Original Article

The Fingernail Protein Content May predict Bone Turnover in Postmenopausal Women

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Abstract:

Background: Bone quality is a relatively new concept that seems to be able to fill the gaps we encounter in the prediction of osteoporosis by bone mineral densitometry. The aim of this study was to investigate relationship between finger nail protein and bone turnover in postmenopausal women.

Methods: In a case-control study 123 postmenopausal women recruited from out patient clinic of Endocrinology and metabolism research center of Tehran University of Medical Sciences. In all participants DEXA scanning and spinal X-ray radiography were performed. Serum Osteocalcin and Cross laps concentrations were measured. Protein extraction from fingernail performed to evaluate protein content.

Results: Fingernail protein content significantly correlated with serum Cross laps concentration ($P= 0.03$, $r= -0.27$), lumbar spine BMD ($P= 0.01$, $r=0.4$), and total hip BMD ($P= 0.01$, $r= 0.33$). In logistic regression analysis, fingernail protein content predicted vertebral fracture ($P= 0.002$). This relationship was independent of age, BMI, lumbar spine BMD, and total hip BMD.

Conclusion: Common pathways may involve in structural protein synthesis. Thus evaluation of fingernail protein allows an estimation of bone quality, which would lead to a more complete evaluation of bone health.

Keywords:

Fingernail protein . *Osteoporosis* . *Bone turnover*

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