Percutaneous Tibial Nerve Stimulation for Voiding Dysfunction

Description of Procedure or Service

Percutaneous tibial nerve stimulation (PTNS; also known as posterior tibial nerve stimulation) is a technique of electrical neuromodulation used primarily for the treatment of voiding dysfunction in patients who have failed behavioral therapies and/or pharmacologic therapies. Voiding dysfunction includes urinary frequency, urgency, incontinence and nonobstructive retention. Common causes of voiding dysfunction are pelvic floor dysfunction (from pregnancy, childbirth, surgery, etc.), inflammation, medication side effects (e.g., diuretics and anticholinergics), obesity, psychogenic factors and disease (e.g., multiple sclerosis, spinal cord injury, detrusor hyperreflexia, diabetes with peripheral nerve involvement, etc.). The current U.S. Food and Drug Administration (FDA)-cleared indication for PTNS is overactive bladder (OAB) associated with symptoms of urinary urgency, urinary frequency, and urge incontinence. The International Continence Society (ICS) defines OAB as a syndrome with or without urinary incontinence, usually associated with urinary frequency and nocturia in the absence of proven infections or other obvious pathology. Altering the function of the posterior tibial nerve with PTNS is believed to improve voiding function and control. The posterior tibial nerve is located near the ankle and is a mixed sensory-motor nerve containing axons passing through the spinal roots (L4-S3). These nerve roots contain peripheral nerves involved in the sensory and motor control of the bladder and pelvic floor.

The system used to provide PTNS consists of a small gauge needle electrode, surface electrode, lead wire, and handheld external electrical generator. The percutaneous needle is inserted just above the ankle with a surface electrode on the arch of the foot. After the lead wire and electrode are attached, the electrical generator is used to stimulate the tibial nerve. This stimulation inhibits bladder activity and evokes a central inhibition of the micturition reflex pathway in the spinal cord or the brain. Noninvasive PTNS has also been delivered with surface electrodes. PTNS studies have been designed using 30-minute sessions given weekly for 10-12 weeks. Recently, consideration has been given to increasing the frequency of treatments to 3 times per week to speed achievement of desired outcomes. However, an optimal treatment approach has not been identified and the durability or long term benefit of PTNS is uncertain.

PTNS must be distinguished from acupuncture with electrical stimulation. In electrical acupuncture, needles are also inserted just below the skin, but the placement of needles is based on specific theories regarding energy flow throughout the human body. Thus in PTNS, the location of stimulation is directly in the posterior tibial nerve rather than using the theories of energy flow that guide placement of stimulation for acupuncture.

In July 2005, the Urgent® PC Neuromodulation System (Uroplasty, Inc.) received 510(k) marketing clearance for percutaneous tibial nerve stimulation to treat patients suffering from urinary urgency, urinary frequency and urge incontinence. This device was cleared as a class II “nonimplanted, peripheral nerve stimulator for pelvic floor dysfunction” because it was
Percutaneous Tibial Nerve Stimulation for Voiding Dysfunction

considered to be substantially equivalent to the previously cleared percutaneous Stoller afferent nerve system (PerQ SANS System) in 2001. In 2010, the cleared indication was changed to “overactive bladder (OAB) and associated symptoms of urinary urgency, urinary frequency, and urge incontinence.” The Urgent PC Neuromodulation System is not FDA-cleared for other indications, such as the treatment of fecal incontinence.

PTNS was derived as a less-invasive treatment alternative to traditional sacral root neuromodulation which has been successfully used in the treatment of urinary dysfunction, but requires implantation of a permanent device. In sacral root neuromodulation, an implantable pulse generator that delivers controlled electrical impulses is attached to wire leads that connect to the sacral nerves, most commonly the S3 nerve root that modulates the neural pathways controlling bladder function.

PTNS is not cleared by FDA for treating fecal incontinence; however, the treatment has been proposed for this purpose. The manufacturer recommends a course of treatment for fecal incontinence similar to the one used to treat OAB; an initial course of 12 weekly sessions of tibial nerve stimulation followed by a personalized schedule of follow-up treatments.

Related Policies:
Pelvic Floor Stimulation as a Treatment of Urinary Incontinence
Sacral Nerve Neuromodulation/Stimulation for Pelvic Floor Dysfunction

***Note: This Medical Policy is complex and technical. For questions concerning the technical language and/or specific clinical indications for its use, please consult your physician.

