Menopause: The Journal of the North American Menopause Society
Vol. 1, No. 3, pp.131-136

Skin Thickness, Estrogen Use, and Bone Mass in Older Women

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Abstract: To test the hypothesis that estrogen replacement therapy preserves skin thickness, and to determine the relationship between bone mass and skin thickness, we performed a cross-sectional analysis of baseline data collected for a multicenter prospective study of osteoporotic fractures. 1,072 ambulatory nonblack women aged 65 years or older were recruited from population-based listings at two US clinical centers. Demographic and historical information and anthropometric measurements were obtained from a baseline questionnaire, interview, and examination. Estrogen use was assessed by questionnaire and interview. Skin thickness was measured over the middle metacarpophalangeal joint with mechanical calipers. Bone mass was measured by single photon absorptiometry at three appendicular sites: the distal and midradius, and the calcaneus. After adjusting for other potential confounding factors, each 10 years of age was associated with an 8.6% reduction in skin thickness, and every 5-kg/m^2 increase in body mass index was associated with a 3.8% increase in skin thickness. Smokers had thinner skin than nonsmokers. Estrogen users had thinner skin; compared to never-users, current users had a 5.1% reduction in skin thickness, and past users had a 2.0% reduction in skin thickness. Among estrogen users, every 10 years of use was associated with a 1.7% reduction in skin thickness. Skin thickness was weakly associated with bone mass of the middle radius and calcaneus, but not the distal radius. We found no evidence that estrogen preserves skin thickness; indeed, estrogen use is associated with thinner skin. Although skin thickness and bone mass are related, the association is too weak to be useful for predicting bone mass.
Key Words: Skin thickness -- Estrogen replacement therapy -- Bone mineral density.