IMPROVING MODELS TO PREDICT CARDIOVASCULAR DISEASE IN INDIVIDUALS WITH KIDNEY DYSFUNCTION

Adding certain risk factors may help indicate patients at highest risk.

Highlights
- Several factors not included in prior prediction models were important for atherosclerotic cardiovascular disease prediction among patients with chronic kidney disease.
- Adding these factors could aid clinicians and patients with decisions related to heart disease prevention.

Washington, DC (February 10, 2022) — A new study reveals that certain changes to models that predict the risk of developing cardiovascular problems in the general population can help clinicians improve risk prediction in individuals with kidney disease. The findings, which are published in JASN, may be used to help protect the heart health of patients with kidney disease.

Individuals with chronic kidney disease (CKD) often develop atherosclerotic cardiovascular disease (CVD)—such as strokes and heart attacks—but common prediction tools to determine a person’s risk of CVD were developed for the general population and may not include certain factors relevant to patients with CKD. Improving CVD risk prediction in patients with CKD may help identify those among this growing population who are truly at high risk, as well as identify those who are at low risk and less likely to benefit from invasive interventions.

A team led by Jiang He, MD, PhD and Joshua D. Bundy, PhD, MPH (Tulane University School of Public Health and Tropical Medicine) aimed to create new equations using many clinically available variables and novel biomarkers that may be especially important in patients with CKD. In the researchers’ analysis of 2,604 participants of the Chronic Renal Insufficiency Cohort Study, they found that several factors not included in prior prediction models were important for atherosclerotic CVD prediction among patients with CKD. These included measures of long-term glycemia (HbA1c), inflammation (high-sensitivity C-reactive protein), kidney injury (urinary albumin-creatinine ratio), and cardiac injury (troponin-T and NT-proBNP).
"We created two new prediction tools for patients with CKD: the first is a simple model that includes factors routinely measured by healthcare providers and the second is an expanded model with additional variables particularly important to patients with CKD, including measures of long-term blood sugar, inflammation, and kidney and heart injury," said Dr. He. "We found that the new models are better able to classify patients who will or will not have a stroke or heart attack within 10 years compared with the standard models."

"The new tools may better assist healthcare providers and patients with CKD in shared decision-making for the prevention of heart disease," added Dr. Bundy.

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Disclosures: J. Bundy and J. He reported no financial disclosures. K. Matsushita reports Consultancy Agreements: Kyowa Hakko Kirin, Akebia, Mitsubishi Tanabe; Research Funding: Fukuda Denshi; and Scientific Advisor or Membership: Kidney International, American Journal of Kidney Disease, Circulation Reports. J. Cohen reports Honoraria: UpToDate; and Other Interests/Relationships: Research grant funding from the National Institutes of Health (NIH-NHLBI K23-HL133843 and R01- HL153646, NIH-NCATS U01-TR003734) and the American Heart Association (Bugher Award). R. Deo reports Consultancy Agreements: Boehringer Ingelheim, Pfizer, Janssen Pharmaceuticals, Biotronik; Research Funding: iRhythm Technologies; Scientific Advisor or Membership: Editorial Board, Circulation, Editorial Board, Heart Rhythm O2; and Other Interests/Relationships: Steering Committee for KDIGO. M. Dobre reports Honoraria: Relypsa Inc., Tricida; and Scientific Advisor or Membership: Tricida - Metabolic Acidosis Working Group, Relypsa - Resistant Hypertension Working Group. J. Lash reports Scientific Advisor or Membership: Kidney360. S. Seliger reports Consultancy Agreements: Tricida, Inc (Endpoint Adjudication Committee ); Research Funding: Roche Diagnostics, Inc., Sanofi US, Palladio Biosciences, Kadmon Pharmaceuticals, Reata Pharmaceuticals; Patents and Inventions: University of Maryland, Baltimore and University of Texas, Southwestern: Methods for Assessing Differential Risk for Developing Heart Failure; and Scientific Advisor or Membership: Associate Editor - Clinical Journal of the American Society of Nephrolog, Member, Medical Review Board, ESRD Network 5, Chair, Board of Directors, ESRD Network 5, Member Endpoint Adjudication Committee, VALOR-CKD trial (Tricida Inc), and Member, Editorial Board - Circulation. T. Shafi reports Consultancy Agreements: Siemens; Research Funding: Baxter (clinical trial site investigator), CVS (clinical trial site investigator), Natera (clinical trial site investigator); Honoraria: National Institute of Health;

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