Policy

BCBSNC will provide coverage for percutaneous tibial nerve stimulation when it is determined to be medically necessary because the medical criteria and guidelines noted below are met.

Benefits Application

This medical policy relates only to the services or supplies described herein. Please refer to the Member's Benefit Booklet for availability of benefits. Member's benefits may vary according to benefit design; therefore member benefit language should be reviewed before applying the terms of this medical policy.

When Percutaneous Tibial Nerve Stimulation for Voiding Dysfunction is covered

Percutaneous tibial nerve stimulation may be considered medically necessary in patients with nonneurogenic overactive bladder syndrome who meet the following criteria:

1) Symptoms of overactive bladder syndrome for at least 3 months duration AND
2) Failed behavioral therapies (e.g., pelvic floor muscle training, biofeedback, timed voids and/or fluid management) AND
3) Failed pharmacological therapy that includes at least 2 anticholinergic medications and/or smooth muscle relaxants OR patient has a contraindication to pharmacological therapy.

If the criteria are met, a total of 12 treatments (one per week) will be initially approved. Patients who experience improvement in their OAB symptoms after the 12 initial treatments may receive on-going treatments every 3 weeks (every 1 to 2 months) for up to one year. Treatments after 12 months are considered experimental/investigational.
Percutaneous Tibial Nerve Stimulation for Voiding Dysfunction

When Percutaneous Tibial Nerve Stimulation for Voiding Dysfunction is not covered

Percutaneous tibial nerve stimulation is considered investigational in all other situations not described above.

Treatments after 12 months are considered experimental/investigational.

Policy Guidelines

Percutaneous tibial nerve stimulation (PTNS) is a technique of electrical neuromodulation used primarily for treating voiding dysfunction. The available randomized controlled trials (RCTs) reported short-term (up to 12 weeks) improvements on measures of urinary incontinence and overactive bladder. Up to 36 months of data are available for some patients enrolled in RCTs who responded to an initial course of treatment. A TEC Assessment published in 2013 found sufficient evidence of short-term efficacy. The Assessment noted the lack of long-term controlled efficacy data, but concluded that the available 12- to 36-month follow-up data on PTNS responders in the SUmiT and OrBIT trials appeared consistent with maintaining efficacy over the long term. Other systematic reviews of the evidence have found short-term improvements with PTNS and have not evaluated long-term effectiveness. Thus, given the findings of the 2013 TEC Assessment and support from the American Urological Association guideline, PTNS may be considered medically necessary for patients with overactive bladder who meet criteria, and investigational in other situations.

The evidence for PTNS in individuals who have neurogenic bladder includes several RCTs and a systematic review of RCTs and observational data. Relevant outcomes are symptoms, change in disease status, functional outcomes, quality of life, and treatment-related morbidity. Only a few RCTs evaluating tibial nerve stimulation for treating neurogenic bladder have been published to date and all but 1 performed transcutaneous stimulation rather than PTNS. Studies varied widely in factors, such as the study population and comparison intervention. Study findings have not reported that tibial nerve stimulation significantly improved incontinence symptoms and other outcomes. The evidence is insufficient to determine the effects of the technology on health outcomes.

The evidence for PTNS in individuals who have fecal incontinence includes several RCTs and systematic reviews. Relevant outcomes are symptoms, change in disease status, functional outcomes, quality of life, and treatment-related morbidity. The available RCTs have not found a clear benefit of PTNS. Neither of the sham-controlled trials found that active stimulation was superior to sham for achieving the primary outcome, at least a 50% reduction in mean weekly fecal incontinence episodes. The larger sham-controlled RCT did find a significantly greater decrease in absolute number of weekly incontinence episodes in the active treatment group, but the overall trial findings did not suggest superiority of PTNS over sham treatment. Systematic reviews have not conducted pooled analyses. The evidence is insufficient to determine the effects of the technology on health outcomes.

Billing/Coding/Physician Documentation Information

This policy may apply to the following codes. Inclusion of a code in this section does not guarantee that it will be reimbursed. For further information on reimbursement guidelines, please see Administrative Policies on the Blue Cross Blue Shield of North Carolina web site at www.bcbsnc.com. They are listed in the Category Search on the Medical Policy search page.

Applicable service codes: 64566
BCBSNC may request medical records for determination of medical necessity. When medical records are requested, letters of support and/or explanation are often useful, but are not sufficient documentation unless all specific information needed to make a medical necessity determination is included.

