

# Management of post-procedural complications in implanted cardiac electronic devices: a single-center experience

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**Introduction:** Cardiac implantable electronic devices (CIEDs), including pacemakers, implantable cardioverter defibrillators and cardiac resynchronization therapy devices, are essential for regulating heart rhythm, improving hemodynamics, and preventing sudden cardiac death. With the aging population and expanding indications, the number of CIED implantations is rising globally, with complications occurring in about 10% of patients within six months post-implantation. As cardiovascular disease prevalence and healthcare technology advance, further growth in CIED demand is expected. CIED implantation is an invasive procedure, and understanding potential complications, such as infections, lead dislocation, pneumothorax, hematomas, cardiac tamponade, and device malfunction, is crucial for minimizing adverse outcomes.<sup>1</sup>

**Patients and Methods:** From January 1, 2023, to August 30, 2024, a retrospective study was conducted on 685 patients undergoing CIED implantation at Dubrava University Hospital.

**Results:** The average patient age was 71.8 years (IQR: 65-82), with 69.8% being male. There were 538 primary implantations (78.5%) and 147 generator replacements (21.5%). Among the devices, 32.7% were high-voltage, and 67.3% were pacemakers of varying configurations. Additionally, 11.7% of patients received conduction system pacing (CSP) devices. Periprocedural complications were rare, occurring in only three cases (0.44%), which included two coronary sinus dissections (0.29%) and one acute lead dislocation (0.15%). Post-procedural complications were noted in 76 patients (11.1%), with the most frequent being wound site pain (3.6%) and operative field hematomas (2.6%). Other complications included lead dislocation (1.9%), arrhythmias (1.2%), fever (0.58%), vagal reactions (1.6%), bleeding (0.44%), and one case each of chest pain with elevated enzymes (0.15%) and pneumothorax (0.15%).

**Conclusion:** The most complications occur post-procedurally, emphasizing the need for a multidisciplinary approach in CIED patient care. This should involve cardiologists, well-trained cardiac nurses, and effective patient communication to minimize complications and improve outcomes.

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## LITERATURE

- Defaye P, Biffi M, El-Chami M, Boveda S, Glikson M, Piccini J, et al. Cardiac pacing and lead devices management: 25 years of research at EP Europace journal. *Europace.* 2023 Aug 25;25(8):euad202. <https://doi.org/10.1093/europace/euad202>