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Determinants of serum sclerostin in healthy pre- and postmenopausal women.

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Abstract

Sclerostin is a secreted Wnt antagonist produced almost exclusively by osteocytes that regulates bone mass. However, there is currently limited information on the determinants of sclerostin in a large population-based study. The main objectives of the present study were to: (1) establish reference normative interval values for serum sclerostin in randomly selected healthy premenopausal women; (2) study the changes in serum sclerostin in relation to age in premenopausal and postmenopausal women and the factors that may influence bone turnover; and (3) determine the effect of menopausal status on serum sclerostin. A total of 1803 women were studied (including [n = 1235] premenopausal, and [n = 568] postmenopausal women, respectively, aged 20 to 79 years). A total of 443 healthy premenopausal women (aged 35 to 45 years) were used to establish reference normative intervals for serum sclerostin. All women studied were medically examined and had their bone mineral density values obtained for the lumbar spine (L(1) -L(4)) and femoral neck according to a detailed inclusion criteria. In all women, values of serum sclerostin increased with increasing age up to the age of 45 years, and remained increased in postmenopausal women. Significant increases were evident in serum sclerostin in postmenopausal women with increasing years since menopause. Using stepwise multiple linear regression analysis, several variables were identified as determinants of serum sclerostin, including age, parathyroid hormone, estradiol (E(2)), and follicle-stimulating hormone (FSH) for premenopausal women; age, FSH, and E(2) for postmenopausal women; and age, serum osteocalcin, FSH, and E(2) in the entire sample studied. Further studies are needed to establish the potential role of this increase in mediating the known age-related impairment in bone formation.