Operational Guidelines for the deactivation of Implantable Cardioverter Defibrillators (ICDs) in adult inpatients who may be approaching the end of life in UH Bristol NHS Foundation Trust

Background

Implantable Cardioverter Defibrillators (ICDs) help reduce the risk of sudden death caused by ventricular tachycardia or ventricular fibrillation. The ICD has several functions. These include:

a) delivering an electrical charge to the myocardium when it senses either fast ventricular tachycardia or ventricular fibrillation, allowing a normal heart rhythm to be resumed

b) delivering small electrical ‘pulses’ to provide fast or slow ventricular pacing. Fast pacing (anti-tachycardia pacing) may be used as an initial treatment to correct some ventricular tachycardias. If unsuccessful, the ICD is programmed to progress to deliver a shock.

Many patients with ICDs enjoy a prolonged life expectancy with a reasonable quality of life. However, for some patients, the shocks from the device can cause physical suffering, and even the thought of the device shocking can cause severe anxiety.

When terminal illnesses such as end stage heart failure or cancer are diagnosed, patients may find the additional stress of anticipating an ICD shock an unnecessary burden, particularly as the ICD shock will have no impact on the underlying illness. Furthermore, the incidence of arrhythmias may increase with the development of electrolyte imbalance, hypoxia and pain, potentially leading to an increase in shock therapy. Multiple shocks are not conducive to a peaceful death. For these patients deactivating the device is a sound medical, ethical and legal decision.

Indications for ICD Deactivation (as used by the Arrhythmia Alliance)

ICD deactivation will be considered if any of the following criteria are met:

• Patient preference in advanced disease
• Imminent death (ICD activation inappropriate in the dying phase)
• Withdrawal of anti-arrhythmic medications
• DNACPR (Do Not Attempt Cardio-Pulmonary Resuscitation) form signed

Discussions for ICD Deactivation

The continued activation of an ICD when a patient is dying delivers shocks to the patient, which can be distressing to patients, relatives and carers. The discussion regarding deactivation should ideally take place prior to implantation in order that the patient has time to consider their wishes for the future. Whenever the discussion takes place, it should ideally be an open discussion between patient, next of kin and supervising cardiologist, nurse specialist and/or cardiac physiologist and take place whilst the patient is able to be involved in the decision making process.

If any of the indications for deactivation above apply, the health care professional responsible for the patient should be encouraged to initiate this discussion. The British Heart Foundation have produced a helpful discussion document for healthcare professionals entitled ‘Implantable Cardioverter Defibrillators in patients who are reaching end of life’, which helps to identify some of the issues that should be included in such discussions (e.g. if situation changes, decision can be revised, likely outcome in current situation if device remains active). The decision remains the patient’s (as long as the patient has capacity to make that decision). If a patient lacks capacity, clinicians have a duty to act in the patient’s ‘best interests’.

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Deactivating the ICD

The patient and next of kin should be made aware that by deactivating the ICD the device will no longer provide shocks in the event of life threatening arrhythmias. **Deactivation of the defibrillator mode of an ICD does not deactivate the pacing mode and in itself does not end a patient’s life but will allow for a natural death without the risk of unnecessary shocks.** Turning off the device is not a painful procedure and only takes a matter of seconds to complete. This is usually carried out by a cardiac physiologist.

It is important to avoid last minute decisions, but if immediate action is necessary, the ICD can be deactivated by taping a magnet to the skin over the device. This is only effective while the magnet is in place; once the magnet is removed, the device becomes active again.

**Process for deactivation for patients in hospital** – See pathway, p3+4

Ethical and legal issues

Patients must be fully informed of their options. A patient’s right to request withdrawal of life sustaining medical interventions, including ICDs, is both legal and ethical. Withdrawal of a life sustaining medical intervention with the informed consent of a patient or legal surrogate is not physician-assisted suicide or euthanasia.

The **Arrhythmia Alliance** has produced an information leaflet entitled “**ICDs in Dying Patients**”. A form for inclusion in patient’s medical records will be provided.

After the patient dies

When a patient with an ICD dies, the device requires deactivation before removal by mortuary or undertaker staff. Relatives and healthcare staff should be made aware that cremation is not possible with an ICD in situ.

