NICE National Institute for Health and Care Excellence

NICE guidance

Genicular artery embolisation for pain from knee osteoarthritis

HealthTech guidance
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www.nice.org.uk/guidance/htg595

Your responsibility

This guidance represents the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, healthcare professionals are expected to take this guidance fully into account, and specifically any special arrangements relating to the introduction of new interventional procedures. The guidance does not override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

All problems (adverse events) related to a medicine or medical device used for treatment or in a procedure should be reported to the Medicines and Healthcare products Regulatory Agency using the Yellow Card Scheme.

Commissioners and/or providers have a responsibility to implement the guidance, in their local context, in light of their duties to have due regard to the need to eliminate unlawful discrimination, advance equality of opportunity, and foster good relations. Nothing in this guidance should be interpreted in a way that would be inconsistent with compliance with those duties. Providers should ensure that governance structures are in place to review, authorise and monitor the introduction of new devices and procedures.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

Contents

This guidance replaces IPG708.

1 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 guidance page.

1.2 Research should preferably be randomised controlled trials against sham and current best practice. It should report details of patient selection and identify those who would most benefit from this procedure. It should also report details of 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 may 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 non-pharmacological (such as physiotherapy), pharmacological (such as analgesics and intra-articular steroids) and surgical approaches (such as knee arthroplasty).

2.4 Treatment most commonly involves a combination of pharmacological and non-pharmacological interventions. When non-pharmacological and pharmacological 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 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 takes approximately 1 to 2 hours to complete.

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 1 systematic review and 6 case series (one of which was a published abstract). It is presented in the summary of key evidence section in the 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 after future knee surgery.

3.4 Patient commentary was sought but none was received.

Committee comments

3.5 The committee considered that this procedure has the potential to be useful in the treatment of knee osteoarthritis, but noted that this 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.

3.7 The committee was informed that resorbable embolic particles might be available and used for the treatment of knee osteoarthritis in the future.

Update information

Minor changes since publication

January 2026: Interventional procedures guidance 708 has been migrated to HealthTech guidance 595. The recommendations and accompanying content remain unchanged.

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Endorsing organisation

This guidance has been endorsed by Healthcare Improvement Scotland.