

Chronic kidney disease patients at increased risk of adverse cardiovascular outcomes

October 23 2019

Chronic kidney disease, which afflicts an estimated 6.4% of U.S. adults 45 and older, is associated with an increased risk of heart attack and other adverse cardiovascular outcomes, according to new research from Mayo Clinic.

The retrospective review of 1,981 patients who were treated for [chronic kidney disease](#) at Mayo Clinic between 1997 and 2000 found that over a 10.2-year follow-up period, these patients had significantly elevated [cardiac biomarkers](#), and were at increased risk of heart attack, [congestive heart failure](#), stroke and other adverse cardiovascular events.

According to the study, which is published in *Mayo Clinic Proceedings*, the results regarding heart attack were especially striking: Chronic [kidney disease](#) was associated with a 95% increased risk of [heart attack](#) during the follow-up period.

"Our study highlights the strong association between chronic kidney disease and [heart disease](#), with evidence that patients with kidney disease are at an increased risk for heart attacks, heart failure, stroke and even death," says Shravya Vinnakota, M.B.B.S., a resident in cardiovascular disease at Mayo Clinic College of Medicine and Science and the study's lead author.

While the prevalence of chronic kidney disease in the U.S. has stabilized in recent decades, the prognosis for patients remains poor. Cardiovascular disease long has been identified as the major cause of

premature death for chronic kidney disease patients, but this was believed to be due in part to common risk factors, such as hypertension and diabetes. However, there's growing evidence that impaired [kidney function](#) alone is a risk factor.

The study analyzed data from the Olmsted County, Minn., Heart Function Study, a population-based random sample of 2,042 county residents 45 and older, and it used one of the longest follow-up periods in chronic kidney disease research.

The elevated biomarkers identified in the study—the hormone NT-proBNP, which is produced by the heart, and the protein called high-sensitivity troponin, which is found in heart muscle cells—may help identify chronic kidney disease patients who are at high risk, according to the study. Both biomarkers can be measured through blood tests, and these blood tests would give doctors and patients more information to manage risk factors, such as weight, blood pressure, high cholesterol and diabetes.

"Chronic kidney disease is widely prevalent, and its association with cardiovascular diseases and mortality is well-documented, says Horng Chen, M.D., a Mayo Clinic cardiologist who specializes in heart failure. "Despite this, there is a paucity of data that helps identify the patients with kidney disease who are at an increased cardiovascular risk. With this study, we have attempted to classify patients according to their kidney function, and analyze their cardiovascular outcomes and biomarker activation trends."

Further studies, including clinical trials, are needed to confirm the prognostic value of the cardiac biomarkers and the effectiveness of risk modification strategies, says Dr. Chen, the study's senior supervising author.

Provided by Mayo Clinic

Citation: Chronic kidney disease patients at increased risk of adverse cardiovascular outcomes (2019, October 23) retrieved 9 April 2024 from

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