Growing experience with subcutaneous and extravascular implantable cardioverter-defibrillators: results from an implantation center

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Introduction: Implantable cardioverter-defibrillators (ICDs) are the gold standard for preventing sudden cardiac death (SCD). Subcutaneous ICDs (S-ICDs) offer an alternative to traditional transvenous devices (TV-ICDs), reducing the risk of lead complications and systemic infections and offering safe and effective therapy in case of anatomic constraints.[1,2] The new extravascular ICD (EV-ICD) is being developed as an option that addresses some limitations of both TV-ICDs and S-ICDs. However, adopting these technologies involves increased costs and a learning curve for new implantation centres.

Patients and Methods: We analysed data on all non-TV-ICDs implanted at University Hospital Centre Zagreb since their introduction in December 2021.

Results: A total of 19 patients (68% male) were included, with a median age of 49 years (range 10-73). Eighteen patients received S-ICDs for primary SCD prevention, while one 10-year-old patient received an EV-ICD for secondary prevention after a failed TV-ICD implantation due to ischemic cardiomyopathy (ICM). The indications for S-ICD use included ICM (6 cases), hypertrophic cardiomyopathy (5 cases), and non-ischemic cardiomyopathy (7 cases). Various reasons for choosing S-ICD over TV-ICD were noted: 8 patients had severe kidney failure (3 with chronic dialysis catheters), 5 were young and preferred S-ICD, 4 had anatomical constraints preventing TV-ICD placement, and one had a prior TV-ICD infection. The first 6 implants were conducted with the assistance of an experienced proctor. In one S-ICD case, the defibrillation test was unsuccessful requiring lead repositioning during revision procedure. One patient experienced inappropriate S-ICD activation one day post-implantation, but no other periprocedural complications occurred. During follow-up, 5 patients had appropriate device activations; 2 patients died of congestive heart failure and chronic renal insufficiency, and 2 received heart transplants (one being a combined heart-kidney transplant).

Conclusion: Non-TV-ICDs have been successfully integrated into our practice over the past three years. Increasing expertise with these newer technologies is crucial to meet the rising demand for SCD prevention in specialised patient populations. However, broader adoption remains challenged by reimbursement issues.

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LITERATURE

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