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ADMA MAY BE NEW RISK FACTOR FOR PROGRESSIVE KIDNEY DISEASE

Washington, DC (June 17, 2005) — For patients with chronic kidney disease (CKD), a molecular marker of blood vessel damage may help to predict further loss of kidney function, suggest two studies in the August *Journal of the American Society of Nephrology*.

If additional research shows that elevated levels of asymmetric dimethylarginine (ADMA) are a cause of progressive kidney damage rather than just a risk marker, treatments to lower ADMA levels may help to prevent the long-term consequences of CKD.

A study led by Dr. Danilo Fliser of Germany's Hannover Medical School measured ADMA concentrations in 227 relatively young patients with mild to moderate CKD that was unrelated to diabetes. Patients with lower kidney function at the beginning of the study had higher ADMA levels.

Over time, patients with higher ADMA levels were more likely to have progressive kidney disease—further loss of kidney function, including the need for dialysis. Even a tiny one-micromole increase in ADMA level was linked to a nearly 50 percent increase in risk of progression.

Patients with higher ADMA levels also took less time to develop progressive kidney disease: the average time to progression was 4.5 years for patients with ADMA levels above the median, compared to 6 years for those with lower levels.

An Italian research group led by Dr. Pietro Ravani of Cremona Hospital evaluated ADMA's predictive value in a group of 131 mainly elderly patients with moderate to severe CKD. Again, patients with higher ADMA levels had initially worse kidney function.

Approximately two years later, the risk of progression to end-stage renal disease (ESRD) or death was higher for patients with higher ADMA levels. For each one-micromole increase in ADMA, the risk of ESRD or death increased by 20 percent. This relationship was independent of other risk factors, including initial CKD severity.

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High ADMA levels have previously been linked to blood vessel damage in various diseases. Clinical studies have found elevated ADMA levels in patients with early-stage kidney disease, while animal experiments have shown that ADMA has a powerful effect on blood flow within the kidneys.

There is currently a worldwide epidemic of CKD, which is estimated to affect one in nine individuals. The number of patients with CKD who will require kidney dialysis or transplantation will double in the next decade.

The two new studies—involving patients with CKD ranging from mild to severe—find that high ADMA levels are a strong risk factor for progressive kidney disease. The critical question now is whether ADMA levels simply indicate the patient's risk of progressive CKD or ADMA actually plays a role in causing further kidney damage. If the latter, then medications designed to block ADMA may provide an entirely new approach to preventing or slowing the course of progressive kidney damage.

The ASN is a not-for-profit organization of 9,000 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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