

## **Treating kidney cancer by using freezing (cryotherapy) needles passed through the skin**

*NICE 'HealthTech guidance' advises the NHS on when and how new procedures can be used in clinical practice.*

This leaflet is about when and how freezing needles passed through the skin (a procedure called percutaneous cryotherapy) can be used in the NHS to treat people with kidney cancer. It explains guidance (advice) from NICE (the National Institute for Health and Clinical Excellence).

This HealthTech guidance makes recommendations on the safety of a procedure and how well it works. An interventional procedure is a test, treatment or surgery that involves a cut or puncture of the skin, or an endoscope to look inside the body, or energy sources such as X-rays, heat or ultrasound. The guidance does not cover whether or not the NHS should fund a procedure. Decisions about funding are taken by local NHS bodies (primary care trusts and hospital trusts) after considering how well the procedure works and whether it represents value for money for the NHS.

This leaflet is written to help people who have been offered this procedure to decide whether to agree (consent) to it or not. It does not describe kidney cancer or the procedure in detail – a member of your healthcare team should also give you full information and advice about these. The leaflet includes some questions you may want to ask your doctor to help you reach a decision. Some sources of further information and support are on page 7.



### What has NICE said?

This procedure can be offered routinely as a treatment option for people with kidney cancer provided that doctors are sure that:

- the patient understands what is involved and agrees to the treatment, and
- the results of the procedure are monitored.

NICE says that a healthcare team specialising in the cancer of the urinary system should decide which patients should be offered this procedure.

In addition, NICE has encouraged doctors to collect information about the procedure, and how well it works in the long term in comparison with other treatments for kidney cancer.

### Other comments from NICE

The evidence included both malignant and benign lesions or tumours because no tissue was normally taken for biopsy before the procedure. This contrasts with treatment to remove all or part of the kidney, where tissue is available to confirm cancer diagnosis.

## Treating kidney cancer by using freezing (cryotherapy) needles passed through the skin

*This procedure may not be the only possible treatment for kidney cancer. Your healthcare team should talk to you about whether it is suitable for you and about any other treatment options available.*

The medical name for this procedure is ‘percutaneous cryotherapy for renal cancer’. The procedure is not described in detail here – please talk to your specialist for a full description.

The most common type of kidney cancer in adults is called ‘renal cell carcinoma’. This is the medical term for a type of cancer that starts in cells lining the very small tubes of the kidney that help to make urine.

Symptoms and signs of this disease include pain and blood in the urine. Sometimes, a lesion or tumour may be found during a scan or X-ray. In many cases, it is difficult to confirm whether the lesion or tumour is cancerous or benign, and whether it will grow and spread.

Treatments for kidney cancer include keyhole (laparoscopic) or open surgery to remove all or part of the kidney, or using radiotherapy or other techniques such as radiofrequency ablation (RFA) that use energy sources to destroy the cancer cells.

Percutaneous cryotherapy is usually carried out either with the patient under local anaesthesia and having taken calming drugs (sedation) or under general anaesthesia. Imaging guidance is used to find the tumour. A biopsy of the tumour may be carried out. One or more cryotherapy needles are inserted through the skin into the tumour. The tip of the needle is cooled to below freezing, which creates an ice ball within the surrounding tissue that aims to destroy the tumour cells with one or more freeze–thaw cycles. The needle is thawed and removed.

## Summary of possible benefits and risks

Some of the benefits and risks seen in the studies considered by NICE are briefly described below. NICE looked at 12 studies on this procedure.

**What does this mean for me?**

NICE has said that this procedure is safe enough and works well enough for use in the NHS. If your doctor thinks this procedure is a suitable treatment option for you, he or she should still make sure you understand the benefits and risks before asking you to agree to it.

**You may want to ask the questions below**

- What does the procedure involve?
- What are the benefits I might get?
- How good are my chances of getting those benefits? Could having the procedure make me feel worse?
- Are there alternative procedures?
- What are the risks of the procedure?
- Are the risks minor or serious? How likely are they to happen?
- What care will I need after the procedure?
- What happens if something goes wrong?
- What may happen if I don't have the procedure?

