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RISK FACTORS

Sickle cell trait increases the risk of chronic kidney disease

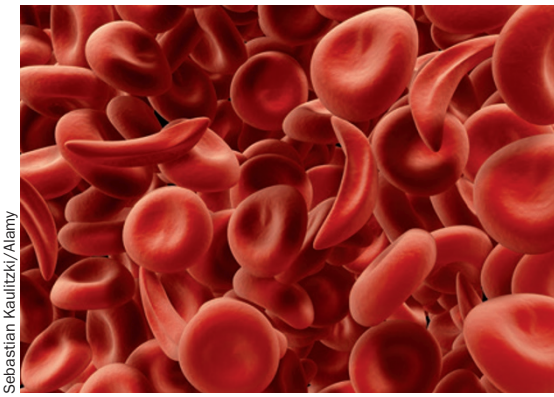
Data regarding the health consequences of sickle cell trait (SCT)—including a potential relationship with impairment of renal function— are conflicting. A large prospective population-based study by Alexander Reiner and colleagues has now shown that SCT is associated with an increased risk of chronic kidney disease (CKD) in African Americans.

The researchers analysed data for ~16,000 self-identified African Americans from five US cohorts, including genotype for SCT and measures of kidney function. Primary outcomes were CKD at any time during the study, incident CKD during follow-up, decline in estimated glomerular filtration rate, and albuminuria. The researchers explain that the large sample size and demographic diversity between cohorts enabled adequate power to detect associations and assess their consistency across groups of different age, geographic location and gender.

"SCT was significantly and consistently associated with a 1.5–2.0-fold increased risk of various CKD end points," says Reiner. "This association was independent of other risk factors, such as diabetes mellitus, hypertension and *APOL1* variants." Data from two of the five cohorts, however, showed that the incidence of end-stage renal disease did not significantly differ between carriers (3.1%) and non-carriers (2.8%) of SCT.

"We knew that SCT was related to benign kidney conditions, such as blood in the urine and vascular damage, but we didn't know the impact of these changes on long-term kidney function," says lead investigator Rakhi Naik. "Our study was the first large, adequately-powered study to show an association of SCT with CKD and proteinuria."

The researchers suggest that the public health implications of the current findings should now be considered, and additional studies are warranted to assess the impact of SCT on other organ systems. As not all individuals with SCT will develop CKD, they hope that further research will better characterize which individuals are at high risk and should be screened for renal impairment as well as determine whether early treatment can slow kidney disease progression.



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Original article Naik, R. P. *et al.* Association of sickle cell trait with chronic kidney disease and albuminuria in African Americans. *JAMA* doi:10.1001/jama.2014.15063