Early postmenopausal bone loss in hyperthyroidism

Ben-Shlomo A, Hagag P, Evans S, Weiss M.
Endocrine Institute, Assaf Harofeh Medical Center, Zerifin 70300, Israel.

ABSTRACT

OBJECTIVES: To evaluate the effect of hyperthyroidism on bone in relation to the menopausal state.

METHODS: Fifty-nine hyperthyroid (HYPER), 40 hypothyroid (HYPO), and 51 control euthyroid (EUTH) women were studied. Bone mineral density (BMD) was assessed by dual X-rays absorptiometry (DXA) at the lumbar spine, and at the femoral neck. A multi-site QUS device evaluated speed of sound (SOS) at the radius (RAD), tibia (TIB), metatarsus (MTR), and phalanx (PLX). Bone markers used were serum bone specific alkaline phosphatase (BSAP) and urinary deoxypyridinoline (DPD).

RESULTS: At all sites, SOS was lower in HYPER than in EUTH (RAD $P<0.05$, TIB $P<0.01$, MTR $P<0.05$, PLX $P=0.01$). The low SOS was only noted at the early postmenopausal period. BMD at the femoral neck but not at the lumbar spine was lower in HYPER as compared to EUTH ($P<0.05$). Both femoral neck and tibia were the sites with the highest odds ratio for being hyperthyroid (2.3 and 2.04, respectively). There was no correlation between BMD or SOS and FT(4), TT(3) or duration of hyperthyroidism. BSAP and DPD positively correlated with FT(4) and TT(3) ($P<0.05$).

CONCLUSIONS: This study suggests that hyperthyroidism affects bone mineralization especially during the early postmenopausal period, and the effect is mainly at the cortical bone.

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