Response to Letter Regarding Article, “Survival After Implantable Cardioverter-Defibrillator Implantation in the Elderly”

We thank Barra and Agarwal for their interest in our examination of implantable cardioverter-defibrillator (ICD) outcomes and therapies in different age groups, focusing on the elderly.1 We agree that rates of device therapies with conventional programming may overestimate the potential benefit of ICD implantation. Barra and Agarwal suggest that device programming approaches that were used in the Primary Prevention Parameters Evaluation (PREPARE),2 Multicenter Automatic Defibrillator Implantation Trial - Reduce Inappropriate Therapy (MADIT-RIT),3 and Avoid Delivering Therapies for Non-sustained Arrhythmias in ICD Patients III (ADVANCE III)4 trials would lead to rates of appropriate shock and therapy that better reflect the occurrence of ventricular tachyarrhythmia episodes that would more likely have been associated with an arrhythmic death.

Early after the initiation of the Ontario ICD Database, the PREPARE study was published, the potential benefits of delaying ICD-delivered therapies were recognized, and participating sites adapted their device programming accordingly. Although standardized programming was not mandated, our results suggest that delayed therapeutic approaches were adopted among the Ontario ICD Database participating sites. Among the primary prevention patients with strategically delayed programming, the 1-year rate of shock for ventricular tachycardia/ventricular fibrillation was 5.4% in PREPARE and 4% to 5% in the high-rate or delayed-therapy arms of MADIT-RIT. The rate of appropriate shock in the Ontario ICD Database was 5.1 per 100 person-years, and therefore similar to the aforementioned randomized trials. As would be expected from a strategy of delayed ICD therapy, the rate of first inappropriate shock in our study was 2.2 per 100 person-years, which was similar to the rates in the strategically delayed programming arms of the PREPARE (3.6%) and MADIT-RIT (2%–3%) trials. The rate of time to first appropriate therapy in the combined primary and secondary prevention cohorts of the Ontario ICD Database was 14.2 per 100 person-years, which was also approximately similar to the rate observed in the long-detection group in the ADVANCE III trial.

With respect to the issue of death, the median follow-up duration was 670 days, and a maximum follow-up duration of 3 years was examined. The major impediment to ICD efficacy in the elderly is the increasing proportional risk of nonarrhythmic death, which is related to comorbidity burden.2 Elderly patients who were implanted with ICDs in Ontario had fewer comorbidities than expected for their age. In the Ontario ICD Database, we also noted that the most common reason for nonimplantation in qualified candidates was patient refusal, which occurred twice as often in octogenarians. Hence, prolonging life and perceived quality of life may sometimes lead to counterposed patient choices and decisions in the elderly.

In an era of the convergence of a growing elderly population and finite healthcare resources, the dilemma of ICD candidacy in the elderly will continue to resonate. When it comes to the elderly, physicians often rely on personal judgment, bias, and conjecture. Our analysis provides objective prognostic data in a comprehensive cohort of primary and secondary prevention patients that can be used as a framework for discussion when evaluating the relative merits of ICD implantation in older patients. Ultimately, elderly patients who meet traditional eligibility criteria warrant individualized consideration, focusing on comorbidities, projected quality of life, and patient preference.

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Disclosures

Dr Lee is a clinician-scientist of the Canadian Institutes of Health Research. The other authors report no conflicts.

References


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