

Bone mineral density and lipid profiles in older adults: a nationwide cross-sectional study

Jinyoung Kim 1, Jeonghoon Ha 2, Chaiho Jeong 3, Jeongmin Lee 4, Yejee Lim 5, Kwanhoon Jo 6, Mee Kyoung Kim 1, Hyuk-Sang Kwon 1, Ki-Ho Song 1, Ki-Hyun Baek 7

Osteoporos Int. 2022 Oct 18.

doi: 10.1007/s00198-022-06571-z.

Abstract

It has been hypothesized that lipid profiles are associated with bone mineral density (BMD), but previous results have been controversial. In this study, serum triglycerides showed a significant inverse association with BMD, and the relationship is thought to correlate with vitamin D status among older adults.

Introduction: The purpose of this study was to investigate the relationship between lipid profiles and bone mineral density (BMD) in older adults using data from the Korean National Health and Nutrition Examination Survey (KNHANES).

Methods: We enrolled men older than 50 years and postmenopausal women who participated in the KNHANES 2008-2011. Subjects with liver cirrhosis, thyroid disease, or renal dysfunction and those receiving treatment for hyperlipidemia or osteoporosis were excluded.

Results: A total of 4323 subjects (2286 men and 2037 women) was analyzed. The prevalence of osteoporosis was 8.7% in men older than 50 years and 38.4% in postmenopausal women. Osteopenia and osteoporosis groups were generally older and tended to have a lower body mass index compared to the normal group (p for trend < 0.001). The correlation between each lipid profile and BMD was analyzed in the linear model adjusted for age and body mass index. Total cholesterol and high-density lipoprotein cholesterol showed a negative correlation with BMD in the total population, but there was no significant correlation when analyzed separately for men and women. Triglycerides had a negative association with whole-body BMD in both men and women ($p < 0.05$). The adjusted odds ratio of logarithmic triglyceride level for osteoporosis was 2.50 (95% confidence interval 1.13-5.51) in women older than 65 years.

Conclusion: Serum triglycerides showed a significant inverse association with BMD, and the relationship is thought to correlate with vitamin D status among older adults.