

Treating primary liver cancer with microwave ablation

NICE 'interventional procedures guidance' advises the NHS on when and how new surgical procedures or procedures that use electromagnetic radiation (such as X-rays, lasers and gamma rays) can be used.

This leaflet is about when and how microwave ablation can be used to treat people with primary liver cancer in the NHS in England, Wales, Scotland and Northern Ireland. It explains guidance (advice) from NICE (the National Institute for Health and Clinical Excellence).

NICE has produced this guidance because the procedure is quite new. This means that there is not a lot of information yet about how well it works, how safe it is and which patients will benefit most from it.

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 liver 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.

Interventional procedures guidance makes recommendations on the safety of a procedure and how well it works. 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.



What has NICE said?

This procedure can be offered routinely as a treatment option for people with liver 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.

Treatment should involve a team of specialists that includes a hepatobiliary surgeon. A hepatobiliary surgeon specialises in liver, bile duct and gall bladder operations. The procedure should be carried out using appropriate imaging (ultrasound) guidance. NICE has also said that there are a number of different machines available to carry out this procedure, and there is some uncertainty about how much microwave energy should be used. NICE has asked doctors to report any side effects that people have after the procedure to the Medicines and Healthcare products Regulatory Agency.

Further information about how well this procedure works long term and how well it works compared with other similar treatments will be useful.

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

Microwave ablation

The procedure is not described in detail here – please talk to your surgeon for a full description.

Microwave ablation is a procedure that uses heat from microwave energy to destroy cancer cells. It can be used to treat hepatocellular carcinoma, which is the most common type of primary liver cancer. A primary cancer is a cancer at the original site where it first occurred, rather than a cancer that has spread from another site.

The procedure is carried out under a general or local anaesthetic, either in open abdominal surgery, in ‘keyhole’ surgery (using specialised instruments inserted in small cuts in the abdomen) or through a needle puncture. Using ultrasound guidance, the surgeon applies microwave energy directly into the tumour through a special needle electrode. Larger tumours may be treated with several electrodes at once.

For most patients, microwave ablation is used to prolong life and is not intended as a cure. Microwave ablation is one of several treatment options for hepatocellular carcinoma. Alternative procedures include radiofrequency ablation (a similar procedure using radio waves), percutaneous ethanol injection (in which pure alcohol is injected directly into the tumour to kill it) and liver resection (which means parts of the liver containing the tumour are removed).

Liver transplantation with the aim of curing the cancer may be suitable for some patients.

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 microwave ablation 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 operation?
- 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

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 seven studies on this procedure.

How well does the procedure work?

A study of 89 patients showed that survival rates were similar in patients treated with microwave ablation or liver resection when they were reviewed after 25 months. The cancer came back in 3 out of the 38 microwave ablation patients and 4 out of the 51 resection patients. A second study of 43 people who had either microwave ablation or percutaneous ethanol injection showed that after 5 years, overall survival rates were similar for the microwave ablation and percutaneous ethanol injection patients (microwave 70%, ethanol 78%). But for people with less well defined tumours, the 5-year survival rates were 78% for the microwave ablation patients and 35% for the ethanol injection patients. A third study of 288 patients treated with microwave ablation reported that 51% were still alive after 5 years.

In a study looking at how long people survived after radiofrequency ablation compared with microwave ablation, the survival rate after radiofrequency ablation was significantly better, with a 3-year survival rate of 77%. Regrowth of liver tumours was significantly less common in patients treated with radiofrequency ablation rather than microwave ablation. Overall, however, the average length of time spent disease free was similar for both procedures (15.5 months for microwave ablation, compared with 16.5 months for radiofrequency ablation).

The expert advisers had no major concerns over how well this procedure works but they noted that the procedure is new and there is not a lot of information about long-term survival of patients following this treatment.

Risks and possible problems

In one study comparing microwave ablation with radiofrequency ablation, 11 out of 70 patients treated with microwave ablation had postoperative pain, compared with 2 out of 48 patients treated with radiofrequency ablation. In this study, in the microwave ablation group of patients, bile-duct injury affected 11 and postoperative fluid retention affected 7 patients. These effects were more common after microwave ablation than after radiofrequency ablation.

In another study, reports of abdominal and gastrointestinal bleeding, narrowed bile ducts and reopened wounds were similar for patients treated with microwave ablation (open abdominal surgery) and those treated with liver resection. In a study comparing microwave ablation with radiofrequency ablation, there was no significant difference in the number of major complications. However, a further study reported that 4 out of 21 patients treated with microwave ablation (open abdominal surgery) developed severe breathing problems.

The expert advisers noted the following potential risks: liver abscess, bleeding in the abdomen, tumour cells spreading to other parts of the body, infection of the abdominal cavity caused by leaking bile, bowel perforation, blood clots and heat injury.

More information about primary liver cancer

NHS Direct online (www.nhsdirect.nhs.uk) may be a good starting point for finding out more. Your local Patient Advice and Liaison Service (PALS) may also be able to give you further advice and support.

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. 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

This leaflet and the full guidance aimed at healthcare professionals are available at www.nice.org.uk/IPG214

You can order printed copies of this leaflet from the NHS Response Line (phone 0870 1555 455 and quote reference N1225).

National Institute for Health and Clinical Excellence

MidCity Place, 71 High Holborn, London, WC1V 6NA; www.nice.org.uk

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