

Acute kidney injury, chronic kidney disease each a risk of the other

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Acute kidney injury (AKI) and chronic kidney disease (CKD) are closely intertwined, with each disease a risk factor for developing the other and sharing other risk factors in common, as well as sharing causes for the diseases to get worse, and outcomes, suggests a comprehensive analysis by scientists at the National Institutes of Health and George Washington University Medical Center, Washington, D.C. Findings were published July 3 in the *New England Journal of Medicine*.

AKI is a sudden loss of [kidney](#) function; CKD develops slowly over many years. Common [risk factors](#) of each include advanced age, diabetes and high blood pressure.

Analyzing large observational studies, the researchers saw that CKD and AKI were also risk factors for development of cardiovascular disease, progressive decreases in kidney function that can lead to [kidney failure](#), diminished quality of life, disability and premature death.

"Physicians have been taught for decades to consider AKI and CKD as separate, but our study shows that we have to approach the two diseases as interconnected," said lead author Paul Kimmel, M.D., director of the Acute Kidney Injury program at the NIH's National Institute of Diabetes and Digestive and Kidney Diseases. "When people have [chronic kidney disease](#), their doctors should be on the lookout for [acute kidney injury](#). And when people have recovered from acute [kidney injury](#), they should promptly follow up with their doctor – and a kidney specialist to monitor their kidney function for long-term consequences related to progression

of CKD."

Researchers also found that new cases of AKI are increasing among hospitalized patients, likely due to an aging population and rising rates of sepsis, a potentially life-threatening blood infection that can cause AKI. However, they found pre-existing CKD is the most important risk factor for AKI, increasing the odds by as much as 10 times. Conversely, patients with AKI had a 13-fold increased risk of CKD that progressed to kidney failure compared to those without AKI. And the risk of kidney failure rose to 40 times if patients had both AKI and pre-existing CKD.

Observational data in the [2007 U.S. Renal Data System Annual Data Report](#) suggest that few people with AKI see physicians, cardiologists or nephrologists (kidney specialists) after a hospital discharge.

"Some internists may not know their patient had AKI and needs long-term kidney care," said co-author Robert Star, M.D., director, NIDDK Division of Kidney, Urologic and Hematologic Diseases. "Hospitals need a system to consistently alert the patient's primary care physician and a nephrologist so they can assess the patient's kidney health periodically and ensure the highest standards of care."

More research in people is needed to determine what preventive measures might effectively delay CKD and maintain [kidney function](#) in AKI patients. These could include avoiding non-steroidal anti-inflammatory drugs such as aspirin and ibuprofen and other medications that can damage the kidneys, consuming a low-sodium and/or low-protein diet, and taking medications to protect the kidneys and lower blood pressure like ACE inhibitors or angiotensin receptor blockers. However, until researchers and physicians have better evidence for the effects of such measures in AKI and CKD, they are widely considered reasonable therapeutic approaches.

An estimated 20 million American adults have CKD, and more than 400,000 in the United States and 2 million worldwide depend on dialysis to treat kidney failure.

Provided by National Institute of Diabetes and Digestive and Kidney Diseases

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