Percutaneous Thermal Tumour Ablation - Information for Patients

This leaflet aims to answer some of the questions you may have about having a percutaneous thermal tumour ablation. It explains the risks and the benefits of the procedure and what you can expect when you come to hospital.

If you have any questions or concerns, please do not hesitate to speak to the staff caring for you.

What is percutaneous thermal tumour ablation?

Percutaneous thermal tumour ablation is a technique developed over the past 20 years for the treatment of certain tumours. “Percutaneous” means through the skin and ablation means destruction (of tissue). “Percutaneous thermal tumour ablation” is therefore a technique where either very high or low temperatures are used to destroy tumour cells. It is carried out by an Interventional Radiologist under Computed Tomography (CT) or ultrasound guidance to help guide the needle electrode into the tumour. Once the needle is in the correct position the ablation can be carried out either by:

- Radiofrequency ablation (RFA) – destroys tumour by heating the tissue by passing an electric current through the needle which results in high temperatures (60 to 100^{o}C) at the needle tip
- Microwave ablation (MWA) – destroys tumour by heating the tissue by passing microwaves through the needle
- Cryoablation –destroys tumours by freezing the tissue. The tumour is rapidly frozen and destroyed at temperatures as low as -20^{o}C to -40^{o}C

How are tumours normally treated?

The treatment of choice for many tumours in the kidney, liver or lung is usually either ablation or surgical excision (removal). Surgical excision may be performed by open surgery or keyhole (laparoscopic) surgery and may require removal of the whole organ (for example kidney) or the affected part only.

Whilst in many circumstances ablation is the safest and most appropriate option, it can also be used in patients who are not suitable for surgical alternatives due to being unfit for surgery or having poor organ function (for example kidney failure) which surgery can worsen. Others may not wish to undergo a surgical procedure.

Just like surgery thermal ablation can be used in conjunction with other cancer treatments including chemotherapy and radiotherapy.

Which tumours can be treated?

Radiofrequency ablation has been assessed and approved for use by the National Institute for Clinical Excellence (NICE) in the treatment of kidney, liver and lung tumours. It is also (less commonly) used in the treatment of other isolated tumours. Microwave ablation has also been assessed by NICE in the treatment of secondary liver tumours and can be used although experience with this technology is more limited. (See section on finding further information for details on guidance documents published by NICE). Cryoablation is widely used in the treatment of small cancers in the kidney, and can also be used to treat selected lung tumours, or growth areas where surgery or 'hot' thermal ablation may cause damage to adjacent structures. Your Interventional Radiologist will have reviewed all your images and discussed you case with your clinician and will have selected the most appropriate ablation modality for you.

How successful is percutaneous thermal tumour ablation?

The strength of evidence now means that these techniques are used widely, either in preference to surgery or in those who are too unfit or unwell to undergo surgery. While there are no studies at present which directly compare percutaneous thermal ablation to surgery, evidence demonstrates that when tumours are few in number and small in size (typically less than 3 to 4cm) results compare favourably to other treatment options (primarily surgery) in terms of achieving successful tumour destruction and patient survival. While there are good longer term (5 year) follow up data for patients with small liver tumours, the follow up period in many of the larger studies for kidney and lung tumours are still limited and we must therefore be cautious about the longer term results. This is why we carefully monitor patients with CT scans after treatment. Ask the doctor treating you and see the NICE guidance below for a more detailed discussion on the evidence related to different tumour types.

Is percutaneous thermal tumour ablation suitable for everyone?

As recommended by NICE the decision to offer this treatment to a patient is made by a number of doctors working together in a multi-disciplinary team. An Oncologist, Surgeon and Interventional Radiologist will discuss your case. In particular, the type of tumour, its size and location as well as your general fitness will be considered. Most commonly, selected patients are those who have small (less than 3cm) tumours where ablation offers good rates of treatment success. It may also be offered in patients with slightly larger lesions if these patients are thought to be at high risk of complications due to surgery or general anaesthetic. Please ask the doctor treating you why they are recommending this treatment.

What are the benefits and risks of percutaneous thermal tumour ablation?

As with all treatment, options there are both benefits and risks related to percutaneous tumour ablation. These will be discussed before any treatment is undertaken at your pre-procedural consultation. Table 1 and 2 before indicate the benefits and risks involved in the procedure:

Table 1 - Benefits of percutaneous thermal tumour ablation
• Minimally invasive procedure which avoids open surgery • Short procedural time compared to surgery • Low rate of post-operative complications (less than surgery) • Minimal blood loss and low likelihood of receiving a blood transfusion • Less post procedural pain compared to surgery • Shorter recovery period and hospital stay compared to surgery • Preservation of organ function

Table 2 - Limitations / risks of percutaneous thermal tumour ablation
• Higher risk of residual disease after treatment for certain tumours, and risk of local recurrence with larger tumours • Generally only suitable if disease limited to the organ being treated • Risk of major complications (But still much lower than equivalent surgical options) such as severe bleeding, infection (abscess) formation or damage to other structures are generally rare (1-2%) • Uncertainty regarding longer term outcome (beyond 5 years) for some tumours

Radiation – Benefit versus Risk

CT guided ablations use X-ray radiation. The radiation dose that you get from an ablation is small and the associated risks are low. Clinical staff consider both the risks and benefits when deciding what examination is appropriate for you. The benefits of having the ablation outweigh any risk. Clinical staff are responsible for making sure that the dose you receive is kept as low as necessary to aid your diagnosis or treatment.

