

RENAL ABLATION

RADIOFREQUENCY, CRYOABLATION & MICROWAVE ABLATION

PATIENT INFORMATION

WHAT IS RENAL ABLATION?

Traditionally, renal cancer has been treated by a combination of surgery, radiotherapy and chemotherapy. Ablation involves the destruction of cancer cells using thermal energy. Small needles are used and inserted into the tumour under image control. The needles are heated or cooled to cause thermal damage and eventual cause destruction of the cancer cells. Ablation targets the cancer with a safe margin that is able to preserve the maximal amount of normal kidney tissue. The dead tissue does not need to be removed by surgery.

Generally, these types of treatment are used for small renal tumours, usually between 2 to 5cm in diameter. Several other factors will be considered when deciding upon best treatment option for your tumour. Such factors include the location of the tumour, the surrounding structures close to the tumour, your overall health, how well your kidneys are functioning, local expertise and obviously, patient preference.

WHAT TYPES OF ABLATION ARE AVAILABLE?

There are a number of different techniques used to impart thermal energy into the cancer cells to cause destruction. They all use the same image guided method of placement of the needles. The commonest are:

1. RADIOFREQUENCY ABLATION (RFA):

Radiofrequency waves are passed through the needle, causing the molecules around the needle tip to vibrate. This imparts heat and friction to the area and kills the diseased tissue. The effect is localised but frequently the needle is moved to a number of different positions to ensure good coverage of the tumour.

2. CRYOABLATION (CRYO):

Cryoablation involves the use of ice to freeze tumours at temperatures less than -100 °C and provides a very efficient means of destroying tumour cells in a localised area.

3. MICROWAVE ABLATION (MWA):

Electromagnetic microwaves from a microwave generator agitate water molecules in the surrounding tissue. This produces heat, which kills the diseased tissue. Microwave allows for higher temperatures, larger tumor ablation volumes and faster ablation times.

WHY DO YOU NEED RENAL ABLATION?

Your urologist feels that your renal tumour is not suitable for an operation or is best treated with primary ablation therapy. CT or MRI Imaging tests

will have usually have been performed to make the diagnosis and assess growth and will have helped in deciding the best form of treatment in your case.

ARE THERE ANY RISKS?

Renal ablation is a safe and effective procedure, but as with any medical procedure there are some risks and complications that can arise.

An area of normal kidney tissue around the tumour will be targeted, as it is known that this area may contain microscopic tumour cells that are not visible on a scan. This reduces the risk of recurrence.

However, other structures in or adjacent to the kidney may be damaged. The commonest risks are bleeding, bowel perforation, renal impairment or damage to the kidney collecting system. Such damage is usually apparent on the post-procedure scan and can be dealt with promptly usually with percutaneous techniques but very occasionally requires surgery.

There is a small risk of recurrence of the tumour after an ablation. The exact risk varies from patient to patient and follow-up CT scans to examine the ablated area will be undertaken.

With any use of sedation or general anaesthetic, there are some small risks involved.

WHO HAS MADE THE DECISION?

Your Urologist and Dr Ian McCafferty have reviewed all your imaging and discussed the best treatment for you. You will meet Dr Ian McCafferty who will discuss renal ablation with you often with an ultrasound to assess access. However, you will

also have the opportunity for your opinion to be considered and if, after discussion, you no longer want the procedure, you can decide against it.

ARE YOU REQUIRED TO MAKE ANY SPECIAL PREPARATIONS?

The procedure will most likely be carried out under general anaesthetic. The procedure is generally carried out with a single nights stay in hospital. You will be asked not to eat or drink for four hours before the procedure.

If you have any allergies or have previously had a reaction to the dye (contrast agent), you must tell the radiology staff before you have the test.

WHO WILL YOU SEE?

Dr Ian McCafferty, interventional radiologist, and his specially trained team within the radiology department. Dr Ian McCafferty has special expertise in reading images and using imaging to guide needles to aid diagnosis and treatment.

WHAT HAPPENS DURING THE RENAL ABLATION?

The procedure is performed under a general anaesthetic within the CT department. You will be scanned again routinely as part of the procedure. This allows Dr Ian McCafferty, interventional radiologist, to further plan the treatment and confirm the best means of access to the tumour. Usually, this is done with you lying on your front or on your side.

Using the scans, the point of entry for the needles is marked on the skin. The area of the skin to be

used is cleaned with antiseptic solution and local anaesthetic used to numb the skin. A biopsy of the area may be taken prior to the needles being inserted, and then the needles are guided into the tumour, using the CT/Ultrasound to ensure they are correctly targeted. The ablation is then undertaken, with possibly several areas being targeted and the needles being manipulated several times. A completion scan is then performed to assess the immediate results of the ablation therapy.

The procedure can take up to 2 or 3 hours depending on the individual patient.

WHAT HAPPENS AFTER THE PROCEDURE?

Most patients experience some discomfort following the procedure and this is usually managed by simple analgesia taken in a tablet form. You will be asked to continue the tablets for up to a week. A fever or flu-like illness maybe felt 1 to 2 days following the procedure and there may be a general sensation of "feeling under the weather". This is usually self-limiting and does not represent infection in the treated tumour. To reduce the risk of infection you may be given antibiotics at the time of the procedure. Most patient's stay in hospital for one night.

After you have been discharged, Dr Ian McCafferty will arrange a follow-up CT scan and a consultation with your Urologist.

WHAT ARE THE RESULTS OF RENAL ABLATION?

Renal ablation (RFA & Cryoablation) has been formally assessed by the National Institute for

Clinical Effectiveness (NICE) and found to be an effective treatment.

See www.nice.org.uk IPG535 & IPG402

Renal ablation is a safe procedure that allows treatment of renal cancer through minimally invasive techniques without the need for surgery. The techniques are relatively new compared to surgery.

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