Study finds existence of protein in the blood can be early predictor of kidney disease

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Mayo Clinic researchers in Rochester, Minnesota, collaborated with the University of Mississippi Medical Center on a recent study, "Troponin T as a Predictor of End-Stage Renal Disease and All-Cause Death in African-American and Whites From Hypertensive Families." For the first time, this study identified the presence of a specific protein in the blood used to look for heart damage. This protein can be an early indicator of end-stage renal disease—and ultimately death—in people with hypertension, regardless of race or baseline kidney function. The study was published online today, and will be in the November issue of *Mayo Clinic Proceedings*.

According to LaTonya Hickson, M.D., lead author on the study and a Nephrology and Hypertension physician at Mayo Clinic, an increased level of cardiac troponin T (cTnT) in the blood can be an early indicator of disease and accurately identify patients who need intervention, regardless of race. Dr. Hickson says this is important, because, while previous studies have shown a higher incidence of death and kidney failure among African-Americans compared to whites, doctors now know that, regardless of race or baseline kidney function, having an elevated level of cTnT can be a warning of impending kidney failure and/or early death.

"Early intervention and treatment can be key to stopping kidney disease progression and, potentially, preventable death events," says Dr. Hickson. "This study demonstrates for physicians everywhere that we are getting closer toaccurately predicting future disease and death by examining this one marker. This is important, because, as with many diseases, accurate, early detection means we can more quickly recognize and efficiently treat the disease before it fully manifests—potentially improving a patient's quality and quantity of life."

Hypertension, or high blood pressure, is a common cardiovascular disease in the U.S., with current estimates predicting that more than 40 percent of the population will have some form of disease, including hypertension by 2030. End-stage renal disease or end-stage kidney failure often is associated with hypertension and affects approximately 600,000 people at a cost of nearly $50 billion annually. Screening for kidney disease in the general population is not recommended, but may be beneficial in patients with other medical conditions.

Previous research showed African-Americans have a higher occurrence of hypertension and end-stage renal disease, and generally live three to eight years fewer than their white counterparts. Mayo Clinic researchers studied patients from these racial groups using blood samples from people enrolled in the Genetic Epidemiology Network of Arteriopathy (GENOA) study between June 1996 and August 2000. The GENOA study was designed to identify the relationship among genetics, race and hypertension in the community. In this cohort, more than 70 percent of patients had hypertension, and all others were from hypertensive families. Mayo Clinic researchers examined baseline data from 3,050 patients enrolled in GENOA and conducted follow-up assessments of death and end-stage kidney failure events nearly 10 to 12 years later.

"Among the overall cohort, we found that, at 10 years, those with an abnormal cTnT had a high cumulative incidence of death totaling 47 percent, compared to those with a normal cTnT (7.3 percent)," says Dr. Hickson. "In addition, 10 years after the initial testing, the cumulative incidence of end-stage kidney failure was 27 percent among those with an abnormal cTnT, compared to the substantially lower rate found in those with normal cTnT (1.3 percent)." These findings are reassuring and supportive of future investigations into cTnT as an important biomarker for predicting death and kidney failure.

More information: Troponin T as a Predictor of End-Stage Renal Disease and All-Cause Death in African Americans and Whites From Hypertensive Families, dx.doi.org/10.1016/j.mayocp.2015.08.016 , www.mayoclinicproceedings.org/ … (15)00682-5/fulltext

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