Useful links

Arrhythmia Alliance:  [www.arrhythmiaalliance.org.uk](http://www.arrhythmiaalliance.org.uk)
British Heart Foundation:  [www.bhf.org.uk](http://www.bhf.org.uk)
National end of life care programme:  [www.endoflifecareforadults.nhs.uk/strategy/strategy/care-planning](http://www.endoflifecareforadults.nhs.uk/strategy/strategy/care-planning)
St Peter’s Hospice website:  [www.stpetershospice.org.uk](http://www.stpetershospice.org.uk)
UHBristol end of life policy:  [http://connect/ClinicalCare/ClinicalSupport/endoflifecare/Pages/default.aspx](http://connect/ClinicalCare/ClinicalSupport/endoflifecare/Pages/default.aspx)
Making the decision to withdraw Implantable Cardioverter Defibrillator (ICD) therapy in an adult patient at end of life

The patient is fitted with an ICD. Patient and those close to him/her are given information (oral and written) on the withdrawal of ICD therapy when nearing the end of life.

The patient is nearing the end of life.

Assessment of patient’s condition, likely prognosis and treatment options – which might include palliative care – undertaken by doctor in charge of patient’s care in consultation with multidisciplinary team.

Assessment of patient’s capacity to make decision about deactivation.

Patient is competent. Treatment options including the anticipated benefit and burden of continuing ICD therapy are discussed with him/her.

Patient lacks capacity to make decision and has previously indicated wishes in an Advance Decision to Refuse Treatment or has appointed a personal welfare attorney with lasting powers.

Patient lacks capacity to make decision and it is practicable and appropriate to consult those close to patient.

Patient lacks capacity to make decision and there is no person whom it is practicable or appropriate to consult.

Patient is competent. Treatment options including the anticipated benefit and burden of continuing ICD therapy are discussed with him/her.

Patient wishes ICD therapy to continue.

Patient wishes ICD therapy to be withdrawn.

Patient lacks capacity and there is a written valid and applicable Advance Decision to Refuse Treatment indicating the patient’s wishes.

OR

Doctor in charge decides ICD therapy should be withdrawn in the patient’s ‘best interests’ in the case of a patient who lacks capacity:
• When consent is given by a welfare attorney appointed under a Lasting Power of Attorney or by a Deputy appointed by the Court of Protection or
• Taking account of the views offered by those close to the patient.

Failure to reach consensus on patient’s ‘best interests’

PCT/Trust has a duty to provide the patient with access to an Independent Mental Capacity Advocate.

Clinicians may wish to seek legal advice.

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Decision to withdraw ICD therapy recorded in writing by doctor. Follow ICD deactivation pathway.
Pathway for the deactivation of Implantable Cardioverter Defibrillators (ICD) in adult patients who may be approaching the end of life in hospital

Monday-Friday, 9am-5pm
Contact Arrhythmia Nurses x26635/bleep 6004

Patients with ICD admitted and:
• may be approaching end of life; and/or
• has a Do Not Attempt Cardiopulmonary Resuscitation (DNACPR) form signed

Out of hours: Contact Cardiology Specialist Registrar via switchboard

Consider magnet to prevent ICD shocks while waiting
• Magnet held on CCU
• Liaise with Coronary Care Unit (CCU)

If appropriate, Specialist Registrar to contact on-call Cardiac Physiologist

Device interrogated
• +/- deactivated (shocks +/- anti-tachy pacing)
• Clear documentation in medical notes
• +/- palliative care

Arrhythmia Nurses to be informed next working day by Specialist Registrar

Device deactuated +/- anti-tachycardia pacing as per patient’s or consultant’s decision
Deactivation form to be completed and filed in medical notes and pacing notes

Do Not Attempt Cardiopulmonary Resuscitation form to be completed
Should clinical situation improve, inform Arrhythmia Nurses or Cardiology Specialist Registrar (out of hours)

If being discharged from hospital for end of life care:
• Ward to refer to hospice community team
• Prescribe anticipatory medicines for end of life
• GP to sign DNACPR form

Upon patient’s death, relatives to be made aware that device must be removed prior to cremation

Arrhythmia Nurses to discuss with patient’s named consultant
• Clear documentation in medical notes
• +/- cardiology consultant
• +/- palliative care
• Full discussion with patient/patient’s relatives

Initial assessment/discussion with patient
• Device interrogated by Cardiac Physiologist
(If patient not known to service, temporary pacing folder to be completed, in addition to medical notes)

Ward to refer to hospice community team
Prescribe anticipatory medicines for end of life
GP to sign DNACPR form

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