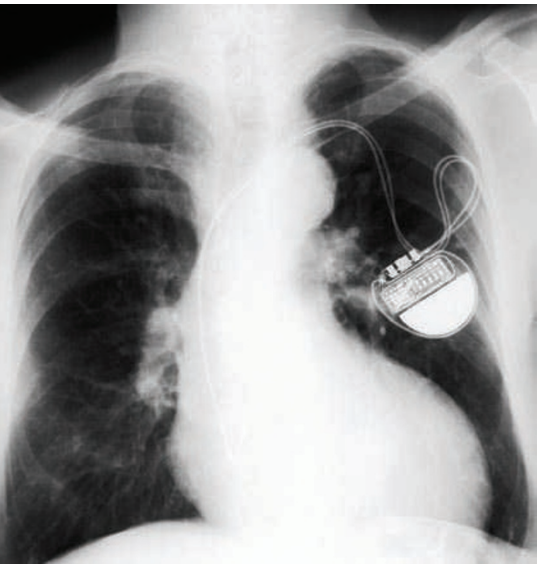
HEART FAILURE

Cardiac device therapy in elderly patients—insights from 'real world' practice

Outcomes associated with cardiac device implantation in elderly patients have not been widely studied. A new analysis by Paul Hauptman and colleagues at St Louis University School of Medicine and Washington University School of Medicine, St Louis, MO, USA provides new insight on this subject. The investigators found that nearly one fifth of patients in a large registry who received an implantable cardioverter-defibrillator (ICD) or cardiac resynchronization therapy (CRT) device were over the age of 80 years and that these individuals had higher in-hospital mortality than younger patients.

Over the past decade, several large randomized controlled trials have demonstrated the benefits of ICDs and CRT in various patient populations. For example, in MADIT-II, ICD device use improved survival in patients with reduced left ventricular dysfunction after myocardial infarction. Among patients with heart failure, SCD-HeFT demonstrated that ICDs confer a survival benefit, whereas in the CARE-HF study, CRT was associated with improved symptoms and quality of life, and a reduced risk of complications.



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However, the common feature among these and other trials of cardiac device therapy is that they tended to enroll younger patients, with some specifying an upper age limit of 80 years. "We thought that an examination of implants in the elderly would add to the literature," explains Dr Hauptman, "we wondered if the patients enrolled in clinical trials of primary prevention (of sudden death) were similar to or different from the 'real world' experience."

Using the Perspective Comparative Database, operated by PREMIER—a large US-based hospital performance improvement alliance—the researchers assessed data from 26,887 adult patients with a diagnosis of heart failure who received an ICD or CRT device between 1 January 2004 and 31 December 2005. The majority of patients were male (72.6%) and white (68.6%), and many were aged 65–79 years (49.3%). However, 13.8% of the cohort were aged 80–85 years and 3.7% were older than 85 years. Hauptman and colleagues considered these patients to be representative of the population receiving cardiac device therapy for heart failure in the 'real world' clinical setting.

Notably, 24.0% of patients with renal insufficiency were >80 years old, whereas only 18.6% of patients without renal insufficiency were in this age bracket. Renal insufficiency is a known predictor of poor outcome in this patient population. The use of CRT without an ICD was substantially more widespread among patients over 80 years of age than among their younger counterparts (14.4% versus 5.1%). This finding "suggests the possibility that at least some clinicians view CRT (appropriately) as a potential means to improve symptoms, which certainly can be seen as a primary focus for the older patient," says Dr Hauptman.

The frequency of device-related complications, such as cardiac perforation, pneumothorax, hematoma, and mechanical device failure, was slightly lower in younger patients than in those aged over 80 years. However, the greatest difference in outcome between the two age groups was observed for in-hospital mortality. The rate of death for the entire cohort was 1.0%, ranging between 0.7% for patients under 79 years of age and 2.2% for those aged over 85 years ($P<0.001$). Multivariate analysis showed that the strongest risk factor for in-hospital death was concomitant inotrope use, which supports findings from earlier studies.

The investigators note that their analysis was limited to in-hospital outcomes and did not assess the impact of patient age on long-term mortality or rates of rehospitalization. This analysis "emphasizes the increased mortality in the elderly with ICD implantation and the lack of information we have about the benefit of ICD therapy in the elderly," comments Kenneth Ellenbogen, Professor of Cardiology and Director of Clinical Cardiac Electrophysiology and Pacing at the Medical College of Virginia, USA, who was not involved in the study. However, he highlights that this was a retrospective review and suggests "the need and importance for ... [a] prospective study of the risks versus benefits of ICD therapy [in the elderly]." Dr Hauptman also stresses the need for further research on cardiac device use in older patients "although it is unlikely," he says, "a clinical trial of device therapy in the elderly will need to be performed."

Future studies in this field will also need to take into consideration quality of life and patient preferences. Some elderly patients may value improvement in symptoms higher than prolongation of life, and communication between patient and physician about the goals of treatment is vital to maximize the therapeutic benefit.

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Original article Swindle, J. P. *et al.* Implantable cardiac device procedures in older patients: use and in-hospital outcomes. *Arch. Intern. Med.* **170**, 631–637 (2010)