**Scientific Background and Reference Sources**

External Specialty Matched Consultant review 4/4/06


Nuhoglu B, Fidan V, Ayyildiz A et al. Stoller afferent nerve stimulation in woman with therapy resistant over active bladder; a 1-year follow up. Int Urogynecol J Pelvic Floor Dysfunct 2006; 17(3):204-7.


Specialty Matched Consultant Advisory Panel review 12/2010
Percutaneous Tibial Nerve Stimulation for Voiding Dysfunction


Blue Cross and Blue Shield Association Technology Evaluation Center (TEC). Percutaneous tibial nerve stimulation for the treatment of voiding dysfunction. [Electronic Version]. December 2010


Specialty Matched Consultant Advisory Panel review 11/2012


American Urological Association (AUA) and Society of Urodynamics FPMURS. Diagnosis and treatment of overactive bladder (non-neurogenic) in adults/AUA/SUFU guideline.


Medical Director review 6/2013
Percutaneous Tibial Nerve Stimulation for Voiding Dysfunction


Specialty Matched Consultant Advisory Panel review 11/2013

Medical Director review 11/2013


**Policy titled Percutaneous Tibial Nerve Stimulation for Voiding Dysfunction”**


**Policy Implementation/Update Information**

1/3/07 Notification of new policy. BCBSNC will not provide coverage for posterior tibial nerve stimulation for urinary dysfunction, including but not limited to urinary frequency, urgency, incontinence and retention, because it is considered investigational. BCBSNC does not cover investigational services. Notification given 1/3/07. Effective date 3/12/07. (pmo)


9/28/09 No changes to criteria. Repeated same types of urinary dysfunction under "When not Covered" that is included in policy statement. Reference sources added. (pmo)

6/22/10 Policy Number(s) removed (amw)

**Percutaneous Tibial Nerve Stimulation for Voiding Dysfunction**


3/20/12 References updated. Policy Guidelines updated. No changes to policy statement. (mco)

7/24/12 References updated. Added “neurogenic bladder” to “When not Covered” section. Specific clinical conditions deleted from Policy Statement. Revised Policy Statement: “BCBSNC will not provide coverage for posterior tibial nerve stimulation because it is considered investigational. BCBSNC does not cover investigational services.” Medical Director review 7/2012. (mco)


7/16/13 Policy Guidelines updated. References updated. Medical Director review 6/2013. (mco)


**Policy titled Percutaneous Tibial Nerve Stimulation for Voiding Dysfunction**

4/1/16 Title changed to Percutaneous Tibial Nerve Stimulation. “Posterior” changed to “percutaneous” in existing policy statement. Medical Policy Statement revised to state: “BCBSNC will provide coverage for percutaneous tibial nerve stimulation when it is determined to be medically necessary because the medical criteria and guidelines noted below are met.” “When Covered” section revised to state: “Percutaneous tibial nerve stimulation may be considered medically necessary in patients with nonneurogenic overactive bladder syndrome who meet the following criteria: 1) Symptoms of overactive bladder syndrome for at least 3 months duration AND 2) Failed behavioral therapies (e.g., pelvic floor muscle training, biofeedback, timed voids and/or fluid management), AND 3) Failed pharmacological therapy that includes at least 2 anticholinergic medications and/or smooth muscle relaxants OR patient has a contraindication to pharmacological therapy. If the criteria are met, a total of 12 treatments (one per week) will be initially approved. Patients who experience improvement in their OAB symptoms after the 12 initial treatments may receive on-going treatments every 3 weeks (every 1 to 2 months) for up to one year. Treatments after 12 months are considered experimental/investigational.” “When not Covered” section revised to state: “Percutaneous tibial nerve stimulation is considered investigational in all other situations not described above. Treatments after 12 months are considered experimental/investigational.” Policy Guidelines updated. References updated. Medical Director review 11/2015. Policy noticed on 4/1/16 for effective date 5/31/16. (mco/sk)


---

Medical policy is not an authorization, certification, explanation of benefits or a contract. Benefits and eligibility are determined before medical guidelines and payment guidelines are applied. Benefits are determined by the group contract and subscriber certificate that is in effect at the time services are rendered. This document is solely provided for informational purposes only and is based on research of current medical literature and review of common medical practices in the treatment and diagnosis of disease. Medical practices and knowledge are constantly changing and BCBSNC reserves the right to review and revise its medical policies periodically.