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LIPID MARKER LINKED TO WORSENING OF KIDNEY DISEASE

Washington, DC (January 6, 2006) — In patients with mild to moderate kidney disease, measuring levels of a protein called apolipoprotein A-IV (apoA-IV) can accurately predict the long-term risk of progressive loss of kidney function, reports a study in the February *Journal of the American Society of Nephrology*.

"Patients with primary kidney disease would like to know whether they are at risk of disease progression, which often results in renal replacement therapy such as hemodialysis and/or kidney transplantation," comments Dr. Florian Kronenberg of Innsbruck Medical University, Austria, one of the study authors. "Our results show that apoA-IV is an excellent predictor for the progression of kidney disease, adding important and additional information besides the exact determination of kidney function."

The seven-year follow-up study included 177 non-diabetic patients with primary kidney disease classified as mild to moderate, based on glomerular filtration rate—a standard measure of kidney function. At the beginning of the study, the patients underwent detailed analysis of blood lipid levels—not just cholesterol and triglycerides, but also apolipoproteins, which are proteins that carry lipids including cholesterol through the bloodstream.

During the follow-up period, kidney function worsened in approximately 37 percent of patients. Some lipid measurements differed in patients with progressive kidney disease, including a lower level of high-density lipoprotein cholesterol ("good" cholesterol); a higher level of triglycerides; and levels of a specific apolipoprotein, termed apoA-IV.

After adjustment for other factors, the apoA-IV level was still significantly related to worsening kidney function. For patients with apoA-IV levels above the median, the average time to progressive kidney disease was 54 months, compared to 70 months for those with lower apoA-IV levels.

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Another independent predictor was a lower initial level of kidney function, as indicated by the glomerular filtration rate. The apoA-IV level was almost as strong a predictor as the initial glomerular filtration rate.

It is estimated that as many as one in nine individuals in the general population suffer from some abnormality in kidney function and these individuals are at significantly increased risk of both progressive kidney disease and cardiovascular disease. However, predicting those at most risk of progressive kidney disease, and most likely to benefit from preventive therapy, remains a challenge for physicians.

It has long been suspected that lipid levels such as cholesterol and triglycerides might affect the risk of progressive kidney disease, just as they influence cardiovascular disease outcomes. The new study suggests that cholesterol and triglyceride levels do not significantly affect the risk of worsening kidney function in patients with non-diabetes-related primary kidney disease.

However, the results indicate that apoA-IV may be useful in predicting the long-term risk of progressive kidney disease. The association is independent of other factors, including the patient's initial level of kidney function. "We have demonstrated in previous studies that patients with kidney disease have a significant increase in apoA-IV concentrations, even when the glomerular filtration rate is still within the normal range," adds Dr. Kronenberg. "It therefore seems that apoA-IV is not only an early marker of renal impairment, but also predicts whether the kidney function will worsen during the upcoming years."

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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