*You might decide to have this procedure, to have a different procedure, or not to have a procedure at all.*

### **How well does the procedure work?**

In a study of 93 patients there were no disease-related deaths in patients treated either by the keyhole procedure or by using percutaneous cryotherapy, within 12 months or 22 months of the treatment, respectively.

In a large study of several smaller studies (1375 tumours) significantly fewer patients treated by cryotherapy had tumour cells remaining after initial treatment (31 out of 600) compared with patients treated with RFA (100 out of 775), at an average of 19 months after the procedure. Fewer patients who had cryotherapy needed more treatment.

In the study of 93 patients, 2 out of 20 (10%) patients who had percutaneous cryoablation and 2 out of 56 (4%) patients treated by keyhole cryotherapy had lesions that progressed at early follow-up. This suggested incomplete destruction of the lesion, requiring further treatment; 3 patients were treated by percutaneous cryotherapy and 1 by removal of kidney and surrounding tissue. In a study of 66 patients, 5 out of 20 (25%) patients treated by percutaneous cryotherapy, and 2 out of 52 (4%) patients treated by laparoscopic (keyhole) cryotherapy needed further treatment.

In a study of 90 patients the tumour was completely destroyed during the first treatment in 27 out of 30 patients (90%) who had percutaneous cryotherapy, and in 56 out of 60 patients (93%) who had keyhole cryotherapy.

In the study of 93 patients, those who had the keyhole cryotherapy went back to work within 18 days, those who had percutaneous cryotherapy went back within 6 days, and those who had RFA within 4 days.

As well as looking at these studies, NICE also asked expert advisers for their views. These advisers are clinical specialists in this field of medicine. The advisers said that measures of success were how well

the procedure worked as judged by radiology, the proportion of patients who need further treatment, the tumour returning and survival.

### **Risks and possible problems**

In the study of 90 patients there were no major complications in patients treated by percutaneous cryotherapy, but 3 major complications (bowel injury, breathing difficulties and abnormal heart rate) in those treated by keyhole cryotherapy. Four patients who had the percutaneous procedure had minor problems relating to the surgery. These included bleeding around the kidney, leakage of urine and problems relating to the nervous system.

In another study, 2 out of 18 patients treated by percutaneous cryotherapy needed a blood transfusion because of bleeding, compared with 5 out of 20 patients who had the keyhole procedure. The study of 93 patients reported that 2 patients treated by percutaneous cryotherapy had prolonged neurapraxia (temporary weakness caused by a nerve being injured).

As well as looking at these studies, NICE also asked expert advisers for their views. These advisers are clinical specialists in this field of medicine. The advisers said that the most common complication is bleeding. Rare problems include injury to the ureter, bowel and pancreas. In theory, patients may have problems with air in the chest cavity causing the lung to collapse, and thermal injury to the skin.

**More information about kidney cancer**

NHS Choices ([www.nhs.uk](http://www.nhs.uk)) may be a good place to find out more. Your local patient advice and liaison service (usually known as PALS) may also be able to give you further information and support. For details of all NICE guidance on kidney cancer, visit our website at [www.nice.org.uk](http://www.nice.org.uk)

## About NICE

NICE produces guidance (advice) for the NHS about preventing, diagnosing and treating different medical conditions. The guidance is written by independent experts including healthcare professionals and people representing patients and carers. They consider how well an interventional procedure works and how safe it is, and ask the opinions of expert advisers. HealthTech guidance applies to the whole of the NHS in England, Wales, Scotland and Northern Ireland. Staff working in the NHS are expected to follow this guidance.

*To find out more about NICE, its work and how it reaches decisions, see [www.nice.org.uk/aboutguidance](http://www.nice.org.uk/aboutguidance)*

*This leaflet is about 'Percutaneous cryotherapy for renal cancer'. This leaflet and the full guidance aimed at healthcare professionals are available at [www.nice.org.uk/guidance/HTG269](http://www.nice.org.uk/guidance/HTG269)*

*You can order printed copies of this leaflet from NICE publications (phone 0845 003 7783 or email [publications@nice.org.uk](mailto:publications@nice.org.uk) and quote reference N2613). The NICE website has a screen reader service called Browsealoud, which allows you to listen to our guidance. Click on the Browsealoud logo on the NICE website to use this service.*

*We encourage voluntary organisations, NHS organisations and clinicians to use text from this booklet in their own information about this procedure.*

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