

Evidence poor for link between biomarkers and risk of CV events for patients with kidney disease

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Even though clinical practice guidelines for patients with chronic kidney disease recommend specific treatment target levels for serum phosphorus, parathyroid hormone, and calcium to reduce the risk of cardiovascular events, an analysis of data from previous studies did not find a strong association between these biomarkers and the risk of death and cardiovascular events, except for higher serum phosphorus levels, according to an article in the March 16 issue of *JAMA*.

"Nephrology guidelines recommend targets and treatment strategies to correct [serum levels](#) of phosphorus, calcium, and [parathyroid](#) hormone because observational data suggest there is an association between these potential risk biomarkers and vascular disease and death. However, to date, randomized controlled trials have not shown that treating mineral levels with existing treatment options reduces cardiovascular events or mortality," according to background information in the article. The authors add that existing guidelines (based primarily on observational studies) may be inappropriately promoting treatment for abnormal mineral metabolism in individuals with [chronic kidney disease](#).

Suetonia C. Palmer, M.B., Ch.B., Ph.D., of the University of Otago, Christchurch, New Zealand, and colleagues conducted a review and meta-analysis to evaluate the quality of evidence for the association between levels of serum phosphorus, [parathyroid hormone](#), and calcium and risks of death, cardiovascular death, and nonfatal [cardiovascular events](#) in

individuals with chronic kidney disease. Through a search of databases, the researchers identified 47 studies (n = 327,644 patients) that met the inclusion criteria.

The analysis indicated that for every 1-mg/dL increase in serum phosphorus, the risk of death increased 18 percent. "There was no significant association between all-cause mortality and serum level of parathyroid hormone or serum level of calcium. Data for the association between serum level of phosphorus, parathyroid hormone, and calcium and cardiovascular death were each available in only 1 adequately adjusted cohort study," the authors write.

"... based on the available cohort data and the absence of randomized controlled trials, the evidentiary basis for current clinical guideline-recommended targets of serum phosphorus, parathyroid hormone, and calcium in chronic kidney disease is poor. Broad adoption of health care practices that have insufficient evidence for safety or efficacy (in this case targeting serum mineral levels in individuals with chronic kidney disease) may lead to considerable unintended harm," the authors write.

"Large placebo-controlled randomized trials of vitamin D compounds, phosphorus binders, and calcimimetic agents are now needed to evaluate whether treating mineral disorders improves health outcomes for individuals with chronic kidney disease."

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