Axium™ Neurostimulator System

Unlike traditional neurostimulation devices, the Axium™ Neurostimulator System from Abbott targets the dorsal root ganglion (DRG), a spinal structure densely populated with sensory nerves that transmit pain signals to the brain via the spinal cord. The device, which is the first of its kind, gives physicians the ability to stimulate those nerves with great precision, reducing lower-extremity pain significantly

The U.S. Food and Drug Administration approved the device in February 2016. A long-term clinical trial that preceded FDA approval showed that 74.2 percent of patients receiving DRG stimulation through the device achieved meaningful pain relief and greater treatment success, compared with 53 percent of patients receiving traditional spinal cord stimulation. Abbott's DRG stimulation therapy has been used in Europe and Australia for about five years. Dr. Tubic, medical director for pain management at AMITA Health Bolingbrook is one of a relatively small number of pain-management physicians nationwide who have received special training to perform Axium procedures.

The Axium device is designed for patients who have Complex Regional Pain Syndrome and have tried multiple treatment options without experiencing adequate pain relief. Before receiving the battery-powered device, patients must undergo an assessment and receive a series of lumbar sympathetic blocks to determine if they are a candidate for the treatment. Those who qualify for the treatment receive it initially on a trial basis for about a week to ensure that it reduces pain significantly. Thin electrical leads are threaded through a needle and placed next to the DRG nerve (or nerves) for a specific part of the lower extremities, such as certain toes or a particular area of the knee, foot or ankle. It is extremely specific in a way that traditional spinal cord stimulation is not.

In most cases, two leads are used; sometimes only one is needed, and occasionally three may be required. The leads are connected to the Axium device, which rests in a fanny pack during the trial period and is set at a specific level to stimulate the nerve or nerves continuously, blocking pain signals to the brain. If the trial treatment reduces a patient's pain by more than 50 percent, they can move ahead and have the Axium device implanted and connected to the leads during a surgical procedure. The device is placed just under the skin in a spot in the lower flank region where it will be comfortable for the patient.

Patients can use a remote control to adjust the level of stimulation delivered by the device. “It’s like a volume button on the radio: Once you find a good level, you stay there,” Dr. Tubic said. “If you have the need to change it, you can do it, but in 90 percent of my cases so far, the pain blocking has been so powerful that patients have not changed it.”

In the first few months of usage, Dr. Tubic has used the pacemaker-like device to treat 17 patients, and they report it has reduced their pain by 90 percent to 100 percent, a success rate that has surpassed expectations. “To get these numbers is unheard of,” said Dr. Tubic, who has performed more than 1,000 spinal cord stimulation procedures and about 19,000 nerve-block procedures. “I have never seen a response like this, and it’s due to the specificity of this powerful new device. This cutting-edge technique not only can increase your quality of life, but also can give you your life back. Basically you are turning off pain to a specific part of the body. It can control your pain without using medications, without using narcotics, without using opioids. It can enable you to function better not only in a physical manner, but also can make you much more capable to function socially, emotionally and psychologically. It can give your whole personality back to you.”

Physicians seeking to refer patients for DRG stimulation, or patients who want to learn more about the treatment or to schedule an appointment should call Chicagoland Pain Management at 630-312-4505.