

NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Interventional procedures consultation document

Radiofrequency ablation for palliation of painful spinal metastases

Cancer from elsewhere in the body can spread to the spine (spinal metastases), causing severe pain and other symptoms. In this procedure, a needle-like probe containing an electrode is inserted into the spinal metastases. It produces an electrical current that heats the cancer cells and destroys them (radiofrequency ablation). The aim is to shrink the spinal metastases to relieve pain and other symptoms (palliation). This leaves a cavity in the bone. This is usually filled with bone cement to reduce the risk of spinal fractures.

NICE is looking at radiofrequency ablation for palliation of painful spinal metastases.

NICE's interventional procedures advisory committee met to consider the evidence and the opinions of professional experts, who are consultants with knowledge of the procedure.

This document contains the [draft guidance for consultation](#). Your views are welcome, particularly:

- comments on the draft recommendations
- information about factual inaccuracies
- additional relevant evidence, with references if possible.

NICE is committed to promoting equality of opportunity, eliminating unlawful discrimination and fostering good relations between people with particular protected characteristics and others.

This is not NICE's final guidance on this procedure. The draft guidance may change after this consultation.

After consultation ends, the committee will:

- meet again to consider the consultation comments, review the evidence and make appropriate changes to the draft guidance
- prepare a second draft, which will go through a [resolution process](#) before the final guidance is agreed.

Please note that we reserve the right to summarise and edit comments received during consultation or not to publish them at all if, in the reasonable opinion of NICE, there are a lot of comments or if publishing the comments would be unlawful or otherwise inappropriate.

Closing date for comments: 24 May 2021

Target date for publication of guidance: September 2021

1 Draft recommendations

- 1.1 Evidence on the safety and efficacy of radiofrequency ablation for palliation of painful spinal metastases is inadequate in quantity and quality. In particular, there is inadequate evidence on the additional benefit of radiofrequency ablation on balloon kyphoplasty or percutaneous vertebroplasty. Therefore, this procedure should only be used in the context of research. Find out [what only in research means on the NICE interventional procedures guidance page](#).
- 1.2 Further research should include randomised controlled trials comparing radiofrequency ablation as an adjunct to balloon kyphoplasty or percutaneous vertebroplasty against balloon kyphoplasty or percutaneous vertebroplasty alone. It should report details of patient selection, other interventional procedures used, and the effect of radiofrequency ablation on the risk of leaking of cement.

- 1.3 Patient selection should be done by a multidisciplinary team including an oncologist, an interventional radiologist and a spinal surgeon). It should only be done by clinicians with training and expertise in kyphoplasty or vertebroplasty techniques.

2 The condition, current treatments and procedure

The condition

- 2.1 Spinal metastases can affect quality of life by causing severe pain, functional impairment, vertebral fractures, nerve root impingement, spinal cord compression and hypercalcaemia.

Current treatments

- 2.2 Treatment for spinal metastases is mainly palliative. It aims to reduce pain, improve and maintain function, provide mechanical stability, and prevent further local tumour progression. Current treatment options include a combination of medical therapies (such as analgesics, systemic therapies including osteoclastic inhibitors such as bisphosphonates and denosumab, chemotherapy, or hormone therapy), orthotic support, radiation therapy, cryotherapy, microwave ablation, vertebroplasty and kyphoplasty (to improve stabilisation of vertebral fractures). Open surgery may be suitable for some patients with spinal cord compression and vertebral fractures.

The procedure

- 2.3 Radiofrequency ablation is a procedure for palliative treatment of spinal metastases. It is done in an outpatient setting using a transpedicular or parapedicular approach under general anaesthesia or conscious sedation. The approach is either percutaneous, endoscopic, or surgical.

- 2.4 Under imaging guidance (fluoroscopy, CT or MRI) a radiofrequency probe is inserted into the spinal tumour. The probe is attached to a radiofrequency generator, which creates high frequency alternating current pulses that heat and destroy the tumour. This leaves a cavity in the vertebral body. To prevent subsequent fractures in the treated vertebrae, percutaneous vertebroplasty or balloon kyphoplasty is usually done at the same time as this procedure.
- 2.5 Radiofrequency ablation is not usually done if the spinal metastases are near neurological structures because of the risk of neurological injury.

3 Committee considerations

The evidence

- 3.1 NICE did a rapid review of the published literature on the efficacy and safety of this procedure. This comprised a comprehensive literature search and detailed review of the evidence from 7 sources, which was discussed by the committee. The evidence included 3 systematic reviews, 3 retrospective cohort studies and 1 case report. It is presented in [the summary of key evidence section in the interventional procedures overview](#). Other relevant literature is in the appendix of the overview.
- 3.2 The professional experts and the committee considered the key efficacy outcomes to be: pain relief, reduction in use of analgesics (especially opioids) and health-related quality of life.
- 3.3 The professional experts and the committee considered the key safety outcomes to be: neurological complications, and thermal damage to adjacent structures.
- 3.4 Patient commentary was sought but none was received.

Committee comments

- 3.5 This procedure is almost always done in combination with kyphoplasty or vertebroplasty. These additional procedures may use cement. Harm may result from extravasation or embolisation of this cement.
- 3.6 Different types of radiofrequency ablation devices are used in this procedure, including bipolar and monopolar electrodes.
- 3.7 The committee were advised that radiofrequency ablation may be more effective on lytic than sclerotic lesions.
- 3.8 A potential benefit of this procedure is that it may give immediate reduction in pain from spinal metastases.
- 3.9 The committee noted that many of the studies used visual analogue scales for measuring pain outcomes and noted the limitations of these measures.
- 3.10 This procedure should not be used on metastases in the cervical spine.

Tom Clutton-Brock

Chair, interventional procedures advisory committee

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