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ASSOCIATION BETWEEN LIPID PROFILE AND LUMBAR SPINE BONE MINERAL DENSITY AND TRABECULAR BONE SCORE IN IRANIAN ELDERLY: BUSHEHR ELDERLY HEALTH PROGRAM

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Introduction and aim: Some studies, not all, have shown association between cardiovascular disease and osteoporosis, however, the shared root cause of these two diseases of the elderly remains unknown due to so many confounders. The aim of this study was to evaluate the association between lipid profile and areal Bone Mineral Density (aBMD) and Trabecular Bone Score (TBS) of lumbar spine in Iranian elderly.

Material and Methods: Study subjects were 1260 women and 1166 men, aged above 60 years, participating in the second stage of Bushehr Elderly Health (BEH) programme, a population-based

prospective cohort study being conducted in Bushehr, a southern province of Iran. Lumber spine aBMD was measured using DXA (Discovery WI, Hologic, USA) and TBS was calculated using TBS iNsight^{TM} software (Medimaps group). The associations between lipid profiles and aBMD and TBS of lumbar spine were examined using multivariable linear regression analysis stratified by sex and adjusted for age, and body mass index (BMI). Standardized coefficients are presented.

Results: In men after adjusting for age and BMI, we found negative correlations between aBMD and TBS of lumbar spine with total cholesterol (TC) (β=-0.083, p=0.003 and β=-0.067, p=0.020, respectively). The correlations had similar trends for high density lipoprotein cholesterol (HDL) (β= -0.080, p=0.004 and β=-0.065, p= 0.025, respectively) and low density lipoprotein cholesterol (LDL) levels (β= -0.086, p =0.002 and β=-0.063, p=0.027, respectively). However, neither lumbar spine BMD nor TBS was statistically significantly correlated with TC, HDL, or LDL in women.

Serum triglycerides were not correlated with TBS in men or women, but a positive and statistically significant correlation was observed between TG and BMD in women (β= 0.097, p<0.001). The correlation between TG and BMD, however, was not statistically significant after adjustment for age and BMI in men.

Conclusion: This study found inverse correlation between lipid profile and both BMD and TBS mainly in men. Lower TBS values was observed in men with higher lipid levels which is associated with increased risk for fragility fracture in older men. However, this study found no association between serum lipid profiles and BMD or TBS in older women. The mechanisms of these associations are not clear, and specified studies are needed to clarify the relationships.