Heart Rhythm Society

HRS COVID-19 Task Force Update: April 15, 2020

Cardiac Implantable Electronic Device (CIED) Management

Goal: Provide appropriate care to patients living with implanted cardiac devices while limiting exposure to staff and patients during the COVID-19 pandemic

Every effort should be made to perform CIED interrogation via remote monitoring (RM) rather than in-person visits.

This includes:

- Initiation of RM at time of CIED implantation
- Enrollment of all non-enrolled CIED patients into RM (preferable enrollment at home with telephone support)
- Continuation of RM for all CIEDs previously enrolled in RM
- Conversion of all routine CIED evaluation office visits to RM visits
- Request RM check prior to Virtual Visits, if visit separate from CIED interrogation is needed

Telehealth is recommended for evaluation of all arrhythmia patients including those with CIEDs. While regulatory burden has been relaxed to allow for easier provision of telehealth during the COVID-19 pandemic, privacy compliant mode of communication is preferred. Telehealth (audio/video, telephone, secure patient portals) should be used for:

- Preoperative evaluation for CIED implantations / generator replacements
- Post-operative CIED wound checks (use video or photo sent via secure portal)

Both arrhythmia consultations and follow-up CIED clinics should amplify remote monitoring/ surveillance of CIED patients during the pandemic. With social distancing and sheltering in place, many patients are isolated and may not have support, supplies, or medications at home. The remote monitor can be used to follow change in arrhythmia status or HF diagnostics. Changes in diagnostics, often subtle, such as heart rate changes, increase in arrhythmias, or changes in intrathoracic impedance should be investigated by CIED health care teams through telemedicine, to explore potential etiologies and patient needs.

In-person outpatient visits for CIEDs should be limited to:

- Potentially hazardous lead or generator issues not adequately assessed by RM
- Absolute need for reprogramming
- Other issues per physician judgment

Procedure for in-person outpatient evaluation of CIEDs:

- Screen all patients for COVID-19 symptoms prior to arrival (but assume all patients are possibly infected)
- Patients and accompanying visitors should don on a surgical mask
- Take temperature of all patients on arrival
- Maintain social distancing of at least 6 feet/2 meters for patients and families in the waiting room, with rearrangement of seating area to achieve this
- Droplet and contact precaution PPE for all clinic staff

- Thoroughly clean all programmers and patient contact areas between each patient. Consider the use of disposable programmer head sleeves.

Inpatient or Emergency Room Management:

Interrogation/consultation should only be performed if it will have an impact on patient care. Patient history taking via phone or telehealth is strongly suggested to help limit staff and patient exposure to COVID-19. Routine device interrogation should be avoided.

If possible, utilize “in hospital” remote monitoring technology and encourage the patient’s family to bring the patient’s home remote monitor to the hospital to be used at the bedside.

Don appropriate droplet and contact precaution PPE prior to approaching the patient.

Indications for device evaluation (considerations, or at physician’s discretion)
- Suspected device malfunction
    - Pacemaker with inappropriate pacing or sensing noted on ECG/telemetry strip
    - ICD failure to deliver therapy during ventricular arrhythmia
- CIEDs suspected to be at ERI in patient who does not have RM enabled
- ICD shock(s)
- ICD patients with sustained or pace terminated ventricular arrhythmias
- ICD with audible or vibratory alerts
- Preoperative evaluation before surgery if no interrogation within 6 months. For most surgical procedures a magnet can be placed over the device during the procedure to suspend tachyarrhythmia detection and therapy
- Emergent / urgent MRI evaluation
- Syncope with CIED implanted, if device malfunction or ventricular arrhythmia suspected
- Untreated sustained tachycardia in CIED patient
- Assessment for detection of AF in stroke patient

CIED evaluation not advised:
- Routine device check / interrogation
- MRI planning in patients with loop recorders
- Pre-operative planning if not pacer dependent
    - Application of a magnet is encouraged to suspend tachycardia therapies in a patient with an ICD, or to ensure pacing therapy in the setting of electrocautery in patient with pacemaker
- CRT optimization
- Arrhythmia burden assessment

Magnet use (considerations)
There are circumstances where deactivation of tachycardia therapies is appropriate, particularly if the patient is being transitioned to palliative care in end of life situations.

Magnet Use for ICD:
- A magnet placed over the ICD will disable tachycardia detection and resultant therapy (while the device will continue to pace if heart rate falls below the programmed lower rate)

- During VT storms, a magnet can be used to avoid multiple ICD shocks and temporize until reprogramming is performed.

Magnet Use for Pacemaker:

- A magnet placed over the pacemaker will disable sensing and the device will pace asynchronously; it does not “turn off” the pacemaker. A magnet will not help in an end-of-life situation. At end of life, metabolic abnormalities will preclude capture of the pacemaker impulse.

Magnet removal for both pacemaker and ICD results in resumption of previously programmed function, including the ability to sense and inhibit for a pacemaker, and sense and deliver ATP or shocks for an ICD.

Dedicated interrogation devices:

To limit exposure of device personnel and manufacturer representatives to COVID-19 infection and to limit spreading viral contamination to other locations, the use of dedicated interrogation devices with cellular and internet connections in the hospital in all locations, including the emergency room, floors and intensive care units is encouraged. In addition to these dedicated interrogation devices, the patient’s families should be strongly encouraged to bring home remote monitors to the hospital to be used at bedside.

Programmer disinfection precautions:

- Programmers or dedicated interrogation devices and wands should be wiped down with disinfectant wipes after every use
- Could consider placing the wand in a glove or plastic covering before placing on the patient; after removing the wand and covering, the wand should be wiped down.