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## **CHOLESTEROL-CARRYING PROTEINS AFFECT CARDIOVASCULAR RISK IN DIALYSIS PATIENTS**

**Washington, DC (April 25, 2005)** — Heart attacks and strokes remain the leading causes of death in developed countries, and account for over 60 percent of death in patients with kidney failure receiving dialysis. A study in the June *Journal of the American Society of Nephrology* finds that levels of a cholesterol-carrying protein called lipoprotein(a) (Lp[a])—and especially the size of "low molecular weight" apolipoprotein(a) (apo[a]) particles—are important risk factors for cardiovascular events in patients on dialysis.

Led by Dr. J. Craig Longenecker of Johns Hopkins University, Baltimore, the researchers studied 833 patients starting dialysis at 81 U.S. clinics. Over an average of 2 years, the patients were followed up for the occurrence of cardiovascular events caused by atherosclerosis (narrowing of the arteries). The study focused on how specific lipoproteins—sometimes described as the "packages" that carry cholesterol through the bloodstream—affect the risk of cardiovascular events.

During follow-up, 297 patients suffered atherosclerotic cardiovascular events. In statistical analyses accounting for other factors, patients with high levels of Lp(a) had a 38 percent increase in the risk of cardiovascular events.

Studies in the general population have identified high concentrations of Lp(a) as a "new" risk factor for cardiovascular disease. Patients with end-stage renal disease, who require dialysis to replace lost kidney function, have elevated levels of Lp(a).

However, risk was even more strongly affected by a specific subset of Lp(a) particles: very small, low molecular weight forms of a particle called apolipoprotein(a) (apo[a]). For patients in the smallest category of apo(a) size, the cardiovascular event rate was increased by 58 percent.

Further analyses found that apo(a) size was a more important risk factor than Lp(a) level. The cardiovascular event rate was highest—a 73 percent elevation—for patients who had both high Lp(a) levels and small apo(a) size. These relationships were unaffected by factors such as patient age, race, or sex or the presence of diabetes.

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Studies in the general population have linked high Lp(a) levels and small apo(a) size to atherosclerosis and cardiovascular events. However, it has been unclear how much these cholesterol-carrying proteins contribute to the high rate of atherosclerosis in patients on dialysis.

The new study is the first to show an independent effect of high Lp(a) levels, and especially small apo(a) size, on the risk of atherosclerotic cardiovascular events in dialysis patients. More research is needed to find out whether treatments to lower Lp(a) levels can reduce the risk of events and whether information on Lp(a) and apo(a) size can be used to target dialysis patients for more aggressive treatment to prevent atherosclerosis. Studies to determine just how apo(a) size influences the development of atherosclerosis may point the way to new treatments in the future.

The study entitled, “High Lipoprotein(a) Levels and Small Apolipoprotein(a) Size Prospectively Predict Cardiovascular Events in Dialysis Patients” is available in the June issue of the *Journal of the American Society of Nephrology* (JASN) or online now at [www.asn-online.org](http://www.asn-online.org) or [www.jasn.org](http://www.jasn.org).

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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