

Pulsed Radiofrequency Ablation



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DESCRIPTION

Pulsed radiofrequency (PRF) is a non-ablative alternative to non-pulsed or continuous radiofrequency ablation (RFA) in the treatment of a various chronic pain syndromes. Pulsed radiofrequency is delivered in short bursts, twice per second, followed by a quiet phase in which no current is applied. This allows for cooling of the electrode keeping it below the neurodestructive threshold of 45°C. Since the average temperature does not reach the neurodestructive range, the risk of destroying nearby tissue is reduced. Pulsed radiofrequency has been proposed as a possibly safer alternative to non-pulsed or continuous RFA.

Clinical Context and Therapy Purpose

Pulsed radiofrequency has been used in the treatment of peripheral neuropathies, arthrogenic pain, painful trigger points, radiculopathy and many other chronic pain syndromes to provide a treatment option that is an alternative to or an improvement on existing therapies.

Population

The relevant population of interest is individuals with peripheral neuropathies, arthrogenic pain, painful trigger points, radiculopathy and other chronic pain syndromes.

Interventions

Pulsed radiofrequency ablation is a non-ablative alternative to non-pulsed or continuous radiofrequency ablation (RFA).

Comparators

The following therapy is currently being used to treat peripheral neuropathies, arthrogenic pain, painful trigger points, radiculopathy and other chronic pain syndromes: conservative therapy.

Outcomes

The general outcomes of interest are symptoms reduction in pain, functional outcomes, quality of life, reductions in medication use, and treatment related morbidity.

Pulsed radiofrequency has been used in the treatment of peripheral neuropathies, arthrogenic pain, painful trigger points, radiculopathy, and many other chronic pain syndromes. Unlike known side effects of continuous radiofrequency such as, neuritis-like reactions, motor deficits, and the risk of deafferentation pain syndrome, pulsed radiofrequency seems to have few side effects and is seen as relatively safe. However, even though there is much anecdotal evidence which favors the use of pulsed radiofrequency for the use of pain relief without nervous tissue damage, especially in the treatment of neuropathic pain, there is a lack of randomized controlled trials (RCTs) substantiating its efficacy.

Summary of Evidence

For individuals with various chronic pain syndromes, especially neuropathic pain who received pulsed radiofrequency, the evidence includes a small number of RCTs, non-randomized controlled trials, prospective uncontrolled trials, retrospective studies, case series, and case reports. The majority of the uncontrolled and observational studies reported clinical efficacy of pulsed radiofrequency, however many of these studies had limitations. The controlled clinical data is limited and with inconsistent findings. Further research in the clinical and biological effects of pulsed radiofrequency is needed including well-designed, randomized controlled clinical trials with a large sample size and long-term follow-up to determine the therapeutic effect and safety of this treatment modality. There is also a lack of data comparing pulsed radiofrequency with conventional treatments. As such, it is unknown if pulsed radiofrequency offers any treatment advantage over other conventional treatments. The evidence is insufficient to determine the effects of the technology on health outcomes.

Practice Guidelines and Position Statements

American Society of Interventional Pain Physicians

In 2013, American Society of Interventional Pain Physicians (ASIPP) published an updated guideline on interventional techniques in the management of chronic spinal pain Part II guidance and recommendation which states the following:

- Lumbar spine
 - The evidence for therapeutic facet joint interventions is good for conventional radiofrequency, limited for pulsed radiofrequency, fair to good for lumbar facet joint nerve blocks, and limited for intraarticular injections.
 - For sacroiliac interventions, the evidence for cooled radiofrequency neurotomy is fair; limited for intraarticular injections and periarticular injections; and limited for both pulsed radiofrequency and conventional radiofrequency neurotomy.
- Cervical Spine
 - Evidence for therapeutic facet joint intervention is fair for conventional cervical radiofrequency neurotomy.
- Thoracic Spine
 - Evidence is limited for radiofrequency neurotomy.