Pregnancy

If you are in the early stages of pregnancy there is a very small risk of x-rays harming your unborn child. If you think you could be pregnant, or you are trying to get pregnant, please tell us before your appointment. Individuals of ages 10-55 years will be asked to confirm their pregnancy status by the radiographer before the procedure and sign a form.

Consent

We want you to be involved in all the decisions about your care and treatment. If you choose to go ahead, you will be asked to sign a consent form. This confirms that you agree to have the procedure and understand everything involved.

If you do not wish to have the procedure or are undecided, please tell the Radiologist. Students/trainees may be present during the examination but only with your verbal consent.

Please remember that you can ask the Interventional Radiologist any questions you have at any time before, during or after your scan.

Who performs percutaneous thermal tumour ablation?

Interventional Radiologists who are specialists in image guided minimal access techniques perform the procedure. You will also be looked after by a nurse and radiographer.

What happens before the procedure?

You will be given an appointment to attend a pre-procedural consultation and pre-assessment clinic. All preparation details will be discussed with you and you will be able to ask questions. We will also carry out some blood tests.

What happens during a procedure?

Most patients are admitted the night before and will be 'nil by mouth' from midnight or given an early breakfast, depending on the time of the procedure.

You will be asked to change into a hospital gown and a small cannula placed in your arm for administration of fluids and drugs. You will be brought to the X-ray department where you will meet the staff looking after you during the procedure and the Interventional Radiologist. The radiologist will explain the procedure to you and you will be asked to sign a consent form. The Royal Victoria Hospital and Belfast City hospital are teaching hospitals and as such university students may be in attendance, with your permission.

You will either have a general anaesthetic (be put to sleep) or be sedated (awake but drowsy and numb) for the procedure. The procedure will most commonly occur in the CT department, lying on the CT scanner bed. The CT scanner is then used to take pictures and decide on where the needles should be positioned. One or more needles are then carefully positioned in to the tumour using the CT scanner and/or an Ultrasound machine and the tumour is then heated or frozen depending on the technique being used.

What happens after the procedure?

Once the procedure is completed, you will return to the Day of Surgery Unit / ward for nursing staff to monitor you post procedure. You will generally stay in bed 2-3 hours for this.

Once you have recovered from the general anaesthetic or sedative you can eat and drink as normal. If you have received general anaesthetic, you will most commonly be discharged the following day. If you had the procedure under conscious sedation, you will usually be discharged on the same day. Follow up will involve CT scans usually every few months to start with to assess the treated tumour. You will also have to be reviewed regularly by your doctor in the outpatient clinic.

Where can I find further information?

A good place to start is by asking the doctor looking after you about these techniques. They may refer you to an interventional radiologist for further discussion.

The following websites also provide information for patients:

- Interventional procedure guidance 353 July 2010: Percutaneous radio-frequency ablation for renal cancer (www.nice.org.uk/guidance/IPG353/publicinfo)
- Interventional procedure guidance 372 Dec 2010: Percutaneous radiofrequency ablation for primary or secondary lung cancers (www.nice.org.uk/guidance/IPG372/publicinfo)
- Interventional procedure guidance 327 Dec 2009: Radiofrequency ablation for the treatment of colorectal liver metastases (www.nice.org.uk/IPG327publicinfo)
- Interventional procedure guidance 002 July 2003: Radiofrequency ablation of hepatocellular carcinoma: guidance (www.nice.org.uk/IPG002publicinfoenglish)
- Interventional procedure guidance 406 August 2011: Microwave ablation for the treatment of liver metastases (www.nice.org.uk/guidance/IPG406/publicinfo)
- British Society of Interventional Radiology (BSIR): www.bsir.org.uk (see patient section)
- Cardiovascular and Interventional Radiological Society of Europe (CIRSE): www.cirse.org (see patient section)

Results

You may be able to discuss your procedure with the performing Interventional Radiologist once it is complete. The performing Interventional Radiologist will formally report on your procedure, and it will be attached to the images on our Radiology Information System (RIS). A copy of the report will be sent by Radiology to the referring clinician. Any follow up will be arranged by the referring clinician.

Image sharing

Your images will be electronically stored on the hospital picture archiving system. This data can be accessed throughout the Belfast Health and Social Care Trust and other doctors and health care professionals who are directly involved in your care. The ability to share images and radiological reports will improve the safety and quality of your care by ensuring that the right information is available in the right place at the right time.

In order to improve the medical services we provide we may also use your data as anonymously as possible for internal audit and medical education. If you would prefer that your data is not used for these purposes, please inform a member of staff when you attend for your examination.

