

The Implantable Cardioverter Defibrillator

external defibrillators (120–360J). **Personnel in contact with the patient when an ICD discharges are unlikely to be harmed, but it is prudent to minimise contact with the patient while the ICD is firing.** Chest compression and ventilation can be carried out as normal and protective examination gloves should be worn as usual.

Placing a ring magnet over the ICD generator can temporarily disable the shock capability of an ICD. The magnet does not disable the pacing capability for treating bradycardia. The magnet may be kept in position with adhesive tape if required. Removing the magnet returns the ICD to the status present before application. The ECG rhythm should be monitored at all times when the device is disabled. An ICD should only be disabled when the rhythm for which shocks are being delivered has been recorded. If that rhythm is VT or VF, external cardioversion/defibrillation must be available. With some models it is possible to programme the ICD so that a magnet does not disable the shock capabilities of the device. This is usually done only in exceptional circumstances, and consequently, such patients are rare.

The manufacturers of the ICDs also supply the ring magnets. Many implantation centres provide each patient with a ring magnet and stress that it should be readily available in case of emergency. With the increasing prevalence of ICDs in the community it becomes increasingly important that emergency workers have this magnet available to them when attending these patients.

Decisions to apply a Do Not Attempt Resuscitation (DNAR) order will not be made in the emergency situation by the personnel to whom this guidance is directed. Where such an order does exist it should not be necessary to disable an ICD to enable the implementation of such an order.

Many problems with ICDs can only be dealt with permanently by using the programmer available at the ICD centre.

The guidelines should be read from the perspective of your position and role in the management of such patients. For example, the recommendation to ‘arrange further assessment’ will mean that the ambulance clinician should transport the patient to hospital. For ED staff however, this might mean referral to the medical admitting team or local ICD centre.

Coincident conditions that may contribute to the development of arrhythmia (for example, acute ischaemia worsening heart failure) should be managed as appropriate according to usual practice.

Maintain oxygen saturations at 94–98%.

Receiving ICD therapy may be unpleasant ‘like a firm kick in the chest’, and psychological consequences may also arise. It is important to be aware of these, and help should be available from implantation centres. An emergency telephone helpline may be available.

3. Management

The following should be read in conjunction with the treatment table (Table 3.66) and algorithm (Figure 3.15).

Approach and assess the patient and perform basic life support according to current BLS guidelines.

Monitor the ECG

- 3.1.** If the patient is in cardiac arrest.
 - 3.1.1** Perform basic life support in accordance with current BLS guidelines. Standard airway management techniques and methods for gaining IV/IO access (as appropriate) should be established.
 - 3.1.2** If a shockable rhythm is present (VF or pulseless VT) but the ICD is not detecting it, perform external defibrillation and other resuscitation procedures according to current resuscitation guidelines.
 - 3.1.3** If the ICD is delivering therapy (whether by anti-tachycardia pacing or shocks) but is failing to convert the arrhythmia, then external defibrillation should be provided, as per current guidelines.
 - 3.1.4** If a non-shockable rhythm is present manage the patient according to current guidelines. If the rhythm is converted to a shockable one, assess the response of the ICD, as in 3.1.2 above, performing external defibrillation as required.
 - 3.1.5** If a shockable rhythm is converted to one associated with effective cardiac output (whether by the ICD or by external defibrillation), manage the patient as usual and arrange further treatment and assessment.
- 3.2.** If the patient is not in cardiac arrest.
 - 3.2.1** Determine whether an arrhythmia is present.
 - 3.2.2** If no arrhythmia is present.

If therapy from the ICD has been effective and the patient is in sinus rhythm or is paced, monitor the patient, give O₂ and arrange further assessment to investigate possibility of new myocardial infarction (MI), heart failure, other acute illness or drug toxicity/electrolyte imbalance etc.

An ICD may deliver inappropriate shocks (i.e. in the absence of arrhythmia) if there are problems with sensing the cardiac rhythm or there are problems with the leads. Record the rhythm (while shocks are delivered, if possible), disable the ICD with a magnet, monitor the patient and arrange further assessment with help from the ICD centre. Provide supportive treatment as required.
 - 3.2.3** If an arrhythmia is present.

If an arrhythmia is present and shocks are being delivered, record the arrhythmia (while ICD shocks are delivered if possible) on the ECG. Determine the nature of the arrhythmia. Transport rapidly to hospital in all cases.

TACHYCARDIA

- 3.2.3.1** If the rhythm is a **supraventricular tachycardia** i.e. sinus tachycardia, atrial flutter, atrial fibrillation, junctional tachycardia, etc. and the patient is haemodynamically stable, and the patient is continuing to receive shocks, disable the ICD with a magnet. Consider possible causes, treat appropriately and arrange further assessment in hospital.