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ABNORMAL BLOOD CALCIUM LEVELS DEADLY FOR KIDNEY DISEASE PATIENTS

Both High and Low Levels Increase Patients' Risk of Dying Prematurely

Washington, DC (January 5, 2010) — Abnormally high or low blood calcium levels are linked to an increased chance of premature death in non-dialysis kidney disease patients, according to a study appearing in an upcoming issue of the *Clinical Journal of the American Society Nephrology* (CJASN). The findings indicate the potential importance of finding drugs or other treatments that maintain normal blood calcium levels in non-dialysis patients.

Patients with chronic kidney disease (CKD) often have abnormally high or low blood calcium levels due to their compromised kidney function and the effects of commonly used medications. While abnormal calcium levels have been linked to higher premature death rates in dialysis patients, their effects in patients with earlier stages of CKD are less clear.

To investigate the issue, Csaba Kovesdy, MD (Salem VA Medical Center), and his colleagues examined the death rates associated with various blood calcium levels in 1,243 male US veterans with moderate-to-advanced CKD not requiring dialysis therapy. During the study, abnormally high calcium levels were linked to higher death rates among patients particularly when high calcium levels were present for a prolonged period of time. Specifically, compared with patients with normal blood calcium levels, patients with abnormally high levels had a 31% increased risk of dying during the study. Low calcium

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levels were also linked to higher death rates, but after much shorter periods of exposure to such levels. These patients had a 21% increased risk of dying.

The authors speculate that high calcium levels may be involved in processes that take a longer time to cause harm, such as the calcification of blood vessels or soft tissues, while low calcium levels may cause short-term deleterious effects such as heart rhythm abnormalities. The authors also noted that while their observations suggest that maintaining normal blood calcium levels is beneficial for non-dialysis CKD patients, prospective studies are needed to determine the target range for blood calcium and how such a target should be achieved.

Study co-authors include Olga Kuchmak, MD (Carilion Clinic), Jun Lu, MD (Salem Research Institute), and Kamyar Kalantar-Zadeh, MD PhD (Harbor-UCLA Medical Center and David Geffen School of Medicine at UCLA). Dr. Kovesdy and Dr. Kalantar-Zadeh have received grant support and/or honoraria from Fresenius, Genzyme and Shire. The other authors report no financial disclosures.

The article, entitled “Outcomes Associated with Serum Calcium Level in Men with Non-Dialysis Dependent Chronic Kidney Disease,” will appear online at <http://cjasn.asnjournals.org/> on January 7, 2009, doi 10.2215/CJN.06040809.

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