

Physician - Pediatric Cardiac and Vascular Surgery/Adult Congenital Heart Diseases

[MSB-57]

Surgically Implanted Cardiac Implantable Electronic Devices (CIED) in Patients Younger Than One Year

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Cardiovascular Surgery and Interventions 2024;11(Suppl 1):MSB-57

Doi: 10.5606/e-cvsi.2024.msb-57

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Received: September 13, 2024 - Accepted: September 29, 2024

Objective: This study aimed to present our experience with surgically implanted cardiac implantable electronic devices (CIED) in infants.

Methods: Thirty-eight infants (18 males, 20 females; mean age: 155.6 ± 102.2 days; range, 1 to 343 days) who underwent a surgical procedure to implant CIEDs between 2014 and 2024 were included in the study. Pre-, intra-, and postoperative data were collected and analyzed.

Results: The mean weight was 5.27 ± 1.99 kg (range, 2.1 to 9 kg). Twenty-four (63%) patients required CIED due to complete atrioventricular block after pediatric heart surgery. In five (13%) patients, the indication was congenital complete atrioventricular block. Remaining 10 (24%) patients had a long QT, congenitally corrected transposition of the great arteries, and cardiomyopathy. Pacemaker configuration was VVI in 31 (81.5%) patients, ICD in three (8%) patients, CRT in two (5.25%), and DDD in two (5.25%). The median follow-up was five years (range, 1 to 10 years). There were no deaths. A total of 12 reoperations were required in seven (18.4%) patients when pacemaker generator replacements were excluded. Five reoperations were related to lead fracture and revision. The remaining seven reoperations were to either upgrade or downgrade pacemaker configurations.

Conclusion: In patients younger than one year, surgical implantation of CIEDs represents a safe procedure with reasonably acceptable outcomes in the mid-term follow-up. However, reoperations are inevitable, and appropriate reinterventions depend on close device surveillance.

Keywords: Children, CIED, epicardial, infant.