Commonly prescribed antidepressants associated with lower bone density in older men and women

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The class of antidepressant medications known as selective serotonin reuptake inhibitors may be associated with an increased rate of bone loss in older men and women, according to two articles in the June 25 issue of Archives of Internal Medicine, one of the JAMA/Archives journals.

Selective serotonin reuptake inhibitors (SSRIs) treat depression by inhibiting the protein that transports serotonin, a neurotransmitter involved in sleep and depression, according to background information in the articles. This protein has recently been discovered in bone as well, raising the possibility that SSRIs may affect bone density and the risk of fracture. SSRIs account for about 62 percent of antidepressant prescriptions in the United States, and are often prescribed to the elderly.

Susan J. Diem, M.D., M.P.H., University of Minnesota, Minneapolis, and colleagues studied 2,722 older women (average age 78.5 years) beginning in 1997 through 1999. At that time and again an average of 4.9 years later, researchers measured women's total hip bone density and also that of two subregions. At each visit, the participants were asked to bring in all the medications they had used within the past two weeks, including SSRIs and tricyclic antidepressants, which work through a different mechanism.

A total of 198 (7.3 percent) of the women were SSRI users, 118 (4.3 percent) took tricyclic antidepressants and 2,406 (88.4 percent) took neither (those who took both were not included in the analysis). After the researchers adjusted for other factors affecting bone density and antidepressant use, including depression severity and calcium supplement use, bone mineral density at the hip decreased 0.82 percent in SSRI users. This compared with a decrease of 0.47 percent among those who used tricyclic antidepressants and also in those who did not take any antidepressants. Higher rates of bone loss were also observed at the two hip subregions among SSRI users.

"One potential explanation for our findings is that SSRI use may have a direct deleterious effect on bone," the authors write. "This theory is supported by findings of in vitro and in vivo laboratory investigations." Some data suggest that SSRIs may interfere with the function of osteoclasts and osteoblasts, cells responsible for the regular breaking down and rebuilding of bone in the body.

"Our findings suggest that, in this cohort, use of SSRIs is associated with increased rates of hip bone loss," the authors conclude. Although some of this association may have occurred because women who were prescribed SSRIs were different from those who were not prescribed SSRIs, "further investigation of SSRI use and rates of change in bone mineral density in other populations with longer follow-up is warranted given the recent description of serotonin transporters in bone."

In a related paper, Elizabeth M. Haney, M.D., of Oregon Health & Sciences University, Portland, and colleagues conducted a similar study with 5,995 men age 65 and older (average age 73.7). The men's bone density at the hip, including subregions, and at the base of the spine were measured between 2000 and 2002. Participants were asked to bring all medications to their clinic visit, where they were also given a physical examination and asked about other health and lifestyle factors.

A total of 160 (2.7 percent) men reported using SSRIs, 99 (1.7 percent) reported using tricyclic

antidepressants and 52 (0.9 percent) reported using trazodone, a third type of antidepressant. Total hip bone mineral density was 3.9 percent lower among SSRI users than among men who didn't use any antidepressants. Similarly, spine bone mineral density was 5.9 percent lower among SSRI users than among non-users. There was no significant difference in either hip or spine density between men who took tricyclic antidepressants or trazodone and those who did not take antidepressants.

"These associations are biologically plausible and clinically important," the authors conclude. "Because SSRI use is prevalent in the general population, our findings have a potentially important public health impact. If confirmed, people using SSRIs might be targeted for osteoporosis screening and preventive intervention."

Source: JAMA and Archives Journals