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VITAMIN D DEFICIENCY LIKELY AMONG SOME KIDNEY DISEASE PATIENTS STARTING DIALYSIS

Study Provides Some Potential Explanations

Washington, DC (February 22, 2010) — Vitamin D deficiency is almost universal among kidney disease patients who have low blood protein levels and who start dialysis during the winter, according to a study appearing in an upcoming issue of the *Clinical Journal of the American Society Nephrology* (CJASN). The research identifies a group of patients who are at extremely high risk of being deficient in vitamin D and provides some clues as to why the deficiency occurs in these individuals.

Vitamin D deficiency is common in patients with end-stage renal disease (ESRD) on dialysis, but it's not clear which patients are at increased risk. Ishir Bhan, MD, MPH (Massachusetts General Hospital), and his colleagues sought to determine whether routinely measured clinical and demographic characteristics could identify dialysis patients who have a high risk of vitamin D deficiency. The researchers analyzed data from 908 patients in the Accelerated Mortality on Renal Replacement (ArMORR) cohort, a nationally representative group of U.S. dialysis patients. Data from 60% of the patients were used to find potential predictors of vitamin D deficiency, while data from the other 40% of patients were used to validate the predictors.

The investigators found that 79% of the study population was vitamin D deficient. Black race, female sex, winter season, and low blood levels of the protein albumin (≤ 3.1 g/dL) were the strongest predictors of vitamin D deficiency. In the validation set, the presence of low blood albumin levels and winter season increased the likelihood of vitamin D deficiency in black females (from 90% to 100%), black males (from 85% to 100%), white females (from 82% to 94%), and white males (from 66% to 92%).

"This research identifies risk factors for nutritional vitamin D deficiency in the dialysis population and may provide clues to its biology in this population," said Dr. Bhan. One interpretation of the finding that low blood albumin levels were associated with deficiency is that at-risk patients leak large amounts of protein in their urine. The investigators suspect that vitamin D binding protein, which transports the vitamin through the blood, may also be lost through the urine. Its loss could lead to the loss of vitamin D as well. In addition, while previous studies have suggested that patients on

dialysis have an impaired ability to generate vitamin D from sun exposure, these findings emphasize that skin-based production of the vitamin is likely to be important in patients with ESRD.

Study co-authors include Sherri-Ann Burnett-Bowie, MD, MPH, Jun Ye, PhD, Ravi Thadhani, MD MPH (Massachusetts General Hospital), and Marcello Tonelli, MD (University of Alberta, Edmonton, Canada).

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The article, entitled “Clinical Measures Identify Vitamin D Deficiency in Dialysis,” will appear online at <http://cjasn.asnjournals.org/> on February 25, 2010, doi 10.2215/CJN.06440909.

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