

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 weakness in the vertebrae (bones of the spine). This may lead to instability or fractures and spinal cord compression.

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).

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This document contains the [draft guidance for consultation](#).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 The draft guidance may change after this consultation.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- meet again to consider the consultation comments, review the evidence and make appropriate changes to the draft guidance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.

NICE interventional procedures consultation document, 2022

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: 11 November 2022

Target date for publication of guidance: April 2023

1 Draft recommendations

1.1 Evidence on the safety and efficacy of radiofrequency ablation for palliation of painful spinal metastases is limited in quantity and quality. Therefore, this procedure should only be used with special arrangements for clinical governance, consent, and audit or research. Find out [what special arrangements mean on the NICE interventional procedures guidance page](#).

1.2 Clinicians wanting to do radiofrequency ablation for palliation of painful spinal metastases should:

- Inform the clinical governance leads in their healthcare organisation.
- Give people (and their families and carers as appropriate) clear written information to support [shared decision making](#), including [NICE's information for the public](#).
- Ensure that people and their families and carers understand the procedure's safety and efficacy, and any uncertainties about these.
- Audit and review clinical outcomes of everyone having the procedure. The main efficacy and safety outcomes identified in this guidance can be entered into [NICE's interventional procedure outcomes audit tool](#) (for use at local discretion).
- Discuss the outcomes of the procedure during their annual appraisal to reflect, learn and improve.

1.3 Healthcare organisations should:

- Ensure systems are in place that support clinicians to collect and report data on outcomes and safety for everyone having this procedure.
- Regularly review data on outcomes and safety for this procedure.

- 1.4 Patient selection should be done by a multidisciplinary team. The procedure should only be done by clinicians with training and expertise in vertebral interventions.
- 1.5 NICE encourages further research into the procedure. This should report details of patient selection, type of tumour, and interventional procedures used.

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 always 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 (external beam radiotherapy or stereotactic body radiotherapy), and minimally invasive localised percutaneous procedures such as cryoablation, photodynamic therapy, microwave ablation and radiofrequency ablation. These techniques may also be used with kyphoplasty or vertebroplasty to improve structural or mechanical stabilisation after tumour ablation. Open surgery (or surgery combined with radiotherapy) may be suitable for some people with spinal cord compression and vertebral fractures.

The procedure

- 2.3 Radiofrequency ablation is a procedure for palliative treatment of spinal metastases. It is usually done in a day-case setting using a transpedicular or parapedicular approach under general anaesthesia or local anaesthesia with 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 radiofrequency probe is attached to a radiofrequency generator, which creates high frequency alternating current pulses that heat and destroy the tumour.
- 2.5 Radiofrequency ablation is not usually done if the spinal metastases are close to neurological structures because of the risk of neurological injury.
- 2.6 This is a standalone radiofrequency ablation procedure, without being an adjunct to vertebroplasty or kyphoplasty.

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 4 sources, which was discussed by the committee. The evidence included 3 prospective case series and 1 retrospective analysis. 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: reduction in pain, 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: infection, thermal damage to adjacent structures, including neurological damage.
- 3.4 Four commentaries from patients who have had this procedure were discussed by the committee.

Committee comments

- 3.5 The committee was informed that the procedure can provide rapid pain relief.
- 3.6 The committee was informed that this procedure is primarily used for sclerotic lesions.
- 3.7 Different types of radiofrequency ablation devices may be used in this procedure, including bipolar and monopolar electrodes but not all can be used for sclerotic lesions.
- 3.8 There may be a risk of pathological fracture if cement is not used, but there is a small group of patients for whom the use of cement is contraindicated.

Tom Clutton-Brock

Chair, interventional procedures advisory committee

October 2022

ISBN: