

Toward More Optimal Use of Primary Prevention Implantable Cardioverter-Defibrillators

How Do We Get There?

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The implantable cardioverter-defibrillator (ICD) has been shown in several randomized clinical trials to improve the survival of patients with systolic heart failure (HF).¹⁻⁴ As a result, practice guidelines designate ICD therapy as a class I indication in many patients with HF.⁵⁻⁷ Notwithstanding the evidence from randomized clinical trials and practice guidelines, several studies have demonstrated significant underutilization of primary prevention ICDs in many HF patients who are potentially eligible for this therapy.^{8,9} Some of these studies also described racial and sex-based disparities in the use of this device.⁸⁻¹⁰ In one investigation of a national HF registry, the majority of patients with a history of myocardial infarction and a left ventricular ejection fraction (LVEF) $\leq 35\%$ did not receive an ICD, and black patients were significantly less likely than their white counterparts to receive one.⁸ In another study that used Medicare Claims data, women were 3 times less likely than men to receive an ICD for a primary prevention indication.¹⁰ In a third study of ICD use among patients with HF and an LVEF $\leq 30\%$ in the American Heart Association's (AHA) Get With the Guidelines-Heart Failure (GWTG-HF) program, only a third of these patients had an ICD in place or an ICD planned after discharge.⁹ Importantly, this analysis showed major race- and sex-based disparities.⁹

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To appreciate the gravity of these findings, two facts must be emphasized. First, sudden cardiac death is the leading cause of death in the United States.^{11,12} Second, the ICD is the most effective therapy currently available to prevent sudden cardiac death.¹³ Thus, underutilization of ICD therapy and racial and sex-based disparities in its use constitute major public health problems that must be addressed. To address these issues, the medical community should determine why this life-saving therapy is being underused and why women and racial minorities are significantly less likely than their counterparts to receive this therapy.

Several potential barriers to the optimal use of ICD therapy have been reported.¹⁴ These barriers exist at the patient and health care provider levels. **Patients may refuse this therapy**

because of their inability to grasp their risk of sudden death with and without an ICD, their alarm over the implantation procedure and the potential negative impact that the ICD may have on their quality of life, their fear of ICDs fueled by several previous device and lead recalls, and their disbelief in the benefits of ICD therapy, especially in the absence of symptoms. Furthermore, personal and cultural values probably influence patients' decisions regarding an ICD.¹⁴

What about health care providers? Are they withholding ICD therapy from their patients knowingly? In many cases, this is unlikely to be true because one of the reasons that health care providers are underusing this therapy is difficulty identifying patients in their practice who may benefit from an ICD. This difficulty is largely driven by the limited use of tools that can help health care providers identify potentially eligible patients as well as the absence of clinical decision support, an electronic medical record, and multidisciplinary disease management programs in most clinical practices.¹⁴ Other factors that may play a role are health care providers' unawareness of ICD practice guidelines or their inability to interpret some aspects of the guidelines that are admittedly vague. For example, what constitutes optimal medical therapy? What is the best approach to making a judgment regarding a patient's functional status and quality of life? Other reasons for why providers may not recommend an ICD when indicated are concerns over the safety and reliability of ICDs and leads, skepticism about the applicability of clinical trial results to patients seen in routine clinical practice, discontent with the high rate of inappropriate ICD shocks, trepidations about the cost and cost-effectiveness of ICD therapy, the perceived need for more optimal risk stratification for sudden cardiac death, and physicians' biases and personal beliefs.¹⁴

Thus, the key question at hand is: How can we improve quality of care related to ICDs? Education is pivotal. Patients must be educated about their risk of sudden cardiac death and the role of ICD therapy in reducing this risk. They need to know that the lack of symptoms does not protect them from sudden cardiac death. Equally important is to educate patients about the potential complications of the implantation procedure, the risk of shocks (both appropriate and inappropriate) and their potential negative effect on quality of life, and the risk of device and/or lead failure. If expected, these potential adverse events will be better accepted by patients. Likewise, educating health care providers about the guidelines, the benefits and risks of ICD implantation, and the risk of shocks and device and/or lead failure is essential. Certain aspects of the guidelines must be clarified to help physicians improve their performance.

The opinions expressed in this article are not necessarily those of the editors or of the American Heart Association.

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