



**SANDHILLS  
CENTER**



# Radiofrequency ablation of genicular nerves for knee pain

Clinical Policy ID: CCP.1335

Recent review date: 5/2021

Next review date: 9/2022

Policy contains: Diagnostic genicular nerve block; genicular nerve block; osteoarthritis; radiofrequency ablation.

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## Coverage policy

Diagnostic nerve block of the genicular nerve for chronic knee pain is investigational/not clinically proven and, therefore, not medically necessary.

Genicular nerve block injection for chronic knee pain is investigational/not clinically proven and, therefore, not medically necessary.

Radiofrequency ablation of the genicular nerve for chronic knee pain is investigational/not clinically proven and, therefore, not medically necessary.

### Limitations

No limitations were identified during the writing of this policy.

### Alternative covered services

Routine patient evaluation and management by a network health care provider.

## Background

Knee pain and knee arthritis in the United States have increased greatly over the past 20 years, an increase that is independent of age and only partially associated with increases in obesity (Nguyen, 2011). Pain from osteoarthritis of the knee is often effectively managed with pharmacological or non-pharmacological treatments (Jones, 2015). When conservative therapy fails, options include surgery (e.g., arthroscopy or total knee arthroplasty). Genicular nerve neurolysis is a second-line therapy on its own or as an adjunct to arthroplasty.

Genicular nerve block has traditionally been performed by local anesthetic and corticosteroid injection of the superolateral, superomedial, and inferomedial branches of the nerves around the knee joint. Radiofrequency neurotomy of the major or periarticular nerve supply or intra-articular branches innervating the knee is being examined.

## Findings

No guideline from any professional medical society addresses genicular nerve block injections for knee pain. These include the American Association of Orthopaedic Surgeons guidelines on treatment of and surgical management of knee osteoarthritis (American Association of Orthopaedic Surgeons, 2013; 2015).

A systematic review/meta-analysis of eight studies (n = 256) of patients with chronic osteoarthritis pain in the knee treated with ultrasound-guided radiofrequency ablation revealed that targeting the genicular nerve achieved better pain relief than intra-articular or sciatic nerve. Authors identify several limitations in the study, including inability to analyze long-term effectiveness of the treatment in these patients (Huang, 2020).

A systematic review of 33 studies, including 13 randomized controlled trials (n = 1,512) patients found radiofrequency ablation for knee pain from osteoarthritis was alleviated 3 – 12 months after baseline. In six studies, the proportion of patients with >50% pain relief were 65.5% and 19.3% for treatment and control groups. Of ten studies, eight reported significant patient satisfaction. Only 9 of 29 studies reported adverse effects, and these were considered minor (Ajrawat, 2020).

A systematic review/meta-analysis of 12 studies (n = 841) showed that radiofrequency ablation on the genicular nerve was associated with an improvement in knee pain, starting at one week and lasting through six months. This procedure was more effective than intra-articular pulsed radiofrequency ablation for reducing knee pain, but rarely improves knee joint function (Hong, 2019).

A systematic review of 19 studies (four of which were randomized) of mitigation of chronic knee pain concluded radiofrequency ablation was promising and efficacious after observing significant short- and long-term pain reductions (Orhurhu, 2019).

A systematic review (Gupta, 2017) analyzed radiofrequency ablation by conventional, pulsed, or cooled radiofrequency technique to relieve chronic knee pain. Most of the seventeen included publications described studies assessing treatment of the genicular nerves or an intra-articular approach. Different therapeutic approaches to targeting the genicular nerve or an intra-articular approach produced no certain advantage.

Three therapeutic technologies (conventional, pulsed, or cooled) for targeting the genicular nerve produced no certain advantage. While most studies reported positive outcomes, ongoing concerns regarding the quality and procedural aspects of the included studies limit the ability to draw conclusions.

A systematic review (Bhatia, 2016) noted 13 reports on ablative or pulsed radiofrequency treatments of innervation of the knee joint. A high success rate of these procedures in relieving chronic pain of the knee joint was reported at one to 12 months after the procedures; however, only two of the publications were randomized controlled trials. There was evidence for improvement in function and a lack of serious adverse events of radiofrequency treatments. Randomized controlled trials of high methodological quality are required to further elaborate the role of these interventions in this population.

An analysis of 265 patients with a > 30% decrease in average knee pain scores for at least three months at three medical centers found radiofrequency ablation of the genicular nerves had a positive response of 61.1%. Larger electrode size, repeated lesions, having > 80% pain relief during the prognostic block, not being on opioids, having no coexisting psychiatric condition, having a lower baseline pain score, and having > 3 nerves targeted had especially high rates of positive outcomes, and can be factors in patient selection (Chen, 2021).

## References

On February 22, 2021, we searched PubMed and the databases of the Cochrane Library, the U.K. National Health Services Centre for Reviews and Dissemination, the Agency for Healthcare Research and Quality, and the Centers for Medicare & Medicaid Services. Search terms were “genicular nerve,” “nerve block,” “diagnostic genicular nerve block,” and “pain management.” We included the best available evidence according to established evidence hierarchies (typically systematic reviews, meta-analyses, and full economic analyses, where available) and professional guidelines based on such evidence and clinical expertise.

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evaluating the efficacy of invasive radiofrequency treatment for knee pain and function. *Biomed Res Int.* 2019;2019:9037510. Doi:10.1155/2019/9037510.

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Jones BQ, Covey CJ, Sineath MH, Jr. Nonsurgical management of knee pain in Adults. *Am Fam Physician.* 2015;92(10):875-883. PMID 26554281.

Nguyen US, Zhang Y, Zhu Y, Niu J, Zhang B, Felson DT. Increasing prevalence of knee pain and symptomatic knee osteoarthritis: survey and cohort data. *Ann Int Med.* 2011;155(11):725-732. Doi: 10.7326/0003-4819-155-11-201112060-00004.

Orhurhu V, Urits I, Grandhi R, Abd-Elsayed A. Systematic review of radiofrequency ablation for management of knee pain. *Curr Pain Headache Rep.* 2019;23(8):55. Doi: 10.1007/s11916-019-0792-y.

## Policy updates

9/2017: initial review date and clinical policy effective date: 10/2017

11/2018: updated references. Policy number changed to CCP.1335.

10/2019: Policy references updated.

4/2020: Policy references updated. The policy originally addressed diagnostic nerve block and radiofrequency ablation of the genicular nerve. We added the topic of genicular nerve block for pain, which is unproven and, therefore, not medically necessary.

5/2021: Policy references updated