Regulatory Status

A number of radiofrequency generators and probes have been cleared for marketing through the U.S. Food and Drug Administration (FDA) 510(k) process.

PRIOR APPROVAL

Not applicable.

POLICY

See Related Medical Policies

- 07.01.58 Radiofrequency Ablation and Alternative Ablative/Denervation Methods for Chronic Facet Joint Mediate Neck, Back and Sacroiliac Joint Pain*
- 07.01.66 Ablative Treatments for Occipital Neuralgia, Chronic Headaches and Atypical Facial Pain*
- 07.01.73 Ablative Procedures of the Peripheral Nerves to Treat Pain*

Pulsed radiofrequency is considered **investigational** in the treatment of various chronic pain syndromes including but not limited to the following, as the evidence is insufficient to determine the effects of the technology on net health outcomes:

- Chronic head and facial pain (persistent idiopathic facial pain (PIFP)/atypical facial pain/spheno-palatine ganglion)
- Coccydynia
- Complex regional pain syndrome/reflex sympathetic dystrophy

- Diabetic peripheral neuropathy
- Discogenic pain
- Facet joint pain cervical, lumbar and thoracic/Zygapophyseal joint pain
- Headaches (including but not limited to the following: chronic headaches; cervicogenic headaches; migraines; cluster headaches; tension headaches)
- Inguinal neuralgia
- Intercostal neuralgia
- Low back pain
- Lumbo-sacral radicular syndrome (e.g. dorsal root ganglion)
- Meralgia paresthetica (burning pain in the outer thigh related to lateral femoral cutaneous nerve entrapment)
- Metacarpal or metatarsal joint pain of the hands and feet
- Morton's neuroma
- Myofascial pain syndrome
- Neck pain (cervical pain)
- Occipital neuralgia
- Ophthalmic neuralgia
- Orchialgia (testicular pain)
- Osteoarthritis of hip/chronic hip pain to include pain management of a previous total hip arthroplasty
- Osteoarthritis of knee/chronic knee pain to include pulsed radiofrequency of genicular nerve for the treatment of chronic knee pain due to osteoarthritis (severe degenerative disease) or previous total knee arthroplasty
- Peripheral neuromas
- Pelvic pain
- Piriformis syndrome (buttock pain and/or pain in the back of the lower extremity related to sciatic nerve irritation)
- Plantar fasciitis
- Post-herpetic neuralgia
- Pudendal neuralgia
- Refractory ventricular arrhythmias
- Sacro-iliac joint pain
- Shoulder pain (suprascapular nerve)
- Tarsal tunnel syndrome (compression neuropathy from entrapment of the posterior tibial nerve)
- Thoracic pain
- Trigeminal neuralgia
- Vulvodynia

PROCEDURE CODES AND BILLING GUIDELINES

To report provider services, use appropriate CPT* codes, Alpha Numeric (HCPCS level 2) codes, Revenue codes, and/or ICD diagnosis codes.

- 64999 Unlisted procedure, nervous system (The American Medical Association's CPT Editorial Panel decided in June 2005 that the unlisted CPT code 64999 should be used for pulsed radiofrequency treatment as opposed to other specific codes)

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POLICY HISTORY

Date	Reason	Action
March 2022	Annual Review	Policy Revised
March 2021	Annual Review	Policy Revised
March 2020	Annual Review	Policy Revised

Marcy 2019	Annual Review	Policy Revised
March 2018	Annual Review	Policy Revised
March 2017	Annual Review	Policy Revised
Marcy 2016	Annual Review	Policy Revised
October 2015	Interim Review	Policy Revised
April 2015	Annual Review	Policy Renewed
May 2014	Annual Review	Policy Revised
August 2013	Annual Review	Policy Renewed
September 2012	Annual Review	Policy Renewed
September 2011	Annual Review	Policy Renewed

New information or technology that would be relevant for Wellmark to consider when this policy is next reviewed may be submitted to:

Wellmark Blue Cross and Blue Shield
 Medical Policy Analyst
 PO Box 9232
 Des Moines, IA 50306-9232

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