

Correlation Between Skin Thickness and Bone Mass in Women

(1)(2)Rodolphe Maheux, (1)(2)Jocelyne Guy, (3)Marcel Dumont, and (4)Benoît Mâsse

(1)Department of Obstetrics and Gynecology, Laval University, (2)Research Center and (3)Radiology Department, Saint-François d'Assise Hospital, and (4)Epidemiology Research Group, Saint-Sacrament Hospital, Québec City, Québec, Canada

Abstract: The aim of our study was to evaluate the correlation between skin thickness and bone mass with a view to eventually using this parameter as a clinical screening tool to identify women with possible low bone mass in whom a more costly diagnostic test, such as x-ray radiometry, should be performed. One hundred and ten women who were scheduled for osteodensitometry were invited to participate. Skin thickness was measured with a mechanical calliper. Bone mineral density (BMD) was measured at the lumbar spine (L2-4) and at the femoral neck levels by dual energy x-ray absorptiometry (DXA). The Pearson's correlation coefficient obtained between skin thickness and lumbar spine BMD was 0.37 ($p = 0.0001$); between skin thickness and femoral BMD it was 0.33 ($p = 0.001$). The correlation coefficient between skin thickness and age was -0.35 ($p = 0.0001$) and between skin thickness and body mass index was 0.30 ($p = 0.002$). The correlation coefficient between BMD values obtained at the femoral and lumbar levels was 0.74 ($p = 0.0001$). In addition to our results, we present a summary of the data available in the literature on the correlation observed between skin thickness/collagen content and bone density. The coefficient of correlation varies greatly among these studies and is not consistently statistically significant. These differences can be explained by the methodologies used by the different authors. Although skin thickness cannot replace BMD in identifying women with low bone mass in whom estrogen replacement therapy is indicated, we think that skin thickness may become a helpful tool in screening women. Further research is needed before clinical recommendations are given.

Key Words: Postmenopausal -- Skin thickness -- Bone mass density -- Estrogen replacement therapy.