

# Kidney disease increases the risk of stroke in patients

March 4 2009

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Chronic kidney disease increases the risk of stroke in patients with atrial fibrillation (AF), the most common type of heart arrhythmia, according to a new study by Kaiser Permanente researchers in the current online issue of *Circulation*.

It has long been known that chronic kidney disease is a risk factor for cardiovascular disease. This study is the first to look at whether chronic kidney disease independently increases risk of stroke in patients with AF. AF occurs when rapid, disorganized electrical signals in the heart's two upper chambers (the atria) cause the heart to contract fast and irregularly, they explain.

The finding is an important addition to the evidence base because atrial fibrillation affects more than 2.2 million Americans, particularly those 75 and older, and increases the risk of stroke nearly four fold, according to the researchers. In this study, the researchers looked at whether kidney disease increased the risk of ischemic stroke -- the most common kind of stroke that occurs when an artery to the brain is blocked.

The risk of stroke varies according to several demographic and clinical characteristics and current risk assessment strategies can be limited, according to the study's lead author Alan S. Go MD, Director of the Comprehensive Clinical Research Unit at the Kaiser Permanente Division of Research. "Our study suggests that kidney function may provide an additional clue about how to best assess stroke risk and decide upon the best prevention strategy for patients with AF," Go said.

The research is part of the Anticoagulation and Risk Factors in Atrial Fibrillation (ATRIA) study, a decade-long, multi-center study looking at the risk factors for complications related to atrial fibrillation. In the ATRIA Study cohort of 13,535 adults with AF, the researchers assessed kidney function in two ways and found that a lower level of kidney function was associated with a graded, increased risk of ischemic stroke and blood clots that travel through the circulatory system, independent of known risk factors for AF. The magnitude of the associations for both measures of kidney function was in the range seen for other known stroke factors in AF patients, such as older age, heart failure, hypertension, diabetes, and being female.

Kidney disease may increase the risk of stroke in patients with AF by causing inflammation and stiffening of arteries. Also, decreased kidney function itself may be a marker for the build up of plaque in the arteries, explains Go.

In addition to the large, diverse sample of patients with AF, this study was strengthened by long-term longitudinal information on kidney function and the ability to characterize periods off anticoagulants, validating the occurrence of ischemic stroke, and the accounting for the presence of other known risk factors for stroke during follow up.

Source: Kaiser Permanente

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