



Bone mineral density in femoral neck is positively correlated to circulating insulin-like growth factor (IGF)-I and IGF-binding protein (IGFBP)-3 in Swedish men.

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Abstract:

Studies on the hormonal regulation of bone metabolism in men have indicated covariation between insulin-like growth factor-I (IGF-I) and sex hormones with bone mineral density (BMD). In this study the relationships between BMD in total body, lumbar spine, femoral neck, distal and ultradistal (UD) radius and circulating levels of IGFs, IGF binding proteins (IGFBPs), and sex steroids were investigated in 55 Swedish men between 22 and 85 (52 +/- 18, mean +/- SD) years of age. BMD in total body, distal and UD radius, and femoral neck was positively correlated with serum IGF-I ($r = 0.31$ to 0.49), IGF-II ($r = 0.32$ to 0.48), IGFBP-3 ($r = 0.37$ to 0.53), and free androgen index (FAI) ($r = 0.32$ to 0.40), and negatively with IGFBP-1 ($r = -0.37$ to -0.41) and IGFBP-2 ($r = -0.29$ to -0.41) levels. A positive correlation was observed between BMD in femoral neck and estradiol/SHBG ratio ($r = 0.34$, $P = 0.01$). Age correlated negatively with serum IGF-I, IGF-II, IGFBP-3, FAI, estradiol/SHBG ratio, and BMD in total body, distal and UD radius, and femoral neck, and positively with IGFBP-1, IGFBP-2, and SHBG levels. According to stepwise multiple regression analyses, a combination of weight, IGFBP-3, and testosterone accounted for 43% of the variation in BMD in femoral neck, 34% in ultradistal radius and 48% in total body (P

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