Genicular Nerve Procedures - Single Service

Clinical Guidelines for Medical Necessity Review

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Guideline Information:

Specialty Area: Diseases & Disorders of the Musculoskeletal System
Guideline Name: Genicular Nerve Procedures - Single Service

Literature review current through: 9/20/2024
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Type: [**X**] Adult (18+ yo) | [**X**] Pediatric (0-17 yo)

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Medical Necessity Criteria

Service: Genicular Nerve Procedures

General Guidelines

- **Units, Frequency, & Duration:** When medical necessity criteria are met, 1 set of diagnostic genicular nerve blocks per side may be performed. If a clinical condition requires a second diagnostic nerve block may be approved, with the understanding that most patients do not require a repeat diagnostic injection. The purpose of diagnostic injection is to assess for candidacy for genicular radiofrequency ablation (RFA). If the diagnostic blocks are successful (greater than 50% relief), RFA can be approved if the patient meets the criteria. No more than 2 sessions of radiofrequency will be covered per knee in rolling 12 months. Genicular nerve block and radiofrequency CPT code cover all applicable genicular nerves.[1-4]
- **Criteria for Subsequent Requests:**
    - The patient can receive up to 2 diagnostic injections on each knee. If a clinical condition is required, a second diagnostic nerve block may be approved, with the understanding that most patients do not require a repeat diagnostic injection. The purpose of the diagnostic injection is to assess for candidacy for genicular RFA.[5]
    - For patients with previously successful genicular nerve ablation in whom knee pain has returned and previous RFA at the same knee provided at least 50% relief for four months or more. No more than two sessions of RFA will be covered per knee in a rolling 12 months.
- **Recommended Clinical Approach:** Genicular nerves provide sensory innervation to the knee and include the (1) superolateral genicular nerve (SLGN), (2) superomedial genicular nerve (SMGN), (3) inferomedial genicular nerve (IMGN), and (4) inferolateral genicular nerve (ILGN). Physicians can safely target all these nerves for a genicular nerve block or ablation, except for the ILGN, which is too close to the peroneal nerve. A diagnostic genicular nerve block helps determine the appropriateness of an ablation procedure and may be appropriate to alleviate pain originating from the genicular nerves in

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the knee joint. Genicular nerve blocks may be suitable for knee pain that has not responded to conservative treatments.[5-12] Genicular nerve ablation involves using RFA to treat pain in the knee in patients with chronic, symptomatic knee osteoarthritis (Kellgren-Lawrence Grade 3 or 4). The Kellgren-Lawrence scale for the radiographic classification of osteoarthritis is as follows[13]:

- **Grade 0:** Normal;
- **Grade 1:** Questionable (doubtful narrowing of joint space and possible osteophytic lipping);
- **Grade 2:** Mild (definite osteophytes and possible narrowing of joint space);
- **Grade 3:** Moderate (moderate multiple osteophytes, definite narrowing of joint space, some sclerosis, and possible deformity of bone ends);
- **Grade 4:** Severe (large osteophytes, marked narrowing of joint space, severe sclerosis, and definite deformity of bone ends).

- **Exclusions:** None.

Medical Necessity Criteria

Indications

➔ **Genicular nerve procedures** are considered appropriate if **ALL** of the following are **TRUE**[14-15]:

- Failure of conservative management for greater than 3 months, including **ALL** of the following:
  - Activity modification; **AND**
  - Oral steroids, anti-inflammatory medications, or analgesics if not contraindicated; **AND**
  - Physical therapy; **AND**
  - **ANY** of the following:
    - Corticosteroid injection if medically appropriate; **OR**
    - Corticosteroid injection is contraindicated; **AND**
- Persistent chronic pain with pain intensity of greater than 6/10 or documentation of pain causing functional disability; **AND**
- The patient has **ANY** of the following[6,16]:
  - Chronic, symptomatic knee osteoarthritis lasting greater than three months (Kellgren-Lawrence grade 3 or 4) and documentation from an orthopedic surgeon stating that the patient is not a candidate for surgery; **OR**

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- Previous knee surgery and **ALL** of the following:
    - Documentation from an orthopedic surgeon stating that the patient is not a candidate for additional surgical procedures; **AND**
    - **ANY** of the following:
        - Continued functional limitations; **OR**
        - Continued moderate to severe pain; **AND**

