

Chronic kidney disease a warning sign independent of hypertension or diabetes

September 25 2012

Two new studies from the Johns Hopkins Bloomberg School of Public Health and the Chronic Kidney Disease Prognosis Consortium found that the presence of chronic kidney disease itself can be a strong indicator of the risk of death and end-stage renal disease (ESRD) even in patients without hypertension or diabetes. Both hypertension and diabetes are common conditions with chronic kidney disease with hypertension being the most prevalent. The studies were released online in advance of publication in *The Lancet*.

[Chronic kidney disease](#) affects 10 to 16 percent of all adults in Asia, Europe, Australia and the United States. Kidney function is measured by estimating [glomerular filtration rate](#) and [kidney damage](#) is often quantified by measuring albumin, the major protein in the urine standardized for urine concentration.

In the hypertension meta-analysis, low kidney function and high urine protein was associated with all-cause and [cardiovascular mortality](#) and ESRD in both individuals with and without hypertension. The associations of kidney function and urine protein with mortality outcomes were stronger in individuals without hypertension than in those with hypertension, whereas the kidney function and urine protein associations with ESRD did not differ by hypertensive status.

In the diabetes analysis, individuals with diabetes had a higher risk of all-cause, cardiovascular mortality and ESRD compared to those without diabetes across the range of kidney function and urine protein. Despite

their higher risks, the relative risks of these outcomes by kidney function and urine protein are much the same irrespective of the presence or absence of diabetes.

"Chronic kidney disease should be regarded as at least an equally relevant risk factor for mortality and ESRD in individuals without hypertension as it is in those with hypertension," said Bakhtawar K. Mahmoodi, MD, PhD, lead author of the hypertension analyses.

"These data provide support for clinical practice guidelines which stage chronic kidney disease based on [kidney function](#) and urine protein across all causes of kidney disease. The conclusions are strengthened by the findings of leading studies and the participation of investigators from 40, countries and a detailed analysis of over 1 million participants," said Josef Coresh, MD, PhD, MHS, the Consortium's principal investigator and professor in the Bloomberg School's Department of Epidemiology.

More information: "Association of kidney disease measures with mortality and end-stage renal disease in individuals with and without hypertension: a meta-analysis" (lead author, Bakhtawar K. Mahmoodi, MD, PhD, from the Johns Hopkins Bloomberg School of Public Health and University Medical Center Groningen, the Netherlands) and "Association of kidney disease measures with mortality and end-stage renal disease in individuals with and without diabetes: a meta-analysis" (lead author Caroline Fox, MD, from the Framingham Heart Study) were written by the Chronic Kidney Disease Prognosis Consortium (CKD-PC), which includes approximately 200 collaborators and data from 40 countries.

Provided by Johns Hopkins University Bloomberg School of Public Health

Citation: Chronic kidney disease a warning sign independent of hypertension or diabetes (2012, September 25) retrieved 3 May 2024 from <https://medicalxpress.com/news/2012-09-chronic-kidney-disease-independent-hypertension.html>

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