTS: 93 716 postmenopausal women ages 50 to 79 years.

MEASUREMENTS: Rates of hip, lower arm or wrist, and other clinical fractures were compared among 7846 statin users and 85 870 nonusers over a median follow-up of 3.9 years. In 6442 women enrolled at three clinical centers, baseline levels of total hip, posterior-anterior spine, and total-body bone density measured by using dual-energy x-ray absorptiometry were compared according to statin use.

RESULTS: Age-adjusted rates of hip, lower arm or wrist, and other clinical fractures were similar between statin users and nonusers regardless of duration of statin use. The multivariate-adjusted hazard ratios for current statin use were 1.22 (95% CI, 0.83 to 1.81) for hip fracture, 1.04 (CI, 0.85 to 1.27) for lower arm or wrist fracture, and 1.11 (CI, 1.00 to 1.22) for other clinical fracture. Bone density levels did not statistically differ between statin users and nonusers at any skeletal site after adjustment for age,

ethnicity, body mass index, and other factors.

CONCLUSION: Statin use did not improve fracture risk or bone density in the Women's Health Initiative Observational Study. The cumulative evidence does not warrant use of statins to prevent or treat osteoporosis.

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