Article by Adrienne Unsworth CRM Nurse April 2023

**What can a device (ICD or CRT-D) do (and importantly, not do)?**

Hi everyone. I had a telephone conversation with the wife of a recently deceased patient the other day. She wanted to know what to do with the remote monitor after her husband had passed away. We started chatting about what happened on the day he passed away. She was happy to do this, and she agreed to let me share our conversation with others.

This is an important and sensitive article. I apologise if anyone has had a recent bereavement and finds this article upsetting to read. This is not my intention.

I will call them Jimmy and Carol to maintain confidentiality.

Firstly, I gave her my condolences.

Jimmy had an ICD, and all was ok as far as the device was concerned. He needed to go for a scan (not related to his heart). He found the event quite stressful as the scan had to be cancelled so he was sent home in a hospital taxi.

He started to feel unwell at the front door. Carol and her neighbour managed to get Jimmy inside. He looked unwell. Carol thought “Don’t worry, we’ve got the ICD, and this will sort him out if he has a dangerous heart rhythm”.

He then lost consciousness and became unresponsive. Carol called 999 and told them he had an ICD. The 999-phone responder told Carol and her neighbour to start CPR (cardiopulmonary resuscitation), which they found confusing. Why would he need CPR if he had an ICD? But they started CPR, following the instructions of the responder.

An ambulance came quickly and took over. Unfortunately, Jimmy didn’t survive, and he sadly died.

**So, why start CPR if you have a device like an ICD or CRT-D?**

This is because there are **potentially** 4 **different** heart rhythm**s** which **can** cause a person to have a cardiac arrest. These are:-

1. VF (ventricular fibrillation)
2. VT (ventricular tachycardia)
3. Asystole
4. PEA (**pulse-less** electrical activity)

Only VF and VT will be treated by the device (or an external defibrillator if you don’t have a device) if you have these heart rhythms. You should be aware of this. However, asystole is when there is suddenly no electrical activity whatsoever within the heart. Americans sometimes call this “flat lining”. This causes the heart to stop pumping and there is no circulation. There will be no pulse and no visible breathing effort.

Getting a shock from your device will not treat asystole. The device can recognise asystole and should not try to deliver a shock. The built-in pacemaker will deliver pacemaker beats, but your heart may not respond or pump out any blood.

The treatment for asystole is CPR and intravenous medications such as adrenaline. CPR is stopped when the patient either recovers (gets a heart rhythm which is compatible with a cardiac output), they go into VF or VT, or the decision is made that CPR is unsuccessful.

If **patients recover**, they will be taken to hospital for assessment of their condition and their device. If **they go** into VF or VT, the device will shock them. If CPR is unsuccessful, the patient will pass away.

PEA is when the heart is producing electrical activity, but insufficient **to cause** the heart to beat. There will be no detectable pulse or visible breathing effort. The device may not deliver pacemaker beats because it has detected electrical activity. The device **will** not know that there is no circulation or cardiac output.

Getting a shock from the device will not treat PEA. Again, the treatment for PEA is CPR and intravenous medication like adrenaline.

Jimmy may have gone into asystole or PEA. His device would not **have given** a shock because he was not in VF or VT. Carol did the right thing in calling 999. She did the right thing in starting CPR. A post-mortem will be performed, and his device will be interrogated to try to determine the cause of his death.

**So, what if you collapse and you have a device? What should your family do?**

In the first instance, they should stay near to you, within arms distance.

They should wait 10 seconds and if your body does not jolt suddenly (indicating you have had a shock), they should follow the principles of CPR. It is a good idea to learn how to do CPR and you can find a lot of free CPR courses online. See below for details. \*\*

One of the most important things to do is to call for help. This means calling 999 and asking for an ambulance. If you are alone, you should do this first, **and then start** **giving** CPR. The call responder will ask some important questions to ascertain that the person is in cardiac arrest. They will then give clear instructions on what to do while they dispatch an emergency ambulance.

Giving CPR effectively gives a person the best chance of survival, as it “bides time” **until** emergency services attend. Remember though, even with superb CPR skills, CPR may not be successful.

If, at any point, the collapsed person shows signs of recovery (breathing, gasping, groaning, coughing, speaking and/or moving), you should stop CPR and put them in the recovery position, again following the principles of CPR and first aid.

To recap:-

* Not all cardiac arrests are caused by VF or VT. Patients with a device are more at risk of developing/having VF or VT (this is the reason why they have the device), but they can also have asystole or PEA.

* A device will only treat VF and VT - it will not treat systole or PEA

* If someone collapses who has a device and they don’t start to come round after 10 seconds, follow the principles of first aid and call for help. Start CPR. Wait for the ambulance crew.

* I hope this article has been helpful and you have found it informative. If you would like to know more about CPR, look at the websites below on how to learn to do CPR for free. Some websites may charge for this, but as far as I know, all these websites offer free sessions on CPR.

Stay regular! Adrienne

\*\* free CPR training\*\*

Heart Matters

St John Ambulance

British Heart Foundation

Unicef

British Red Cross

UKRC (UK Resuscitation Council)