The general population is aging, and the older population itself is aging. Advancing age is an important risk factor for coronary artery disease and congestive heart failure (1). Ventricular tachycardia (VT) typically occurs under these conditions.

The life-saving benefit achieved with implantable cardioverter-defibrillators (ICD) has resulted in increased implantation rates across all age groups. More than 40% of new ICDs are implanted in patients ≥70 years of age and >10% in patients ≥80 years of age (2). VT accounts for up to 93% of all ICD-treated episodes (3). Adjustment of detection criteria can reduce inappropriate ICD shocks and antitachycardia pacing (ATP) for self-terminating VTs. However, appropriate shocks have not been reduced by the use of ICD programming. Catheter ablation is an effective therapy for reducing VT recurrence and ICD shocks (4,5).

Although it has not been proven that VT ablation improves survival in general, it can be acutely lifesaving in the setting of incessant VT and VT storms (6). According to the EHRA/HRS/APHRS (European Heart Rhythm Association/Heart Rhythm Society/Asia Pacific Heart Rhythm Society) Expert Consensus, VT ablation may be considered as first-line therapy in ICD recipients with ischemic cardiomyopathy (ICM) (7). No specific recommendations are made for elderly patients and those with comorbid conditions.

The aging ICD population has a high competing risk of non-arrhythmic death that must be carefully considered when invasive treatment is offered.

Prior ablation trials did not exclude elderly patients, but age-specific outcome data are sparse. Like those in ICD trials, ICM patients included in VT ablation trials are usually significantly older than those with non-ischemic cardiomyopathy (NICM) (8).

For ICM patients, one large, single-center series reported similar procedural outcomes, complication rates, and VT-free survival for those ≥75 years of age and <75 years of age (9). As expected, elderly patients had a shorter survival (2-year-mortality rate, 29% vs. 23%, p = 0.08). Comorbidity was not reported. In a recent large, single-center series including patients with ICM and NICM, the complication rate was comparable (9%). However, in this report, complications were independently predicted by age >70 years, impaired renal function, and a “high-risk operator” (10). The 30-day mortality rate was 5% and was associated with early VT recurrence and ablation for electrical storm requiring ICD shocks but not with age.

In this issue of JACC: Clinical Electrophysiology, Liang et al. (11) provide important additional data on procedural outcomes and survival for patients >75 years of age compared with patients 65 to 75 years of age and <65 years of age. The experienced center included 238 patients, 46% with NICM. Procedural success and VT-free survival were similar for all age groups. Similar to the results in prior reports, major complications occurred in 9%, with no significant difference between groups (>75 years, 13%; 65 to 75 years, 4%; <65 years, 10%; p = 0.3). Ten patients died within 28 days (>75 years, 9%; 65 to 75 years, 4%).

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3%; <65 years, 3%; p = 0.3). As expected, patients <65 years of age had better survival rates; 82% were alive after 2 years. Although survival in the >75 years group was worst, the survival difference between >75 years and 65 to 75 years was small (60% vs. 67%).

On the basis of these data, there is no statistical evidence that VT ablation in the elderly is less safe and less efficacious. VT ablation should not be withheld on the basis of older age alone. However, does that mean that there is no risk for the elderly?

Studies comparing treatments and outcomes in the elderly with those in younger patients all have important limitations and caveats.

In this study, the lack of statistical significance may be due to the small sample size (low power to detect a difference), but perhaps most important for studies of interventional therapies is the potential for selection bias. Hence, a careful consideration of differences in the patient population and how these were selected is important.

The group <65 years was different in several aspects; the majority had NICM, better ejection fraction and functional class, preserved renal function, and better survival. The 65 to 75 years group and >75 years group were more similar regarding heart disease, cardiac function, comorbidity, and survival. This may be due to a referral bias, selecting those >75 years of age who are relatively “healthy” in other respects.

However, if we combine major complications and death within 28 days as adverse event, then the >75 years group had a significant, 3-fold-higher risk compared with the 65 to 75 years group (21% vs. 7%, p = 0.03).

The type of complications may also be relevant. The higher rate of serious infections with prolonged hospitalization may result in functional impairment, with delayed or even incomplete recovery in the elderly (12). These outcome data are usually not reported in ablation trials.

Does this prove that there is a higher risk for the elderly?

Physicians are often more concerned about potential harm compared with potential gain when selecting older patients for invasive procedures. Information on VT-related symptoms, prior hospitalizations, and shock burden is not available. Perhaps elderly patients with acutely life-threatening VTs are more likely to be referred for ablation. Patients who present with an electrical storm have a higher potential gain but also a higher, age-independent risk of dying from uncontrollable VT (10). Assessment of potential selection bias would be greatly aided by knowledge of the entire population, including those in whom ablation was not offered. This is often not available, however, in retrospective analyses from referral centers.

The benefit for each patient should outweigh the risks. To advise patients and providers, we must weigh symptoms and the probability of death if patients are left untreated against procedural risks. In-hospital deaths and complication rates are also dependent on the experience of the center and operator, which must be considered (13).

To determine if VT ablation is safe and efficacious and whether it is underutilized, we need more data. We must systematically report age, comorbidity, VT-related morbidity, and complications. Likewise, we must evaluate not only VT recurrence, mortality, and cause of death but also functional status and quality of life after ablation. This information is mandatory to define benchmarks and to identify those who will benefit across all age groups.

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