

# Thermal or cryoablation to treat your tumour

This leaflet explains more about having thermal ablation or cryotherapy (cryoablation) to treat your tumour. It includes information about the benefits, risks and any alternatives, and what you can expect when you come to hospital.

If you have any further questions, please speak to a doctor or nurse caring for you.

## What is ablation?

Ablation is a way to destroy tumours without surgery. It involves insertion of one or more needles (electrodes) through the skin that will accurately target the tumour with the delivery of energy (heat or cold). This destroys the tumour cells by burning or freezing the tumour.

The interventional radiologist (a doctor who uses x-ray to diagnose and treat illnesses) usually uses ultrasound or CT (computerised tomography) scanning to guide the placement of the electrode(s). Sometimes two or more sessions of treatment are needed before the tumour is completely destroyed.

Ablation has an increasingly expanding role in the treatment of solid tumours like cancer of the liver, the kidneys, the lungs and the bones, and it is easily combined with other drug treatments (such as chemotherapy) or external irradiation (radiotherapy).

## What technologies are used for ablation?

Radiofrequency and microwaves are used for thermal ablation, and cryotherapy is used for cryoablation.

**Radiofrequency ablation** involves heating tumours with radiofrequency energy. In this procedure, the doctor guides a small needle (electrode) through the skin into the tumour. From the tip of the needle, radiofrequency energy (high-frequency alternating current) is transmitted into the tumour, where it produces heat and burns the tissues. In the case of microwaves, the needle tip emits some form of electromagnetic waves (microwaves) that boil the water inside the tissues and thereby destroy the tumour.

**Cryotherapy** is an alternative technique that freezes tissues instead of burning them. It involves insertion of small needles (cryoprobes) through the skin, which circulate very cold gas and freeze the tumour by producing ice.

## **What types of tumours may be treated with ablation?**

Several different types of solid tumours can be treated with thermal ablation or cryotherapy. Ablation is usually proposed for the treatment of small (smaller than 3-5 cm) cancer tumours of the liver, the kidneys, the lungs, the bones, the spine and the adrenal glands. The best results are achieved when treating single small tumours (smaller than 3cm) that have not spread to other body parts.

## **What are the benefits of ablation?**

Thermal ablation or cryoablation can generally be performed without significantly affecting the patient's overall health. Most people leave hospital the day after the treatment and can resume their usual activities within a few days.

Other benefits include:

- Ablation does usually not require general anaesthetic and eliminates the risks associated with it.
- It is well tolerated. Most patients can resume their normal routine the next day, but they may feel tired and have some local pain for a few days.
- It has low complication rates.
- It can be repeated if necessary.
- It may be combined with other treatment options like chemotherapy and radiotherapy.

## **What are the risks?**

As with any procedure, there are some risks associated with ablation. However, by using x-rays or ultrasound to precisely guide the delivery of the treatment to the affected tissue complications are rare.

Possible complications include:

- Bleeding – you may have bleeding in your abdomen (tummy). This is very rare, but may mean that you will need a blood transfusion.
- Infection – this can be treated with antibiotics. Infection can cause an abscess (lump containing pus), but this can be drained.
- If the tumour is on your lung, there is a risk of air leaking out of your lung. This is called a pneumothorax. If this happens, you may feel short of breath, have persistent cough or experience some chest pain. Pneumothorax can be treated by draining the air, but your hospital stay will be longer after the procedure.
- Injury to other parts of your body – depending on where your tumour is, other organs, such as your bowel or stomach could be injured during the procedure. This is rare and is treatable but you may need additional surgery.
- Injury to the nerves if the tumour is near the spine or other sensitive nerve structures. This is rare and you may need further treatment if it happens.

## **Are there any alternatives?**

There are other ways to treat tumours, including surgery, chemotherapy (treatment with drugs that damage cancer cells) and vascular embolization (procedure which cuts off the tumour's blood supply). There is also external radiotherapy that involves emission of radiation (x-rays) to kill the tumour cells.

These alternatives may not be suitable for you. Please ask your doctor for more information.

## How can I prepare for the procedure?

You will attend the outpatient Ablation Clinic where you will have the chance to discuss the procedure with the interventional radiologist. He/she will review your notes and images from previous examinations, explain whether this procedure is recommended for you, and discuss its risks and benefits. You will also have the opportunity to ask the doctor any questions you may have.

When attending the Ablation Clinic please let the doctor know if you are taking any regular medicines and if you have any allergies to any medicines. If you are taking antiplatelet medicines (such as aspirin or clopidogrel) or any anticoagulant medicines (such as warfarin or rivaroxaban), then you may need to stop them temporarily before you have the procedure. If you are taking an anticoagulant, you might be asked to alter the dose or to temporarily change to another medicine before the procedure. If you have diabetes, you may need to alter the dose of your diabetes medicines, as you will need to fast before the procedure (see below).

Further information on stopping any medicines will be given to you by the radiologist during this consultation if necessary. Please ask us if you have any questions.

You will need to have a blood test taken before the ablation. Your interventional radiologist will tell you about this and how to arrange it. He/she will also ask you for details of any other medical conditions that you have.

On the day of the procedure you will be admitted to the ward and your ward nurse will help you get ready. You can have a shower or bath, but do not use moisturising cream/lotion on your body. As it is oily, the antiseptic may not remove it thoroughly which could cause an infection.

A radiologist will visit you to review your notes, discuss any further questions and take the consent form.

