Early versus Delayed Lead Extraction in Patients with Infected Cardiovascular Implantable Electronic Devices

Andrew Y. Lin, MD¹
Tatiana Saul, MD¹
Omar Aldaas, MD¹
Florentino Lupercio, MD¹
Gordon Ho, MD, FHRS¹
Travis Pollema, DO²
Victor Pretorius, MBchB²
Ulrika Birgersdotter-Green, MD, FHRS¹

¹Division of Cardiology, University of California San Diego, La Jolla, California
²Division of Cardiothoracic Surgery, University of California San Diego, La Jolla, California

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Correspondence to:
Andrew Lin, MD
Division of Cardiology, Department of Medicine, University of California – San Diego
9452 Medical Center Drive, 3rd Floor, La Jolla, CA 92037
Phone: (858)-246-1326
Email: anl135@ucsd.edu
ABSTRACT

Objective:
To assess the impact of early versus delayed lead extraction in patients with infected cardiovascular implantable electronic device (CIED).

Background:
CIED infections are associated with poor outcomes. Prior studies have demonstrated improved survival with CIED extraction compared to antibiotic therapy alone. The impact of timing of CIED extraction has not been well characterized.

Methods:
All infected CIED extraction cases at our medical center from 2006 to 2019 were reviewed. Patients were divided into two groups based on the presence of bacteremia or isolated pocket infection. We assessed the in-hospital morbidity and 1-year mortality for early versus delayed lead extraction, using hospitalization day seven as cutoff.

Results:
Of 233 patients who underwent CIED extraction, 127 patients had bacteremia and 106 patients had pocket infection. Delayed extraction (15.2 days) in bacteremic patients is associated with septic shock (OR 5.39, 95% CI 1.23-23.67, p = 0.026), acute kidney injury (OR 5.61, 95% CI 2.15-14.63, p < 0.001), respiratory failure (OR 5.52, 95% CI 1.25-24.41, p = 0.024), and decompensated heart failure (OR 3.32, 95% CI 1.10-10.05, p = 0.033). Locally infected patients with delayed extraction (10.7 days) is associated with acute kidney injury (OR 3.45, 95% CI
1.11-10.77, p = 0.033) and respiratory failure (OR 10.29, 95% CI 1.26-83.93, p = 0.030).

Delayed CIED extraction in both groups are associated with increased 1-year mortality.

**Conclusion:**

Delayed infected CIED extraction is associated with worse outcomes. This underscores the importance of early detection and a strategy for prompt management including lead extraction.