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SSRI use and bone mineral density in women with a history of depression: Geelong Osteoporosis Study (GOS)

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Selective serotonin reuptake inhibitors (SSRIs) are a first line treatment for depression. SSRIs have been reported to regulate serotonin (5-HT) receptors and the transporter 5-HTT on osteoclasts and osteoblasts. Previous studies reporting reduced bone mineral density (BMD) among SSRI users may have been confounded by the effects of depression, which has been associated with reduced BMD in some studies.

Among women enrolled in the GOS, a history of depression was ascertained by clinical interview (SCID-I/NP). BMD was measured at the PA-spine, hip, total body and forearm using dual energy absorptiometry (Lunar DPX-L) and medication use was self-reported.

Among 177 women with a lifetime history of depression, current users of bisphosphonates, glucocorticoids, hormone therapy and other anti-depressants were excluded (n=49). Of the remaining 128 (median age 51.5yr; range 30-74), 26 (20.3%) reported current SSRI use. SSRI users were shorter than non-users (1.59±0.06 vs 1.62±0.06 m, p=0.01), however there were no differences in age, weight or smoking history. Using ANCOVA and controlling for age, weight, height and smoking history, BMD among SSRI users was 5.7% lower at the femoral neck (0.977±0.015 vs 0.922±0.025 g/cm², p=0.03), 6.1% lower at the trochanter (0.813±0.010 vs 0.763±0.021 g/cm², p=0.04) and 4.4% lower at the mid-forearm (0.745±0.009 vs 0.712±0.015 g/cm², p=0.03) than non-users. No differences in BMD were detected at other sites.

Among women with a lifetime history of depression, SSRI use is associated with reduced BMD. Although the mechanism remains unclear, these observations are consistent with a role for the serotonergic system in regulating bone metabolism.