Ventricular Tachycardia Ablation

Are We in a New Age?

See Article by Vakil et al

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Since the first electrocardiographic recordings, ventricular tachycardia (VT) has been associated with both significant morbidity and mortality.[1] VT most commonly occurs in the presence of structural heart disease that produces myocardial fibrosis, such as myocardial infarction, nonischemic cardiomyopathy, sarcoidosis, and many other diseases. As such, the prognosis of a patient with VT mainly mirrors the extent of underlying heart disease. The prevalence of coronary artery disease in the US population has been shown to increase with age, reaching 20% in subjects >75 years of age.[2] Prior to implantable cardioverter defibrillators, the overall downward trajectory of patients with VT proved insurmountable (and at times accelerated) by antiarrhythmic pharmacological therapies in those with structural heart disease.[3]

The era of revascularization and neurohormonal blockade has seen significant improvement in long-term morbidity and mortality for patients with heart failure.[4] With modern medical therapy, patients are living longer and competing risks begin to emerge. VT remains a shadow in the dark—an ever-present threat that often presents itself during significant clinical deterioration but can occur suddenly without preceding symptoms. The implantable cardioverter defibrillator in this regard may be both a blessing and a curse: a therapy that could save the patient from sudden death; however, the delivery of this therapy is often painful, can occur repeatedly, and does nothing to prevent recurrence or improve quality of life. As the population of patients with structural heart disease and implantable cardioverter defibrillators continues to age, we need to address the question of whether catheter ablation for VT is as effective in the elderly as it is for younger patients.

Growing clinical trial data has added weight behind the use of catheter ablation for the management of recurrent VT. The VANISH trial (Ventricular Tachycardia Ablation Versus Escalated Antiarrhythmic Drug Therapy in Ischemic Heart Disease)[5] demonstrated that catheter ablation is an effective therapy that can improve a composite end point of death, VT storm, or implantable cardioverter defibrillator shock compared with escalation of medical therapy. Although prior randomized VT ablation trials have included patients >70 years of age, the number of patients has been relatively small with no specific reporting of outcomes in the elderly. As in all emerging therapies, the elderly are often not offered treatment early in the experience. In the Thermocool VT trial, Stevenson et al[6] reported the outcomes of 231 patients with a mean age of 67 years and median follow-up of 36 months. Della Bella et al[7] reported long-term outcome data in 528 patients with a mean age of 61 years and median follow-up of 26 months.

Although there may be an assumption that elderly patients are at higher risk for complications from invasive procedures, this has not been consistently dem-

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onstrated. Zado et al[8] found no difference in the complication rate in the octogenarian population after VT ablation. Inada et al[9] reported similar periprocedural mortality, complication rates, and VT recurrence rates (acute and long term) in younger and elderly patients. A higher mid-term mortality, however, was seen in the elderly population, as expected.

In this issue of *Circulation: Arrhythmia and Electrophysiology*, Vakil et al[10] report on their retrospective analysis comparing the safety and efficacy of VT ablation in patients stratified by age, comparing those ≥70 years of age (mean age, 75±4) to younger patients (mean age, 56±10). The authors should be commended on developing a large multicenter cohort from which the analysis was performed. The primary strengths of this study lie in the fact that >2000 patients were included in this analysis (by far the largest study to elucidate the important questions of safety and efficacy in this population) and both ischemic and nonischemic substrates were included.

There are several significant findings that address the safety and efficacy of VT ablation in the elderly. The elderly cohort, not surprisingly, represented a sicker patient population with a lower ejection fraction, a higher proportion with ischemic cardiomyopathy, diabetes mellitus, chronic kidney disease, and presentation with VT storm or incessant VT. This may represent a referral bias because it may be more likely that an elderly patient storms before catheter ablation is considered. Despite the more significant comorbidities and potential referral bias, elderly patients had a similar incidence of VT recurrence at 1 year (25%). Time to VT recurrence was similar in both groups as well. As was true in the overall cohort, absence of VT recurrence in the elderly after ablation was strongly associated with improved survival.

Although there were no differences in periprocedural complications or need for hemodynamic support, there was around a 2-fold higher in-hospital mortality and a modest increase in 1-year mortality. Given the incidence of VT recurrence at 1 year and time to VT recurrence were no different between these groups, these increases in mortality likely reflect the fact that the elderly population was a sicker one with a higher proportion of nonarrhythmic deaths.

The findings of this observational study suggest that if elderly patients have VT, overall prognosis can be improved by control of VT with ablation, at least for the young elderly. Few patients in this study were >80 years of age. It is important to emphasize that the centers performing VT ablation in this cohort were experienced and that the favorable outcome with catheter ablation is not likely to be reproduced in the hands of less-experienced operators. In retrospective analyses, it can be difficult to tease out which patient characteristics confer the greatest benefit from VT ablation, but it seems age alone should not disqualify a patient from a potentially life-prolonging therapy.

AFFILIATION

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FOOTNOTES

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