

Patient information

Irreversible Electroporation (IRE)

Interventional Radiology

This document is designed to provide you with detailed information about this procedure. Please take the time to read through this leaflet carefully to gain a better understanding of what the procedure entails, its benefits, risks, and what to expect during and afterward. It is not meant to replace informed discussion between you and your doctor but can act as a starting point for such discussions. If you have any questions about the procedure, please ask the doctor who has referred you, or the doctor performing the procedure.

What is an IRE procedure?

IRE is a way of destroying tumour tissue by passing an electric current between the ends of two or more needles which have been inserted through the skin into the organ containing the tumour. By passing short pulses of electrical current between the needles, the tumour is damaged, and the cells die.

If needed, more than one area of tumour can be treated at the same time. Occasionally it may be necessary to perform a second or third procedure on another day if it has not been possible to treat the entire tumour in one go.

What are the benefits of IRE procedure?

- Avoids big operation and scar.
- Short inpatients stay.
- Less discomfort compared to an operation.
- Less risk of damage to surrounding tissue compared to other treatments.
- Can treat tumour that is wrapped around blood vessels and bile ducts without damage to those structures.

Who will be doing the procedure?

A specially trained team of doctors, nurses and radiographers in the X-ray department. The specially trained doctor is called an Interventional Radiologist. They have skills in using different imaging such as X-ray, Ultrasound and CT scanners to carry out procedures.

Before the procedure

The Interventional Radiology nursing team will contact you before your procedure with any information you need to know to get ready for it. This may include stopping medications, other tests, or stopping eating or drinking for some time before the procedure. If you are an inpatient on the ward, they will contact the ward nurse.

If you have any allergies, you must let the nurse/doctor know. If you have been unwell after receiving X-ray dye (used for CT scans) please let the team know.

On the day of the procedure the Interventional Radiologist will go through a consent form with you. You can ask any questions you may have then or call the department before your test on 0151 706 2748 Royal Liverpool hospital, or 0151 529 2925 Aintree hospital.

Please contact us if you are unclear on any of these instructions.

How is the procedure carried out?

Will I be given an anaesthetic?

Yes, the doctor will freeze the skin with some local anaesthetic. You will also be given General Anaesthetic by a specialist doctor called an anaesthetist.

Where will the procedure take place?

Ultrasound room or X-ray operating theatre.

How is it done?

You will be required to change into a hospital gown. You may need to remove your jewellery, glasses, contact lenses or false teeth – check with the nurse. You will then be escorted to the theatre, where you will be looked after by the team. The anaesthetist will ask you some questions and put you to sleep with general anaesthetic.

Position – Depends on area to be treated (could lie on back or on side).

Access – Direct through skin. Depends on area to be treated.

The Radiologist will use imaging to see the area to be treated. This may involve X-ray, Ultrasound or a CT scan. The skin will be cleaned and covered with a sterile drape ready to start the procedure. The skin will also be marked so the doctors know which area to treat.

The local anaesthetic will be used to freeze the area and then the doctor will perform the procedure.

The IRE treatment is administered with special needles. Imaging is used to make sure the needles are correctly positioned next to the tumour to kill the tumour tissue. Three or four needles are positioned around the tumour to allow successful treatment. Another CT scan is performed to check the area has successfully been treated.

The region will be cleaned, and a small dressing will be applied.

How long will it take

Three hours – five hours depending on amount of treatment needed.

After the procedure

Recovery - Nursing staff will check your blood pressure, pulse, and procedure site in the recovery area. The length of time this is done for depends on each patient/procedure.

Discharge You will be admitted to a ward for observation overnight. Usually, you will be discharged the next day after review by the Radiology doctor. You will usually need an escort home from hospital. This can be discussed with nurse when they ring you.

If you are a ward patient, you will be returned to the ward for further observation by the ward staff.

Your wound small two-three mm incision(s) over area to be treated. Small dressing(s) applied.

Back to work/driving/normal activities We would usually recommend not to drive for 24 hours post procedure. This can be discussed with nurse when they ring you.

What are the risks of IRE?

- Risk of bleeding from the liver. This is rare, but on some occasion may require blood transfusion/operation/other radiology procedure.
- If the tumour is close to the lung the treatment may cause the lung to collapse. This can be repaired at the same time.
- Sometimes there is a chance of infection or abscess, around the treatment site.
- If the treatment is close to the heart, the heartbeat may become irregular.
- You may have some muscle tenderness over the area that was treated, due to the electrical pulses stimulating the muscles and making them tense for the period of time you had treatment.
- The electrical current may alter the heart rhythm leading to mis-beats (arrhythmias).
- Extremely rarely, there is a risk of death from complications.

Other:

- Allergic reaction.
- Radiation risk (X-ray or CT guidance).
- Renal failure from contrast medium used for CT.

There is always a slight risk of damage to cells or tissues from being exposed to any radiation, including the low levels of X-ray which may be used for this test. The risk of damage from the X-rays is usually very low compared with the potential benefits.

Please be aware that even a small extra amount of radiation may be harmful to an unborn child. If you think that there is a chance you may be pregnant, please contact the IR department.

If you would like more information about radiation risk we have leaflets available, or feel free to discuss this with our staff who will be happy to answer any questions you may have.

Are there any alternative treatments available?

- Surgery

It is always up to you whether you choose to proceed with a particular treatment. Some of these treatment options may not be available for you. You should speak to your doctor about this.

Further Appointments

Follow-up: If any further appointments are needed, you will be contacted by the team that sent you for the procedure.

Unexpected problems or concerns: Ring the Interventional Radiology department if related to this procedure.

Royal Liverpool University Hospital - 0151 706 2748

Aintree University Hospital – 0151 529 2925

If you think you need **urgent** medical assistance please contact NHS111 or attend your local A&E Department.

Feedback

Your feedback is important to us and helps us influence care in the future.

Following your discharge from hospital or attendance at your outpatient appointment you will receive a text asking if you would recommend our service to others. Please take the time to text back, you will not be charged for the text and can opt out at any point. Your co-operation is greatly appreciated.

Further information

**Interventional Radiology
Imaging Department
Royal – 0151 706 2748
Aintree – 0151 529 2925**

www.NICE.org

**Author: Interventional Radiology, Imaging Department
Review date: July 2028**

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