

Kidney function and damage markers predict mortality risk

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Common tests of kidney function and damage predict the risk of death from cardiovascular diseases and all causes, according to a paper from the Chronic Kidney Disease Prognosis Consortium, established last year by Kidney Disease: Improving Global Outcomes (KDIGO). This analysis of 21 studies from 14 countries found that a common blood test to estimate kidney function and a urine test measuring protein (albumin) to estimate kidney damage were strongly related to mortality risk. The results are published in the May 17, 2010 issue of the *Lancet*.

"People with high levels of albumin in their urine were at markedly higher risk of mortality than people with low levels of albumin in the urine," said Kunihiro Matsushita, MD, PhD, lead author of the study and a postdoctoral fellow with the Johns Hopkins Bloomberg School of Public Health's Department of Epidemiology. "The risk of mortality was elevated by nearly 50 percent at 30 mg/g albumin to creatinine ratio, which is the threshold for defining [chronic kidney disease](#). In addition, mortality risk increased more than four-fold at high levels of albuminuria compared to an optimal level of 5 mg/g. The data presented in this analysis confirm that the current thresholds are indicative of increased all-cause and cardiovascular [mortality risk](#) with both kidney filtration function and urine protein contributing to risk."

The new findings are part of a comprehensive effort by the Chronic Kidney Disease Prognosis Consortium to use data to refine the definition and staging of chronic kidney disease. Staging is a method used to categorize the severity of an illness to help establish the best course of

treatment. Current guidelines from the National Kidney Foundation's Kidney Disease Outcomes Quality Initiative (KDOQI) define chronic kidney disease based on the presence for greater than three months of either: estimated kidney filtration function below 60 ml or [kidney damage](#) most commonly detected by protein in the urine.

"This study conclusively confirms earlier suggestions for including both of these kidney measures in risk evaluation and provides a quantitative basis for chronic kidney disease definition and staging," said co-author, Josef Coresh, MD, PhD, MHS, professor with the Bloomberg School's Department of Epidemiology and director of the George W. Comstock Center for Public Health Research and Prevention. "With more than 1.2 million study participants from 14 countries, the paper has significant implications globally. The overwhelmingly positive response by the community of researchers studying kidney disease for the call to assemble the best possible data to define kidney disease prognosis and improve its definition and staging was impressive."

Chronic kidney disease is increasingly recognized as a major global public health problem. The disease affects 10-16% of the adult population in Asia, Australia, Europe, and the US, and it increases the risk of all-cause mortality, cardiovascular disease, and progression to kidney failure, even after accounting for traditional risk factors such as hypertension and diabetes. There are more than 500,000 patients with kidney failure in the United States.

Provided by Johns Hopkins University Bloomberg School of Public Health

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