Irregular Heartbeat Elevates Risk of Kidney Failure

The risk of kidney failure is greater for people with chronic kidney disease who also have atrial fibrillation, one of the most common forms of irregular heart rhythm in adults, according to a new study by researchers at UCSF and the Kaiser Permanente Northern California Division of Research.

The finding opens the way for further studies into the relationship between the two factors, which could lead to new treatment approaches that would improve outcomes for people with chronic kidney disease.

Many people who suffer from chronic kidney disease progressively lose their kidney function over time and eventually develop a condition called end-stage renal disease – the complete failure of the kidneys – placing them in need of lifelong dialysis or a kidney transplant.

Doctors have known that patients with chronic kidney disease or end-stage renal disease commonly have atrial fibrillation and as a result are more likely to have a stroke or to die. However, the long-term impact of atrial fibrillation on kidney function among patients with known chronic kidney disease has been unknown.

The new study, published last month in the journal "Circulation," involved 206,229 adults with chronic kidney disease who were drawn from members of Kaiser Permanente Northern California, a large integrated health care delivery system.. Over the course of about five years, approximately 16,400 patients developed atrial fibrillation, and those who did were 67 percent more likely to progress to end-stage renal disease compared with patients who had chronic kidney disease but did not develop atrial fibrillation.

“These novel findings expand on previous knowledge by highlighting that atrial fibrillation is linked to a worse kidney prognosis in patients with underlying kidney dysfunction,” said kidney specialist Nisha Bansal, MD, an assistant professor in the Division of Nephrology at UCSF.

“There is a knowledge gap about the long-term impact of atrial fibrillation on the risk of adverse kidney-related outcomes in patients with chronic kidney disease,” said senior author Alan S. Go, MD, director of the Comprehensive Clinical Research Unit at the Kaiser Permanente Division of Research. “This study addresses that gap and may have important implications for clinical management by providing better prognostic information and leading to future work determining how to improve outcomes in this high-risk group of patients.”

People who have chronic kidney disease fall into a spectrum in terms of how severe their disease is.

At one end are those who have very minor loss of kidney function. They may not have any symptoms at all, and only by applying a simple blood test can doctors properly diagnose their disease.

At the other end of the spectrum are the people who have progressed to end-stage renal disease, which is basically complete kidney failure. They require lifelong dialysis or a kidney transplant. Some people progress rapidly to end-stage renal disease while others may live for decades without ever progressing.

Doctors are interested in understanding the factors that place patients at greater risk for end-stage renal disease, Bansal said, because it may be possible to address those factors through medications or lifestyle changes like diet or exercise.

Bansal added, however, that while the two conditions are intertwined, scientists do not know exactly which specific genes, pathways and biological mechanisms connect irregular heartbeat to declines in kidney function. Neither do they yet know the extent to which treating atrial fibrillation will improve outcomes for people with chronic kidney disease.

Source: University of California, San Francisco [1]

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