If your data is to be used for research, then a separate consent process will be used. You will be asked for your consent, should this be the case.

Contact us

If you have any queries, we will be happy to answer any questions on the day of your percutaneous thermal tumour ablation or you can contact us on the number given on your appointment letter.

For procedures performed at the Royal Victoria Hospital, please email InterventionRadRVH@belfasttrust.hscni.net Tel: 02896156661 Interventional Radiology Secretary RVH

For procedures at the Belfast City Hospital, please email InterventionRadBCH@belfasttrust.hscni.net Tel: 02895041165 Interventional Radiology Secretary BCH

Feedback

We hope you found the information in this leaflet helpful. If it did not tell you what you needed to know or you would like to provide any feedback on your experience please let us know so that we can make any necessary improvements.

You can provide feedback on your experience:

Telephone: (028) 9504 8000 (Monday-Friday: 9am-4pm)

Textphone: 18001 028 950 48000

By email: compliments@belfasttrust.hscni.net

By email: complaints@belfasttrust.hscni.net

By completing an online form: http://www.belfasttrust.hscni.net/contact/FeedbackForm.htm

Care Opinion

We invite you to share your experience by clicking the following link: https://www.careopinion.org.uk/

or by scanning the following QR code on your smartphone or tablet:

Language and accessible support services

Deaf/Hard of Hearing

If a Sign Language interpreter is required, please either telephone **028 9615 8900** via the Sign Video remote interpreting service **(https://signvideo.co.uk/deaf-community/)** or email us at **MPHAdminFOH@belfasttrust.hscni.net** and we will arrange one for your appointment. Please have your H&C number ready when calling or include it in your email. This can be found at the top right corner of any Health and Social Care letters you may have received.

If you are unable to hear on the phone and need to contact us with regards to your appointment you can email us at **MPHAdminFOH@belfasttrust.hscni.net**.

Do you need this information in another format or language?

The Trust has access to interpreting and translation services. If you need this information in another language or format, including Braille, large print, CD, audio tape please contact the telephone number **028 9615 8900** or e-mail address **MPHAdminFOH@belfasttrust.hscni.net**, and we will do our best to meet your needs.

Polish - Czy potrzebujesz tych informacji w innym formacie lub języku?

Fundusz ma dostęp do usług w zakresie tłumaczeń ustnych i pisemnych. Jeśli potrzebujesz tych informacji w innym języku lub formacie, w tym w piśmie Braille'a, dużym druku, na płycie CD, kasecie magnetofonowej, skontaktuj się z nami pod numerem telefonu lub adresem e-mail **028 9615 8900 / MPHAdminFOH@belfasttrust.hscni.net**, a my dołożymy wszelkich starań, aby spełnić Twoje potrzeby.

Arabic - هل تحتاج هذه المعلومات بصيغة أو بلغة أخرى؟

تستطيع الجمعية توفير خدمات الترجمة الفورية والتحريرية. إذا احتجت هذه المعلومات بلغة أو بصيغة أخرى، بما فيها صيغة برايل Braille أو صيغة بالأحرف الكبيرة، أو في سي دي CD أو في شريط مسموع، يُرجَى الاتصال برقم التليفون أو عبر البريد الإلكتروني MPHAdminFOH@belfasttrust.hscni.net / 028 9615 8900}، وسوف نبذل قصارى جهدنا في تلبية احتياجاتك.

Lithuanian - Ar jums reikia šios informacijos kitu formatu ar kalba?

Tarnyba gali suteikti vertimo žodžiu ir raštu paslaugas. Jei reikia šios informacijos kita kalba ar formatu, įskaitant Brailio raštą, didelį šriftą, kompaktinį diską, garso įrašą, skambinkite telefonu arba susisiekite el. paštu **MPHAdminFOH@belfasttrust.hscni.net / 028 9615 8900** ir mes padarysime viską, kad patenkintume jūsų poreikius.

Romanian - Aveți nevoie de aceste informații într-un alt format sau altă limbă?

Trustul are acces la servicii de interpretariat și traducere. Dacă aveți nevoie de aceste informații într-o altă limbă sau într-un alt format, inclusiv Braille, tipărire cu caractere de mari dimensiuni, CD, înregistrare audio, atunci vă rugăm să ne contactați la numărul de telefon sau la adresa de e-mail **MPHAdminFOH@belfasttrust.hscni.net / 028 9615 8900**, iar noi vom face tot posibilul pentru satisfacerea necesităților dumneavoastră.

Tetum - Ita presiza atu informasaun ida ne'e iha formatu ka lian seluk ka lae?

Fidusiáriu ida ne'e iha asesu ba servisu durubasa no tradusaun. Se Ita presiza informasaun ida ne'e iha lian ka formatu seluk, inklui letra Braile, letra boot, CD, kasete audio, entaun favór telefone númeru ka enderesu e-mail **MPHAdminFOH@belfasttrust.hscni.net / 028 9615 8900**, no ami sei halo esforsu tomak atu kumpre Ita-nia nesesidade sira.