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Original Article

Relationship between Lipid Profile and Bone Turnover in Pre and Postmenopausal Women

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Abstract:

Background: To determine the relationship between lipid profile and bone turnover in pre and postmenopausal women.

Methods: In a cross-sectional study, 279 women referred to Bone Mineral Densitometry (BMD) center of endocrinology and Metabolism research center for premenopausal evaluation were assessed for serum osteoprotegerin, receptor activator of nuclear factor κ B (NF- κ B) ligand (RANKL) and lipid profile in biochemistry and hormone laboratory.

Results: Serum Total cholesterol had significant inverse correlation with spine L2-L4 BMD ($r=-0.152$, $P=0.02$) and L2-L4 t -score ($r=-0.151$, $P=0.02$). Low density lipoprotein (LDL) cholesterol also related negatively to spine L2-L4 BMD ($r=-0.184$, $P=0.007$), L2-L4 T score ($r=-0.184$, $P=0.007$) and L2-L4 Z score ($r=-0.134$, $P=0.04$). However no relation was found between triglyceride and high density lipoprotein and lumbar spine BMD values. Whereas 35.5 % of women with LDL >130 had serum RANKL upper than percentile 75, this value was 18.7% among women with LDL <130 ($P=0.01$, Odds Ratio= 2.39, CI: 1.24-4.6). Osteoprotegerin had no such a relation with LDL. In univariate analysis LDL had a significant relationship with RANKL independent of age ($P=0.02$).

Conclusion: As RANKL is a bone marker that show bone loss, our finding may contribute to demonstrate a negative effect of LDL on bone metabolism.

Keywords:

[Low density lipoprotein](#) , [Osteoporosis](#) , [Osteoprotegerin](#) , [RANKL](#)

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