Test predicts who will develop end-stage renal disease

April 8 2009

Measuring kidney function by assessing two different factors—glomerular filtration rate (GFR) and urinary albumin levels—helps determine which patients with chronic kidney disease (CKD) will develop end-stage renal disease (ESRD), according to a study appearing in the May 2009 issue of the *Journal of the American Society Nephrology* (*JASN*). This combination test could help physicians identify patients at high risk of serious kidney trouble and allow them to intervene at an early stage.

While there is a high prevalence of CKD worldwide, relatively few individuals with the disease develop ESRD, expected to affect 785,000 people in the U.S. by 2020 (current annual cost: $32 billion). Physicians and researchers have looked for ways to identify which patients will progress to ESRD in order to target patients most in need of extensive treatment, and help establish clinical guidelines and public health plans for treating patients with CKD.

Stein Hallan, MD, PhD (St. Olav University Hospital, Norway), and his colleagues recently conducted a study to see if combining two tests commonly used to measure kidney function might help predict ESRD. One test measures an individual's estimated glomerular filtration rate (eGFR—a measure of the volume of fluid filtered by the kidneys), while the other measures the amount of albumin (the predominant protein in the blood) that is excreted in urine. A high urinary albumin level indicates a rapid rate of kidney disease progression, and a low eGFR indicates an advanced stage of disease.

The researchers analyzed data from 65,589 adults who participated in the population-based Nord-Trøndelag Health (HUNT 2) Study and found 124 individuals who developed ESRD after more than 10 years of follow-up. Combining urinary albumin and eGFRs results identified more than 65% of patients who would develop this condition. Other factors such as hypertension, diabetes, smoking, obesity, and cardiovascular disease did not provide any additional information that could be used to predict who would develop ESRD.

"We provide clear evidence… that reduced eGFR should always be complemented by information on urine-albumin to yield optimal prediction of the risk of progression to ESRD," said Dr. Hallan. He added that combining these measurements might also help reduce the number of patients referred to specialists without losing the ability to detect future ESRD cases.

"Future risk scores and classification systems based on these two variables will be a simple and powerful tool for improving our ability to efficiently handle the large group of patients with CKD," the authors wrote.

More information: The article, entitled "Combining GFR and Albuminuria to Classify CKD Improves Prediction of ESRD," will appear online at jasn.asnjournals.org/ on April 8, 2009, doi 10.1681/ASN.2008070730.

Source: American Society of Nephrology (news : web)

Citation: Test predicts who will develop end-stage renal disease (2009, April 8) retrieved 25 April 2024 from https://medicalxpress.com/news/2009-04-end-stage-renal-disease.html

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