Monitoring response to osteoporosis therapy with alendronate by a multisite ultrasound device: a prospective study

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BACKGROUND

Osteoporotic fractures are a major health problem among postmenopausal women. A significant proportion of subjects with low bone density are currently undiagnosed. Peripheral devices can be used for osteoporosis diagnosis, but their role in long-term monitoring of skeletal changes is unclear. The current study evaluated the ability of quantitative ultrasound (QUS) measurements to follow osteoporotic subjects treated with alendronate.

METHODS

QUS measurements were done with Sunlight Omnisense (Omnisense, Sunlight Medical Ltd., Tel Aviv, Israel), which determines the bone speed of sound (SOS) in several skeletal sites. Postmenopausal women with T-scores of -2 or less at one site were recruited and treated with alendronate for at least 1 yr. Follow-up was done with QUS and dual-energy X-ray absorptiometry (DXA) (Lunar DPX scanner, Madison, WI, USA) measurements.

RESULTS

After 12 mo, bone mineral density (BMD) increased significantly at the lumbar spine (LS) (0.34 +/- 0.08 T-score, p = 0.0001 with 95% CI [0.19, 0.49]) and QUS at the tibia (TIB) (0.21 +/- 0.09 T-score, p = 0.02 with 95% CI [0.03, 0.39]). After 12 mo, a significant increase in mean T-scores was demonstrated in all sites assessed according to baseline T-score of -2 or less.

CONCLUSIONS

Peripheral QUS measurement may be considered for follow-up on skeletal changes in response to alendronate treatment.

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