Chronic kidney disease patients benefit from pacing left and right ventricles

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Patients with moderate-to-severe chronic kidney disease who received cardiac resynchronization therapy with defibrillator had a lower risk of hospitalization for heart failure or death from this condition compared to patients who received only an implantable cardioverter defibrillator, according to a study published today in the *Journal of the American College of Cardiology*.

An implantable cardioverter defibrillator is a device implanted in the chest that detects life-threatening abnormal heartbeats and treats them with an electric shock. Cardiac resynchronization therapy with defibrillator works in a similar way, with the difference being that, in addition to delivering a shock, it can pace both ventricles at the same time.

Using data from the National Cardiovascular Data Registry ICD Registry linked with claims from the Centers for Medicare and Medicaid, researchers examined records of 10,628 patients with kidney disease who were eligible for either of these devices between January 2006 and December 2009. Of that group, 87 percent received cardiac resynchronization therapy with defibrillator.

After adjusting for many factors, including age, sex, level of chronic kidney disease, and presence of atrial fibrillation or flutter, researchers found a 15 to 20 percent reduction in the risk of hospitalization for heart failure or death from heart failure in patients who received cardiac resynchronization therapy compared with those who received an

implantable cardioverter defibrillator.

Daniel J. Friedman, M.D., the study's lead author and a fellow in cardiology at Duke University Hospital, in Durham, North Carolina, said that the results from the study corroborate the observed association between cardiac resynchronization with defibrillator and improved outcomes for patients with advanced kidney disease. But the study also showed that cardiac resynchronization therapy was no more effective than implantable cardioverter defibrillators in reducing progression to advanced kidney disease.

"Taken in sum, the results from this study support the use of cardiac resynchronization therapy independent of kidney function. The treatment is associated with a reduction in risk of heart failure hospitalization and mortality. These results, however, should be confirmed by prospective randomized studies," Friedman said.

In an accompanying editorial, John G.F. Cleland, M.D., Ph.D., professor of medicine at the National Heart and Lung Institute in London, said that with only a modest reduction in hospitalization risk for heart failure and death, it is unclear whether this population actually benefits from the treatment, especially without data from a device-free control group.

"Within three years, 61 percent of those with end-stage kidney disease who received an implantable cardiac defibrillator and 54 percent who received cardiac resynchronization therapy with defibrillator had died," Cleland said. In these instances, it may be better not to "implant, at some risk and discomfort, an expensive piece of technology, which may be attended by substantial morbidity" and instead "have a frank discussion with the patient about the limits of modern medicine," he said.

More information: *Journal of the American College of Cardiology*, dx.doi.org/10.1016/j.jacc.2015.09.097

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