

Posterior Tibial Nerve Stimulation



New approach in non-invasive therapy

By Kathryn A. Copeland, MD, MPH

Posterior tibial nerve stimulation (PTNS) is a technique of neuromodulation for the treatment of voiding dysfunction such as urinary frequency, urgency and urge incontinence. PTNS was developed as a less invasive alternative to traditional sacral nerve modulation. The posterior tibial nerve is derived from the lumbar-sacral nerves (L4-S3), which innervate the bladder and pelvic floor. This nerve can be accessed near the ankle.

PTNS involves inserting a small gauge needle above the medial malleolus behind the tibia so it is placed in the proximity of the posterior tibial nerve. Once proper placement is confirmed by sensory and/or motor responses, a low voltage electrical current is applied for thirty minutes. This is repeated every seven to ten days for a total of twelve sessions. More frequent treatments have also been shown to be effective. After the twelve sessions, there is little data to guide optimal treatment. It has been suggested that treatment should be initiated again if symptoms return.

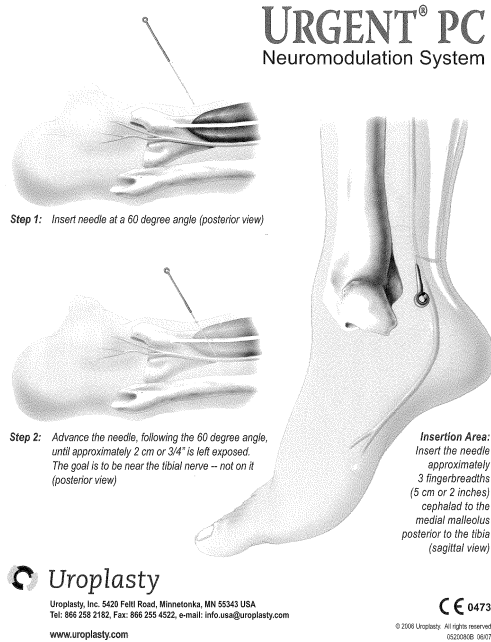
Numerous studies have been performed suggesting it is a viable option for patient.

Outcomes that have been studied and shown to be improved with PTNS include number of pads used, number of incontinent episodes, nocturia, quality of life, frequency, severity of leakage, as well as urodynamic parameters such as bladder capacity. Most of these studies were not blinded or randomized and thus, do not account for a possible placebo effect. Further, we know from pharmacologic studies that there is a large placebo effect with this disease. One study did report equivalency with a commonly used anticholinergic medication in regards to urge incontinence and quality of life. This study also concluded, as to be expected, that PTNS had less side effects. This further supports the use of PTNS for

these symptoms as anticholinergics are currently widely utilized. Further, one small randomized controlled study did show that PTNS decreased incontinence episodes, the number of micturitions per day, the severity of leakage and increased both quality of life and bladder capacity.

Urgent® PC Neuromodulation System (Uroplasty, Inc.) received marketing clearance in 2005 to use PTNS in patients with urinary urgency, urinary frequency and urge incontinence. Several trials have been performed suggesting this technique may also treat nonobstructive urinary retention and pelvic floor pain. These indications are off label at this time.

Urology of Indiana has incorporated PTNS into our practice. While conservative maneuvers such as dietary modifications, urge strategies, and bladder retraining are always recommended as first line treatment for overactive bladder symptoms, PTNS offers an alternative “next” line of treatment that does **not** require that a patient has failed medical treatment. Thus, PTNS is a less invasive



option for patients who either fail, cannot tolerate or do not wish to take anticholinergics and are not interested in more invasive neuromodulation procedures.

Because this is a newer technique, it is not covered by all insurance plans. It is recommended that patient's check with their insurance carrier prior to starting treatment with PTNS.

***References available upon request.

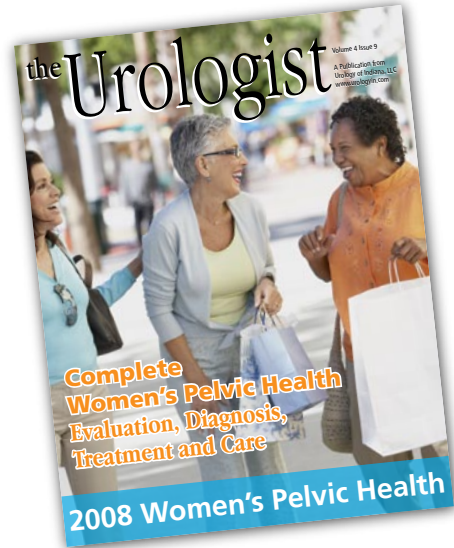


Kathryn A. (Kate) Copeland, M.D. attended grade school and high school in Carmel, Indiana. She is a graduate of Miami University, in Oxford, Ohio, where she received her BA in chemistry and economics. She earned her medical degree from Ohio State University and completed her residency in Obstetrics and Gynecology at the University of North Carolina, in Chapel Hill, North Carolina. While at the University of North Carolina, she also completed a Masters Degree in Public Health – Epidemiology, and a Fellowship in Female Pelvic Medicine and Reconstructive Surgery.

Dr. Copeland has extensive training in Female Pelvic Medicine and Reconstructive Surgery and has a large female urogynecologic practice. Her areas of special interest include treatment of pelvic floor disorders, urinary and fecal incontinence, and pelvic organ prolapse.

Dr. Copeland has been in private practice since 2003, joining Urology of Indiana in 2005. She enjoys traveling, scuba diving, mysteries, gardening, walking and watching old movies. She is married and has two children.

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