Endoscopy Patients with Pacemaker/ICD – Full Clinical Guideline

Ref. No: CG-T/2024/079

Aim
The aim of these guidelines is to provide guidance to enable safe endoscopy in patients with implanted electronic devices such as implantable cardioverter defibrillator (ICD) and pacemakers.

Purpose and Scope
This guideline covers all adult patients at UHDB undergoing GI Endoscopy with implanted electronic devices. Implanted electronic devices are increasingly encountered during endoscopy. Endoscopists must be aware of the risks for patient injury and device damage or malfunction and must take precautionary steps to minimize the risk for their patients

The use of diathermy in endoscopy procedures can cause electromagnetic interference (EMI) and this can cause inhibition of pacemaker output or can be sensed by a defibrillator as VF and potentially give rise to an inappropriate shock. The most common cause of EMI is monopolar electrocautery.

When diathermy is not going to be used the following information does not apply and the procedure can be performed without the need for additional monitoring i.e. ECG /use of magnet not required.

However, when diathermy is planned to be used during any endoscopic procedure, or where a requirement for diathermy to be used becomes apparent during a procedure the following Clinical Guideline must be followed.

The Scope Pilot endoscopy guidance system must not be used during endoscopy for patients with ICD or pacemaker fitted.

Mechanism of interference with implanted device.

- Interference can either be conducted or radiated (radiowaves)
- Inhibition of device by diathermy pulse.

Pre Endoscopy Assessment

Clinical measurement department /devices clinic(RDH) or Pacemaker /ICD clinic (QHB), should be informed in advance if a patient with an ICD in situ is to attend the endoscopy suite for a therapeutic procedure requiring diathermy use (e.g. polypectomy, EMR, ERCP & Sphincterotomy, APC, RFA).

2 weeks' notice is desirable to arrange any device reprogramming that may be required pre / post procedure.

Not all patients with an ICD will have been implanted/followed-up at UHDB. There is no national computerised record. The patient should have a PPM/ICD ID card – they are instructed to carry it at all times. This will have some of the following information:

- Name
- Hosp No
- Date of birth
- Pacemaker / ICD implanting centre
- Follow-up centre
- Device manufacturer

When the devices clinic has this information, they will be able to get details on the reason for implant, type of device and underlying rhythm to ensure that the device is programmed appropriately for endotherapy and diathermy use.

CONTACT NUMBERS: 88958, 87346 or 88176 (RDH), 4216 (QHB)

Pre endoscopy – Pacemakers

Patients with a pacemaker do not need a routine pre-procedure or post procedure check. If the patient is not pacemaker dependent, it is unlikely that diathermy will cause a problem. If the patient is pacemaker dependent, diathermy may cause temporary cessation of pacing function with consequent loss of cardiac output. Taping the magnet securely over the device will cause it to function in VOO mode (i.e. it will pace regardless of diathermy or other external interference). Thus, it is recommended that any pacemaker patient has a magnet placed over the unit for the duration of the endoscopy procedure when diathermy is going to be used. When this is removed the pacemaker will return to normal function. The devices clinic do not need to be contacted about such patients, but are available for advice where necessary

The magnet is stored in each endoscopy room at RDH
The magnet is stored in the pacemaker clinic (next door to endoscopy)

Pre endoscopy – Implantable defibrillators (ICD's)

Patients with an ICD should be discussed with the Devices Clinic. The physiologist will de-activate the device prior to the procedure and re-activate it afterwards and will, in the process, gather data on whether diathermy during endoscopic procedures is sensed as VF, to inform future risk assessment. Taping a magnet over the device will temporarily disable the ICD (pacing function will be maintained and it will revert to normal function when the magnet is removed) and will make diathermy safe, though it could inhibit pacing function, which is not maintained in VOO mode in an ICD). Thus, if for any reason re-programming cannot take place, or at the discretion of the operator, this is a safe option, always provided that the magnet remains in place over the device and the patient is ECG and oxygen saturation monitored.

Procedure Information – Implantable defibrillators (ICD's)

The cardiac physiologist will not stay for the procedure. The patient should remain ECG monitored throughout the endoscopy procedure, wherever diathermy is intended to be used, and an external defibrillator should be attached to do this.

Post Endoscopy Checks – Implantable defibrillators (ICD's)

A cardiac physiologist must re-programme any ICD that has been temporarily de-activated as soon as is practicable and certainly before the patient's discharge. Any such patient should remain under observation and on an ECG monitor until the ICD has been re-programmed. If an overnight stay is needed and the device cannot be re-programmed first admission to CCU is recommended.

Implanted Devices and Diathermy

- The patient needs ECG monitoring in endoscopy room.

- A non-ECG monitor (BP / pulse oximetry) to confirm an output if ECG interference occurs with diathermy should also be in place. There needs to be easy access to a defibrillator with external pacing facilities.

- Have a magnet in endoscopy room (see above)

- Diathermy Use

-Use bipolar diathermy wherever possible
-If inhibition occurs stop diathermy
-Keep all cables away from the implant site
-Use the lowest effective power setting and briefest application possible

If unipolar diathermy is unavoidable

- Coagulation mode is preferable to cutting mode
- Use short bursts
- Make sure the return electrode/grounding pad is as far away from the device and leads
- Avoid use within 15cm of the device

References

Endoscopy in patients with implanted electronic devices, (ASGE Technology Status Evaluation Report) Gastrointestinal Endoscopy 2007; 65(4): 561-68

Documentation Controls

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Review Date:	April 2027
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