

NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Interventional procedures consultation document

Genicular artery embolisation for pain from knee osteoarthritis

In knee osteoarthritis, new blood vessels can grow from the blood vessel that supplies blood to the knee (the genicular artery). This contributes to inflammation and pain in the knee joint. In this procedure, a tube is inserted into an artery in the groin and passed into the genicular artery. Tiny plastic particles are then injected into the new blood vessels. This blocks them (embolisation) and reduces blood flow around the knee joint. The aim is to reduce pain and improve quality of life.

NICE is looking at genicular artery embolisation for pain from knee osteoarthritis.

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This document contains the [draft guidance for consultation](#).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 The draft guidance may change after this consultation.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- meet again to consider the consultation comments, review the evidence and make appropriate changes to the draft guidance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: 25 June 2021

Target date for publication of guidance: October 2021

1 Draft recommendations

- 1.1 Evidence on the safety of genicular artery embolisation for pain from knee osteoarthritis shows no major safety concerns in the short term. Evidence on its efficacy and long-term safety is inadequate in quality and quantity. 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 Research should preferably be randomised controlled trials against sham and current best practice. It should report details of patient selection, the technique used, long-term safety and patient-reported outcomes.
- 1.3 The procedure should only be done by interventional radiologists with specific training in this technique.

2 The condition, current treatments and procedure

The condition

- 2.1 Osteoarthritis is characterised by localised loss of cartilage, remodelling of adjacent bone and associated inflammation. Knees are one of the most affected joints, with pain being a significant symptom.
- 2.2 Angiogenesis is believed to contribute to inflammation, structural damage and pain. This is because the increased vascular network carries inflammatory cells to the synovium and other joint tissues and promotes additional hyperplasia and inflammation in other vessels, leading to bone and cartilage destruction. Angiogenesis also enables the growth of new unmyelinated sensory nerves, which contributes to pain.

Current treatments

- 2.3 For pain secondary to knee osteoarthritis, various treatments are available including nonpharmacologic (such as physiotherapy), pharmacologic (such as analgesics and hyaluronic acid injections) and surgical approaches (such as knee arthroplasty).
- 2.4 Treatment most commonly involves a combination of pharmacologic therapies and non-pharmacologic interventions. When nonpharmacologic and pharmacologic interventions do not work or symptoms are severe, surgery may be needed.

The procedure

- 2.5 This procedure aims to relieve pain by embolising the pathological new vessels while maintaining the larger vascular supply to the bone.

- 2.6 Before the procedure, contrast-enhanced magnetic resonance imaging (MRI) of the knee is done to allow non-invasive assessment of synovial hypervascularity. The procedure is usually done using local anaesthesia with or without sedation. A catheter is passed through an introducer sheath in the femoral artery and then navigated into the genicular arteries supplying the knee to perform lower extremity angiography on the targeted side. Once the abnormal new vessels arising from these arteries are identified, a microcatheter is navigated into them and, under fluoroscopic guidance, tiny embolisation particles are then delivered until the blood flow is stopped.
- 2.7 After the introducer sheath and catheter are removed, haemostasis is achieved with manual compression or a vascular closure device. The patient often goes home the same day. This procedure generally takes between 45 and 90 minutes.

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 6 sources, which was discussed by the committee. The evidence included 1 systematic review and 5 case series. 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 reduction, symptom and function improvement using validated scoring systems, and quality of life.

3.3 The professional experts and the committee considered the key safety outcomes to be: bleeding, puncture-site haematoma, paraesthesia, embolisation of normal structures and increased risk of complications following future knee surgery.

3.4 Patient commentary was sought but none was received.

Committee comments

3.5 The committee considered this procedure has the potential to be useful in the treatment of knee osteoarthritis but noted that osteoarthritis of the knee is a common condition and its severity varies widely. The need to define those who would benefit from this procedure underpinned the committee's request for further research.

3.6 The committee encourages the establishment of a registry for this procedure.

Tom Clutton-Brock

Chair, interventional procedures advisory committee

April 2021

ISBN: