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Contacts: Tracy Hampton • (312) 339-9067 • thampton@nasw.org
Bob Henkel • (202) 557-8360 • bhenkel@asn-online.org

BLOOD TESTS PREDICT KIDNEY DISEASE PATIENTS' RISK OF DEVELOPING HEART FAILURE

Tests could help safeguard patients' heart health

Highlights

- Kidney disease patients with detectable levels of a blood protein called high-sensitivity troponin T had up to a 5-fold increased risk of developing heart failure.
- Those with high levels of a protein called N-terminal pro-B-type natriuretic peptide had a nearly 10-fold increased risk of developing heart failure.

60 million people globally have chronic kidney disease.

Washington, DC (October 2, 2014) — Two blood markers are strongly linked with the development of heart failure in individuals with mild to severe kidney disease, according to a study appearing in an upcoming issue of the *Journal of the American Society of Nephrology* (JASN). Elevations in these markers may indicate subclinical cardiovascular changes that subsequently contribute to the development of heart failure.

Patients with chronic kidney disease (CKD) are at increased risk of developing heart failure and other cardiovascular diseases. Nisha Bansal, MD, MAS (University of Washington) Amanda Anderson, PhD, MPH (University of Pennsylvania), and their colleagues conducted a study to see if certain blood tests might help identify patients at especially high risk. These tests—which measure proteins called high-sensitivity troponin T (hsTnT) and N-terminal pro-B-type natriuretic peptide (NT-proBNP)—strongly predict heart failure in the general population, but their predictive utility in patients with CKD is unknown. The researchers studied 3483 patients with CKD in the Chronic Renal Insufficiency Cohort (CRIC) Study who were recruited from June 2003 to August 2008 and were free of heart failure when they enrolled. Patients were followed for a median of nearly 6 years.

Compared with participants with the lowest levels of hsTnT at the start of the study, those with the highest hsTnT levels had a nearly 5-fold higher risk of developing heart failure. Those with the highest NT-proBNP levels had a nearly 10-fold higher risk of developing heart failure compared with those with the lowest levels.

"This research is important in that it may advance the application of widely available cardiac biomarkers to identify CKD patients at the highest risk of developing heart failure, the most common cardiovascular complication in this patient population," said Dr. Bansal. "These findings suggest that hsTnT and NT-proBNP may represent distinct biological pathways that likely involve subclinical changes in the structure and function of the heart," said Dr. Anderson.

Study co-authors include Wei Yang, PhD, Robert Christenson, PhD, Christopher deFilippi, MD, Rajat Deo, MD, Daniel Dries, MD, Alan Go, MD, Jiang He, MD, John Kusek, PhD, James Lash, MD, Dominic Raj, MD, Sylvia Rosas, MD, Myles Wolf, MD, MMSc, Xiaoming Zhang, MS, Michael Shlipak, MD, Harold Feldman, MD, MSCE.

Disclosures: The authors reported no financial disclosures.

The article, entitled "High Sensitivity Troponin T and NT-proBNP and Risk of Incident Heart Failure in Patients with Chronic Kidney Disease: The CRIC Study," will appear online at <http://jasn.asnjournals.org/> on October 2, 2014.

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amyf@uw.edu
leilag@u.washington.edu

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