- **ANY** of the following:
    - For **genicular nerve injections**, the patient meets **ANY** of the following:
        - For a diagnostic genicular nerve block, the patient has tried and failed to improve with **ANY** of the following:
            - Intraarticular knee corticosteroid injection if medically appropriate; **OR**
            - Intraarticular knee corticosteroid injection is contraindicated; **OR**
        - Frequency limitation indicated of no more than 2 genicular nerve injections per knee; **OR**
        - Genicular nerve block injection is for preemptive analgesia or postoperative pain relief associated with a surgical procedure; **OR**
    - For **genicular radiofrequency ablation (RFA)**, the patient has received a diagnostic genicular block under fluoroscopy or ultrasound guidance, and RFA is indicated by **ALL** of the following:
        - **ANY** of the following:
            - At least 50% improvement in symptoms for the duration of local anesthetic used for the diagnostic block (same knee); **OR**
            - The patient has an improvement of at least 50% for at least 4 to 6 months from previous RFA (same knee) **AND**
        - Frequency limitation indicated of no more than 2 genicular RFA per knee in rolling 12 months.

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Non-Indications

➔ **Genicular nerve procedures** are not considered appropriate if **ANY** of the following is **TRUE**[2-3,14]:

- ◆ Active local or systemic infection; **OR**
- ◆ Coagulopathy or bleeding diathesis; **OR**
- ◆ **ANY** of the following implanted devices (unless the provider acknowledges that the device is present and provides a statement explaining that the appropriate precautions will be taken, including following manufacturer guidelines):
  - Defibrillator; **OR**
  - Pacemaker; **OR**
  - Peripheral nerve stimulator; **OR**
- ◆ Knee joint instability; **OR**
- ◆ Knee trauma or injury that is recent; **OR**
- ◆ Pregnancy; **OR**
- ◆ Recent knee trauma or injury; **OR**
- ◆ Osteoarthritis Kellgren-Lawrence grade 0-2.

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
64454	Injection(s), anesthetic agent(s) and/or steroid; genicular nerve branches, including imaging guidance, when performed
64624	Destruction by neurolytic agent, genicular nerve branches including imaging guidance, when performed

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Medical Evidence

Shanahan et al. (2023) performed a randomized control trial (RCT) that aimed to assess the effectiveness of ultrasound-guided genicular nerve block (GNB) in managing knee pain among patients with knee osteoarthritis. It conducted a 12-week parallel-group, placebo-controlled randomized trial involving 59 patients. Patients in the active group received GNB injections, while those in the placebo group received saline injections. Pain and disability were measured using various scales. The results showed that patients in the active group reported improved pain scores at 2, 4, 8, and 12 weeks compared to the placebo group. However, the effect diminished over time. The study concluded that GNB offers short-term pain relief for knee OA.[6]

Güler et al. (2023) conducted a prospective RCT to compare the effectiveness of ultrasound-guided GNB and physical therapy (PT) in treating chronic knee OA. A total of 102 patients aged 45-70 received either GNB (n=51) or PT (n=51) along with a standard home exercise program. The Visual Analogue Scale was used to measure pain level. The Western Ontario and McMaster Universities Osteoarthritis Index measured the patient's functional ability; a 6-minute walking test measured the patient's physical capacity. Evaluations were conducted pre-treatment and postoperatively at 2 and 12 weeks post-treatment. Both groups had similar demographics. Results showed that GNB significantly reduced pain levels compared to PT at 2 and 12 weeks. The study concludes that ultrasound-guided GNB is more beneficial in reducing pain and improving functional and physical capacity, particularly with longer-lasting effects observed at 12 weeks.[9]

Fonkoue et al. (2021) performed a double-blind RCT to compare the effectiveness of GNB using traditional anatomical targets (CT) vs revised targets (RT) in patients with chronic knee OA pain. A total of 55 patients were included (28 in the CT group and 27 in the RT group). Patients received GNB with a fluid mixture. Post-intervention, pain levels, and knee function were assessed at various intervals. Results showed that the RT group experienced a greater reduction in pain scores at 1 hour post-intervention and a higher proportion of patients achieving more than 50% pain reduction, especially immediately after the procedure. Both groups demonstrated significant pain reduction and improved joint function up to 12 weeks post-intervention. The revised technique led to more immediate pain relief and a higher proportion

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of successful responders shortly after the intervention. The larger volume injected during the GNB procedure might compensate for the lack of precision in the classical anatomical targets, thereby minimizing differences in outcomes between the two techniques.[10]

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Clinical Guideline Revision History/Information

Original Date: April 30, 2024		
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Version 2	9/20/2024	Updated language regarding conservative treatment.

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