

FULL TEXT LINKS



J Clin Endocrinol Metab. 2014 Oct;99(10):3879-88. doi: 10.1210/jc.2013-3764. Epub 2014 May 30.

The combination of vitamin D deficiency and mild to moderate chronic kidney disease is associated with low bone mineral density and deteriorated femoral microarchitecture: results from the KNHANES 2008–2011

Yong-ho Lee ¹, Jo Eun Kim, Yun Ho Roh, Hae Rim Choi, Yumie Rhee, Dae Ryong Kang, Sung-Kil Lim

Affiliations

Affiliation

- 1 Division of Endocrinology and Metabolism (Y.L., J.E.K., Y.R., S.-K.L.), Department of Internal Medicine, Graduate School (Y.L., J.E.K., Y.R., S.-K.L.), and Biostatistics Collaboration Unit (Y.H.R., D.R.K.), Yonsei University College of Medicine, Seoul 120-752, Korea; and Division of Cardiovascular and Rare Disease (H.R.C.), National Institute of Health, Osong 363-951, Korea.

PMID: 24878040 DOI: [10.1210/jc.2013-3764](https://doi.org/10.1210/jc.2013-3764)

Abstract

Context: Although mild to moderate chronic kidney disease (CKD) and vitamin D deficiency are prevalent in the elderly population worldwide and are associated with sarcopenia, their influence on bone mineral density (BMD) has not been determined.

Objective: The objective of the study was to determine the combined effects of vitamin D deficiency and CKD on BMD in the elderly population and their relationships with sarcopenia and PTH levels.

Design, setting, and subjects: This was a cross-sectional study with nationally representative samples of 6949 subjects aged 55 years or older from the Korea National Health and Nutrition Examination Surveys conducted between 2008 and 2011.

Main outcome measures: The study population was divided into four groups according to vitamin D and CKD status. The combined association of CKD and vitamin D deficiency [25(OH)D < 20 ng/mL] with osteopenia or osteoporosis was assessed, and the status of PTH and the sarcopenic index (appendicular skeletal muscle mass as a percentage of body weight or appendicular skeletal muscle mass per weight) as a measure of sarcopenia were evaluated.

Results: BMD in the total hip and femoral neck as well as femoral bone geometry was markedly deteriorated in stage 3 and 4 CKD subjects with vitamin D deficiency compared with other groups. Regardless of gender, these subjects also had higher levels of PTH and increased prevalence of sarcopenia. Multivariable logistic regression analyses demonstrated that CKD subjects with vitamin D deficiency showed a significantly increased risk of osteoporosis or osteopenia [odds ratios 1.49 and 2.06 (1.81 and 2.65) at the femur neck and total hip, respectively, in women (men)], which was mainly associated with elevated levels of PTH and sarcopenia in these groups.

Conclusions: The combination of mild to moderate CKD and vitamin D deficiency was significantly associated with low BMD in a geriatric population, linked with hyperparathyroidism and sarcopenia.

Related information

[MedGen](#)

[PubChem Compound \(MeSH Keyword\)](#)

LinkOut - more resources

Full Text Sources

[Silverchair Information Systems](#)

Other Literature Sources

[scite Smart Citations](#)

Medical

[Genetic Alliance](#)

[MedlinePlus Health Information](#)