



Team Name: Critical Care and Medicine Team Team Lead: Regional Director of Acute Care Approved by: Executive Director - Mid	Reference Number: CLI.5110.SG.008 Program Area: Critical Care Policy Section: Emergency
Issue Date: August 27 2015 Review Date: Revision Date:	Subject: Magnet use in Patients with an Implantable Cardiac Defibrillator

STANDARD GUIDELINE SUBJECT:

Magnet use in Patients with an Implantable Cardiac Defibrillator

PURPOSE

To provide a standardized approach and criteria for the use of a magnet to temporarily suspend Implantable Cardiac Defibrillator (ICD).

PROCEDURE:

1. In specific circumstances it is appropriate to use a magnet to suspend detections and therapies of an ICD. (ONLY UNDER THE INSTRUCTION OF A PHYSICIAN)
2. Criteria for suspending ICD detections and therapies
 - a. In the case of a patient in VT (usually at a slower rate), receiving multiple shocks from the device, without any altered level of consciousness and hemodynamic instability, until medical therapy can be initiated it is appropriate to place the magnet securely over the device to suspend detections. IF the patient becomes hemodynamically unstable or there is any altered level of consciousness, **REMOVE THE MAGNET** which will result in detections and therapy being resumed immediately.
 - b. In the case of a patient receiving multiple shocks from the ICD while being monitored in a normal rhythm, it is appropriate to suspend detections and therapy by placing a magnet securely over the device until appropriate intervention can take place. (It can be presumed in this situation that there is a problem with the system such as a broken lead.)
 - c. In situations where it is necessary to use cautery, and a programmer is not available, the VT and VF detection functions can be temporarily suspended / disabled by placing a magnet over the ICD in the appropriate position. In this “magnet mode” the ICD will not deliver VT or VF therapies as a result of sensing electromagnetic interference (EMI) from the cautery. The pacing function of the ICD will not be affected.
 - d. In the case of a patient who is palliative where death is imminent and the device cannot be disabled it is appropriate to disable the sensing and therapies by placing a magnet securely over the device.
3. Attach patient to an external cardiac monitor. **It is imperative that any time the ICD is disabled the patient be monitored continuously with a defibrillator in close proximity (exception-palliative patients).**
4. Locate the patient ICD. The device is usually found in the left upper infraclavicular area but may be on the right side or in rare circumstances may be found in the abdomen.
5. Place the magnet directly over the ICD as shown in picture below, and secure with tape to prevent movement away from the device. Occasionally in a very obese patient or when the device is located in the abdomen two magnets may be required to obtain the desired effect. (REMINDER: PATIENT MUST BE MONITORED)



6. In this “magnet” mode, tachyarrhythmia detection and therapy is suspended and the ICD will not provide any therapy.
7. If an arrhythmia occurs and intervention is required, remove the magnet to restore permanently programmed detections and therapy or use an external defibrillator.
8. Magnet application does not affect the programmed pacing mode of the device.
9. Upon removal of the magnet (at least two feet away from the ICD) the device returns to permanently programmed settings.
10. Magnet application may result in a tone or ringing being emitted from the device for 10 – 20 seconds. These tones provide information on the status of the device.
11. If a magnet has been used to suspend or alter therapy, the device must be interrogated to ensure proper functioning. Contact St. Boniface Hospital Pacemaker/Defibrillator Clinic for more information.

IMPORTANT POINTS TO CONSIDER:

All pacemakers change to an asynchronous pacing mode with magnet application and revert to the original programming when the magnet is removed. No change in the pacing mode occurs in ICDs with magnet application. Although the general response of ICDs to magnet application is suspension of all anti-tachycardia therapies, this response is programmable depending on the model. If the user is unfamiliar with the specific model and its responses, or if any device reset or malfunction is suspected, use of a programmer is more appropriate.

DOCUMENTATION:

Integrated Progress Notes

REFERENCES

Jacob, S., Panaich, S.S., Maheshwari, R., Haddad, J.W., Padanilam, B.J., & John, S.K. 2011. Clinical application of magnets on cardiac rhythm management devices, *Europace* (13)1222-1230.

Concerto C154DWK Reference manual, Medtronic, 2012.

Implantable cardiac defibrillators fact sheet for physicians and emergency departments, St. Boniface General Hospital Pacemaker/Defibrillator clinic.

Use of the magnet in patients with an ICD, St. Boniface General Hospital Pacemaker Clinic.