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SIMPLE LAB TESTS MAY PREDICT 25-YEAR RISK OF END STAGE KIDNEY DISEASE

Washington, DC (April 7, 2006) — Routine blood and urine tests may help to predict the risk of end-stage renal disease (ESRD) developing between middle age and old age, reports a study in the *May Journal of the American Society of Nephrology*.

Abnormal results on the urine "dipstick" test, which detects protein in urine, and a blood test to estimate kidney function can identify patients at increased risk of ESRD—permanent loss of kidney function requiring dialysis or transplantation, according to the study by Dr. Areef Ishani of Minneapolis Veterans Affairs Medical Center and colleagues.

The researchers used data on nearly 13,000 men enrolled in a long-term study of cardiovascular disease prevention. At the start of the study in 1972-75, the men were 35 to 57 years old and at high risk for heart disease but without existing coronary heart disease. Follow-up data through 1999 were analyzed to determine whether common laboratory tests and other factors could help to identify patients at high risk of eventually developing ESRD.

Over 25 years, 1.7 percent of the men developed ESRD or died of kidney disease. On the dipstick test, men who had more than a trace amount of protein in their urine in middle age were at triple the risk of ESRD at follow-up. For those with a stronger positive result, ESRD risk was more than 15 times higher than in men with a normal dipstick result.

The estimated glomerular filtration rate (eGFR)—a rough estimate of kidney function, based on a blood test—also predicted long-term ESRD risk. When the eGFR was abnormally low, risk of eGFR was more than doubled.

The risk of ESRD was especially high when both the dipstick test and eGFR were abnormal—41 times higher than in men with normal results on both tests. Another routine blood test, the hematocrit level, was unrelated to ESRD risk.

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Several other factors predicted ESRD risk, including age, smoking, blood pressure, low levels of high-density lipoprotein ("good") cholesterol, and blood sugar (glucose) level. Many risk factors for kidney disease are the same as those for heart disease.

The rate of ESRD is rapidly increasing. Doctors would like to identify factors associated with developing ESRD, with the hope that early intervention will prevent ESRD and its related complications, such as cardiovascular disease and death.

The new results show that the urine dipstick test and the eGFR blood test—along with recognized risk factors such as high blood pressure and smoking—may be a useful part of strategies to predict the long-term risk of serious kidney disease. "Both tests are very easy to perform, and are commonly done in clinical practice," said Dr. Ishani. "Future studies can determine whether intervening on these factors can prevent the development of ESRD."

The study, "The Multiple Risk Factor Intervention Trial" was conducted under contract with the National Heart, Lung, and Blood Institute, Bethesda, MD. The work was supported by National Heart, Lung, and Blood Institute Grants, numbers #R01-HL-43232 and #R01-HL-68140.

The article title, "Association of Single Measurements of Dipstick Proteinuria, Estimated Glomerular Filtration Rate and Hematocrit with 25-year Incidence of End-Stage Kidney Disease in the Multiple Risk Factor Intervention Trial" will be available online at www.jasn.org on Wednesday, April 12 and will appear in print in May's *Journal of the American Society of Nephrology*.

The ASN is a not-for-profit organization of 9,500 physicians and scientists dedicated to the study of nephrology and committed to providing a forum for the promulgation of information regarding the latest research and clinical findings on kidney diseases.

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