Implantable defibrillators lower risk of death in older heart patients

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Implantable cardioverter defibrillators (ICDs) can improve survival in patients with heart damage — even those in their 70s — according to research reported in Circulation: Cardiovascular Quality and Outcomes.

Implanted ICDs reduced the risk of dying by 30 percent in patients younger than 65 years old, 65 to 74, and 75 and older, said Paul Chan, M.D., M.Sc., lead author of the study and assistant professor at the Mid-America Heart Institute and the University of Missouri in Kansas City.

Patients who have damaged heart muscle that results in diminished pumping action — called left ventricular systolic dysfunction — are candidates for ICDs to prevent death from life-threatening arrhythmias. The tiny devices are implanted under the skin and connected to the heart muscle by electrodes. An ICD automatically shocks the heart back into normal rhythm when the ICD detects life-threatening rhythms.

Previous studies of ICDs have been conducted in patients who are primarily younger than 75, and who have few complications such as diabetes, chronic obstructive lung disease or a history of stroke.

This primary prevention study recruited 986 consecutive patients who had diminished left ventricular function — meaning the pumping chamber of the heart was functioning at no more than 35 percent of capacity. Patients were treated from March 2001 though June 2005 and followed through March 2007.

Researchers compared outcomes of 500 patients who received ICDs to those who didn't receive the devices. The median age of patients was 67. This was about seven years older than participants in an earlier study that investigated the use of ICDs in patients with heart failure (the SCD-HeFT trial) and about three years older than participants in a study that reported on the use of ICDs in patients who had heart attacks (the MADIT-2 trial).

Researchers said theirs was one of the first studies to examine whether the benefits of ICDs from controlled clinical trials apply to real-world patients. Their study was also the first to examine a clinically well-characterized primary prevention group with patients of both ischemic and non-ischemic causes of heart damage with more than three years of follow-up.

"We sought to determine the effectiveness of ICDs in real-world patients who are older and have multiple co-existing illnesses," Chan said.

Overall, 238 deaths occurred — 130 (26.7 percent) in the non-ICD group and 108 (21.6 percent) in the ICD group. Of these, 116 were attributed to arrhythmia — 67 (13.7 percent) in the non-ICD group and 49 (9.8 percent) in the ICD group.

"The ICD reduced all-cause mortality by 30 percent compared with patients who didn't receive ICDs," Chan said. "The use of ICDs in general practice reduced mortality similar to the levels seen in clinical trials. And, the use of ICDs in older patients and patients with comorbidities reduced mortality both in relative and absolute terms."

When researchers studied patients age 75 or older, they found that the level of survival benefit remained intact. But the benefit diminished when age was combined with multiple disease conditions.

The caveat, Chan said, was that "cost effectiveness estimates for ICD therapy in this study population depended upon both the degree and the number of comorbidities." Chan and his colleagues also reported in the paper cost-effectiveness estimates for the use of ICD therapy by age and comorbidity subgroups.

The study was limited because of the relatively few patients in their 80s. "I feel comfortable applying the findings to septuagenarians, but we continue to have limited data on ICD use among octogenarians," Chan said.

Source: American Heart Association