Don't eat anything for six hours before ablation but you may drink still water up to two hours before the procedure. Take your morning medicines as usual with a sip of water unless you were advised otherwise during the Ablation Clinic consultation.

Our leaflet, **Preparing for your stay**, gives you information about how to get to the hospital, what to expect and how to prepare. If you have not received a copy, please ask your nurse for one.

## Giving my consent (permission)

We want to involve you in decisions about your care and treatment. If you decide to go ahead, you will be asked to sign a consent form. This states that you agree to have the treatment and you understand what it involves.

You should receive the leaflet, **Helping you decide: our consent policy**, which gives you more information. If you do not, please ask a member of staff caring for you for a copy.

## What happens during the procedure?

You will lie on an x-ray table, usually on your back or side. Your blood pressure, pulse and the oxygen level in your blood will be monitored.

Most patients have the procedure under local anaesthetic and conscious sedation which involves giving you two medications through your cannula to relax you and ease your pain. You will most likely have forgotten most of the procedure afterwards but you will be awake enough during ablation to breathe for yourself and communicate with the staff.

If you are having cryoablation, you will most likely have the procedure carried out under general anaesthetic. More information about anaesthesia is available in our leaflet, **Having an anaesthetic**. If you would like a copy, please ask a member of staff.

During radiofrequency ablation, two to four electrode pads will be attached to your leg (they are not necessary during microwave ablation). These conduct the current and prevent heat burns.

The radiologist will take a series of CT images or ultrasound pictures to find the best position to insert the electrode. Once the best position is found, the electrode will be introduced through your skin and precisely positioned into the tumour. Your skin does not need to be cut as the electrode is very thin. The tumour is then heated for about 15 minutes with radiofrequency or microwave energy, or alternatively frozen for 15-30 minutes with cryotherapy. In case of larger tumours, the electrode may need to be re-positioned and a second area within the tumour treated the same way,

Following the treatment, the dead tumour tissue shrinks and slowly forms internal scar. Because there is no surgical incision (cut), ablation procedures barely affect the appearance of the skin.

## **Will I feel any pain?**

Apart from the local anaesthetic injection, which may sting for a few seconds, we aim to make the examination as pain-free as possible. You may feel some slight to moderate discomfort during the treatment and a few patients experience a sensation of heat if the tumour is near the internal surface (capsule) of the treated organ. If you are uncomfortable, please tell the nurse so you can be given more pain relief.

If case of general anaesthetic you will be asleep throughout the procedure and you will not feel any pain.

## **What happens after the procedure?**

Generally you will stay in the Interventional Radiology's recovery room until your ward nurse collects you. You will need to stay in bed for two to four hours, depending on how quickly you recover from the sedation. Your blood pressure and pulse will be monitored frequently.

You may have mild abdominal (tummy) pain, but you will be given pain relief for this.

You can eat and drink normally, or as instructed by your nurse.

If you have a general anaesthetic, at the end of the operation, the anaesthetist will stop giving anaesthetic drugs and you will start to wake up. When it is certain you are recovering normally, you will be taken to the recovery room. Most people regain consciousness in the recovery room where nurses will monitor you while you are waking up fully. If you are in pain or feel sick, tell the nurses so they can give you treatment for this. Oxygen will be given to you through a plastic mask which covers your nose and mouth.

Once the nurses are satisfied that you have recovered from your anaesthetic, you will be taken back to the ward. You will be advised when you can drink or eat.

## How long do I need to stay in the hospital?

You can usually leave the hospital the day after your procedure, as soon as you have had your follow-up CT scan to confirm the immediate success of the treatment and exclude any complications.

In a rare case of complications that may require further treatment, your stay in hospital may need to be longer.

## What do I need to do after I go home?

Before you leave your nurse will tell you how to look after yourself. You will be given painkillers to take home and advised to rest at home. The length of the time you need to recover varies from patient to patient so your nurse will give you more specific advice.

Your temperature may be slightly raised which is caused by the cells in the tumour dying. This will last for three to seven days. If you continue to have fever for more than a week, this might be a sign of infection and you should visit your GP or a local A&E department, or contact us immediately.

## Will I have any follow-up appointments?

You will need to come back to the hospital for regular CT scans to check that the treatment has worked and that there is no recurrence. You will also have to be reviewed regularly by your doctor in the outpatient Ablation Clinic. Your doctor or clinical nurse specialist will give you more information about this.

### Contact us

If you have any questions or concerns about ablation, please contact the Interventional Radiology Department on **020 7188 5550** (Monday to Friday, 9am to 5pm). The secretary will arrange for an interventional radiologist to call you back.

Out of hours, please go to your local A&E department.

### Pharmacy Medicines Helpline

If you have any questions or concerns about your medicines, please speak to the staff caring for you or call our helpline.

**t:** 020 7188 8748 9am to 5pm, Monday to Friday

### Patient Advice and Liaison Service (PALS)

To make comments or raise concerns about the Trust's services, please contact PALS. Ask a member of staff to direct you to the PALS office or:

**e:** 020 7188 8801 at St Thomas'      **t:** 020 7188 8803 at Guy's      **e:** pals@gstt.nhs.uk

### Language support services

If you need an interpreter or information about your care in a different language or format, please get in touch using the following contact details.

**t:** 020 7188 8815      **fax:** 020 7188 5953

### NHS Choices

Provides online information and guidance on all aspects of health and healthcare, to help you make choices about your health.

**w:** [www.nhs.uk](http://www.nhs.uk)

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