Sickle cell trait in African-American dialysis patients affects dosing of anemia drugs

January 23 2014

The presence of sickle cell trait among African Americans may help explain why those on dialysis require higher doses of an anemia medication than patients of other ethnicities, according to a study appearing in an upcoming issue of the *Journal of the American Society of Nephrology* (*JASN*). Additional studies are needed to determine the long-term health consequences of this increased dosing.

Sickle cell trait represents the carrier state of sickle cell disease and is present in roughly 6% to 8% of African Americans. In sickle cell disease , individuals have two copies of a genetic mutation that produces an abnormal change in hemoglobin, the primary molecule that carries oxygen in the blood. This change can lead to severe anemia and abnormally shaped red blood cells that can block the flow of blood, causing organ damage. Generally, sickle cell trait (when only one copy of the mutation is present) is thought to be benign, but kidney abnormalities have been reported in some affected individuals.

Studies have also shown that African Americans with kidney failure require higher doses of medications to treat anemia during dialysis. Could the presence of sickle cell trait among African Americans play a role?

To investigate, Vimal Derebail, MD, MPH (University of North Carolina at Chapel Hill / UNC Kidney Center) and his colleagues examined laboratory and clinical data over six months in 2011 concerning 5319 adult African-American hemodialysis patients.

Patients with sickle cell trait received about 13% more of the medications used to treat anemia than other patients to reach the same level of hemoglobin. The investigators also found that sickle cell trait was slightly more common among dialysis patients, present in 10% of study participants compared with 6.5% to 8.7% in the general African-American population.

The findings suggest that the presence of sickle cell trait may explain, at least in part, prior observations of greater doses of anemia medications administered to African-American dialysis patients relative to Caucasian patients.

"While we don't know whether there are any adverse consequences to this higher dose of medication yet, further policies and decisions regarding management of anemia in dialysis patients should take into account these findings," said Dr. Derebail. "Also whether sickle trait is more common in dialysis patients because it contributes to kidney disease should be explored further in future research."

More information: The article, entitled "Sickle Trait in African-American Hemodialysis Patients and Higher Erythropoiesis-Stimulating Agent Dose," will appear online on January 23, 2014, DOI: 10.1681/ASN.2013060575

Provided by American Society of Nephrology