Electronic Nerve Stimulation

Electrical nerve stimulators, also known as neuromodulators, send mild electrical pulses to nerves in the lower back and help manage urinary function or offer relief of chronic pain. Neuromodulators have been helpful for many IC patients who don’t get enough relief from other therapies.

Some neuromodulators are worn externally. Others are surgically implanted devices. Most implanted neuromodulators work by sending mild electrical pulses to nerves located in the lower back. These nerves, called sacral nerves, influence the bladder and surrounding muscles that manage urinary function. Before surgically placing under the skin, typically in the lower back, a test stimulation procedure is performed. Only patients who respond positively to the test stimulator are considered for the permanent implants. Read about what’s new in neuromodulation for people with IC.

Neuromodulators—Some FDA-Approved for Urinary Symptoms, Others for Pain

There are a variety of electrical nerve stimulators approved by the FDA for IC-related symptoms. Also ask your doctor if there are clinical trials studying the use of neuromodulators in IC that may be helpful for you.

Urgent PC (www.uroplasty.com): The Urgent PC Neuromodulation System, also called percutaneous tibial nerve neuromodulation (PTNS), is a combination of a stimulator and a lead set. This system is designed to treat urinary urgency, urinary frequency and urge incontinence. The stimulator generates a specific kind of electrical impulse that is delivered to the patient through the lead set. Using a needle electrode placed near the ankle as an entry point, the stimulator’s impulses travel along the tibial nerve to the nerves in the spine that control pelvic floor function. The needle electrode is connected to a battery-powered stimulator. After turning on the stimulator, your physician will observe your body’s response to determine the ideal strength of the impulses.

Each of your treatments will last approximately 30 minutes. You will receive an initial series of 12 treatments, typically scheduled a week apart. After the initial 12 treatments, your physician will discuss your response to the treatments and determine how often you will need future treatments to maintain your results. For most patients it takes at least 6 treatments to see changes in symptoms. However, continue receiving treatments for the recommended 12 treatments before you and your physician evaluate whether this therapy is an appropriate treatment for your symptoms.

The most common side-effects include transient mild pain or skin inflammation at or near the stimulation site. Urgent PC is not recommended for patients with pacemakers or implantable defibrillators, patients prone to excessive bleeding, patients with nerve damage that could impact either percutaneous tibial nerve or pelvic floor function, or patients who are pregnant or planning to become pregnant during the duration of the treatment.

InterStim Therapy for Urinary Control (www.interstim.com): This device is FDA approved for urinary urge incontinence, nonobstructive urinary retention, and significant symptoms of urgency-frequency in patients.
who have failed to respond to, or could not tolerate, more conservative treatments. Some IC patients report that InterStim also helps to relieve their pain, as well as symptoms of urinary frequency and urgency. However, the FDA has not approved it for pain management. Patients interested in the implant surgery are initially evaluated with a complete history, physical examination, voiding diaries, and a bladder function study. If they qualify, they undergo test stimulation, conducted by a urologist or urogynecologist, which typically takes less than one hour, and is considered a "same day" procedure.

The test stimulation involves the placement of a needle into the lower back in a location where nerves travel to the bladder. Typically, a local anesthetic is used during the test stimulation. A small wire (lead) is left in place and transmits electrical impulses to these nerves. The patient returns home with the test stimulator in place for 3 to 7 days, and keeps a voiding diary. The wire is then removed by the surgeon. Some patients report the test stimulation to be painful, while others do not. If you are concerned about this, please discuss pain management options with your physician.

If the test stimulation is successful, and improvement is noted within five to seven days, then the permanent system can be surgically implanted under general anesthesia. This generally requires an overnight stay in the hospital. The patient is given a small device that can be used to turn on/off and modulate the level of stimulation to nerves. InterStim can only be implanted by a urologist or urogynecologist who has been specifically trained to perform the procedure.

**Eon Mini Rechargeable IPG System** (www.poweroveryourpain.com): Advanced Neuromodulation Systems (ANS), a division of St. Jude Medical, Inc., makes the Eon Mini, the world’s smallest, longest-lasting rechargeable neurostimulator to treat chronic pain of the trunk or limbs and pain from failed back surgery.

The Eon Mini has the longest-lasting battery life of any rechargeable spinal cord stimulation (SCS) device in its class. It is the only small rechargeable neurostimulator to receive a 10-year battery longevity approval by the FDA. While not approved specifically for interstitial cystitis, neuromodulation devices such as this have been tried and tested in people with IC with varying degrees of success. The Eon Mini blocks pain signals from traveling up the spinal cord to the brain.

**IF 3WAVE** (www.empi.com): The IF3WAVE from Empi may be used to treat pain associated with IC, in conjunction with other forms of therapy. This device is used to treat deep pain by delivering nearly 50 times the power of a TENS unit. It delivers two different types of current -- neuromuscular electrical stimulation (NMES) and pulse direct current (PDC) -- and a combination of both of these currents. The IF 3WAVE features a digital, LCD user interface screen and easy to use push buttons as well as a compliance monitor for tracking usage of the device. The IF 3WAVE requires a prescription from your physician or physical therapist.