

Anemia tougher to tackle in black children with kidney disease

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Black children with chronic kidney disease have more severe anemia than white children even when they receive the same treatment, according to a multicenter study led by Johns Hopkins Children's Center to be published in the May issue of the *American Journal of Kidney Disease*.

The findings suggest that inherent biological differences, rather than access to care and treatment, may be at play, raising the question whether current guidelines for anemia treatment should be tailored to reflect race, investigators say.

Anemia, marked by abnormally low levels of [red blood cells](#), is a key indicator of disease status. It is diagnosed by measuring levels of the protein hemoglobin, which carries oxygen in and out of red blood cells. Hemoglobin levels below 11 grams per deciliter of blood generally indicate anemia, but the number is adjusted for a child's age and gender.

In the new study, black children with kidney disease had lower hemoglobin than white children, 0.6 grams per deciliter on average, and a greater proportion of black children were anemic when compared with white children. The difference persisted even after researchers eliminated certain factors that affect hemoglobin levels, such as severity of kidney disease and whether the children received treatment with hemoglobin-boosting medications for their anemia.

"As we move from one-size-fits-all medicine toward individualized

medicine, we should study further [racial disparities](#) and, perhaps, adjust hemoglobin targets to reflect what appear to be genetic variations," said lead investigator Meredith Atkinson, M.D., M.H.S., a pediatric nephrologist at Johns Hopkins Children's.

Racial differences in hemoglobin levels are nothing new in adults with chronic kidney disease, researchers say, nor are slight variations in hemoglobin between healthy white and black children.

The tricky part, researchers say, is differentiating between "true" anemia and normal racial variations in hemoglobin levels.

The Hopkins-led study involved 429 children ages 1 to 16 with chronic kidney disease enrolled in 44 study sites across the United States. More than 40 percent of black children had hemoglobin levels below the fifth percentile for their age and gender — deemed a critical cutoff point — compared to 29 percent of white children. Also, fewer African-American than white children reached higher hemoglobin levels with treatment. The differences persisted even after researchers controlled for factors affecting hemoglobin levels, such as an iron-rich diet and body-mass index.

Moreover, researchers found that as the disease progressed and the anemia got worse across the board for all children, the hemoglobin gap between white and black children widened. This finding suggests that as the disease progresses, pediatric nephrologists should monitor even more vigilantly hemoglobin levels in their African-American patients.

"What we are observing could very well mean that black children's hemoglobin levels start to plummet once they reach a certain point in their disease," Atkinson said.

Untreated, chronic [anemia](#) can speed disease progression and, over time,

can lead to a dangerous thickening of the heart muscle called left-ventricular hypertrophy, among other complications.

[Chronic kidney disease](#) affects 26 million people in the United States.

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Provided by Johns Hopkins Medical Institutions

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