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HIGH BLOOD CALCIUM LEVELS LINKED WITH INCREASED RISK OF PREMATURE DEATH IN DIALYSIS PATIENTS

Phosphorus levels also associated with increased risk

Highlights

- Both low and high blood calcium levels, as well as high phosphorus levels, were linked with an increased risk of dying prematurely in dialysis patients, regardless of the type of dialysis.
- The findings address a pending Medicare quality measure related to dialysis patients' blood calcium levels.

Mineral metabolism disorders are highly prevalent among patients with kidney disease.

Washington, DC (January 22, 2015) — Elevated blood levels of calcium and phosphorus are linked with an increased risk of premature death in kidney disease patients on dialysis, according to a study appearing in an upcoming issue of the *Journal of the American Society of Nephrology (JASN)*. Additional studies are needed to see whether lowering the levels of these blood minerals may improve patients' health.

The Medicare End-Stage Renal Disease Quality Incentive Program is designed to adjust payments to US dialysis facilities based on their performance on a variety of different quality measures. The number of measures that have been included in the program since its inception in 2012 have grown, and in 2016, the measures will be further expanded to include a "hypercalcemia" measure, which will penalize dialysis facilities if too many patients have 3-month average blood calcium levels above a certain threshold (10.2 milligrams per deciliter). The change is meant to help address mineral metabolism disorders, which are very common in patients with kidney disease.

Clinicians note that this new measure is not backed by experimental data, and instead reflects only expert opinion. To investigate the appropriateness of this new measure, Matthew Rivara, MD (University of Washington, in Seattle) and his colleagues studied whether patients with blood calcium level above the Medicare-identified threshold have a higher risk for premature death compared with patients with lower calcium levels. Their analysis included 129,076 patients on hemodialysis or peritoneal dialysis who were treated between 2001 and 2006.

The researchers found that both low and high blood calcium levels, as well as high phosphorus levels, are linked with an increased risk of dying prematurely in dialysis patients, regardless of the type of dialysis. Additionally, the team found similar results whether or not calcium levels were “corrected” for the blood protein albumin, which is often done in clinical practice. Finally, the investigators discovered that regardless of type of dialysis, patients with calcium levels above the 10.2 mg/dL threshold do indeed have a higher risk of premature death compared with patients with intermediate levels of calcium.

“This last finding is an important first step in the evaluation of this new Medicare quality measure; however, it is critical to point out that no studies, including our own, have shown that use of medications or adjustments in the delivery of dialysis to lower high calcium levels lead to better outcomes for patients,” said Dr. Rivara. “It is possible that high a calcium level may merely be an indicator of a higher risk for poor outcomes, or it may actually be a cause of greater mortality risk.” Additional studies are needed to test whether interventions that lower calcium levels can improve the health of patients undergoing dialysis.

Study co-authors include Vanessa Ravel, MPH; Kamyar Kalantar-Zadeh, MD, MPH, PhD; Elani Streja, MPH, PhD; Wei Ling Lau, MD; Allen R. Nissenson, MD; Bryan Kestenbaum, MD, MS; Ian H. de Boer, MD, MS; Jonathan Himmelfarb, MD; and Rajnish Mehrotra, MD, MS.

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The article, entitled “Uncorrected and Albumin-Corrected Calcium, Phosphorus, and Mortality in Patients Undergoing Maintenance Dialysis,” will appear online at <http://jasn.asnjournals.org/> on January 22, 2015.

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Founded in 1966, and with more than 15,000 members, the American Society of Nephrology (ASN) leads the fight against kidney disease by educating health professionals, sharing new

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