Transcript Details
This is a transcript of an educational program. Details about the program and additional media formats for the program are accessible by visiting: https://reachmd.com/programs/clinicians-roundtable/the-expanding-role-of-peripheral-nerve-stimulation-in-acute-pain-control/26728/

ReachMD
www.reachmd.com
info@reachmd.com
(866) 423-7849

The Expanding Role of Peripheral Nerve Stimulation in Acute Pain Control

Announcer:
You're listening to *Clinician's Roundtable* on ReachMD. On this episode, we'll learn about peripheral nerve stimulation and its use for acute postoperative pain with Dr. John Finneran. Dr. Finneran is a Health Sciences Clinical Associate Professor of Anesthesiology and the Associate Program Director of Anesthesiology Residency at the University of California, San Diego. Let's hear from him now.

Dr. Finneran:
So we really can trace the history of modern peripheral nerve stimulation for pain to the 1960s. There were two neurosurgeons at Harvard, and they surgically implanted peripheral nerve stimulator devices on to peripheral nerves of people who had chronic pain, and this was followed very closely by implantation of spinal cord stimulators, which I think a lot of people are much more familiar with, but they operate by the same mechanism, which is basically what was described by Ronald Melzack in the 1960s: the gate control theory of pain control. And so this idea is that the stimulation of large diameter sensory afferents closes a gate, so that is the gate control. And the way that it does that is that these large diameter sensory afferents synapse on to inhibitory interneurons that are in the substantia gelatinosa and by doing so centrally downregulate pain. In terms of the application of peripheral nerve stimulation for pain, historically it has been mostly for chronic pain.

Over the last several decades, there have been peripheral nerve stimulators that can be inserted percutaneously, and that has sort of evolved along with the use of ultrasound guidance for procedures in anesthesia and pain medicine. So we're sort of now at this confluence of having both of those technologies where we can easily insert, with ultrasound guidance, peripheral nerve stimulators. And once you have that, it starts to be feasible to potentially, at least, utilize peripheral nerve stimulation for acute postoperative pain.

In terms of the technique, it's actually very similar to conventional local anesthetic-based nerve blocks that are done every day, thousands of times a day across the country by regional anesthesiologists. And so now that we have percutaneously inserted peripheral nerve stimulation leads that can be placed by ultrasound guidance, this is potentially something that can be utilized for acute postoperative pain control.

We know that local anesthetic-based nerve blocks decrease pain, decrease opioid consumption, and decrease the need for hospitalization after painful surgeries; but there are a number of limitations of local anesthetic-based nerve blocks, and one of the biggest ones is the duration. So local anesthetic-based nerve blocks, even with our longest-lasting local anesthetics, really don't last longer than about 24 hours when a single injection local anesthetic-based nerve block is performed and are really probably limited to generally two to three days when perineural catheters are placed for continuous local anesthetic-based nerve blocks. So there's a potential role for peripheral nerve stimulation here where it helps to control pain during that time period after which local anesthetic-based nerve blocks have resolved but while patients are still in pain after orthopedic and other painful surgeries. So the one device that is FDA cleared for acute postoperative pain is cleared for 60 days of continuous use, so I think peripheral nerve stimulation potentially has a role during the days and weeks following painful surgery; beyond that duration, local anesthetics can be used.

Announcer:
That was Dr. John Finneran discussing the use of peripheral nerve stimulation for acute postoperative pain. To access this and other episodes in our series, visit *Clinician's Roundtable* on ReachMD.com, where you can Be Part of the Knowledge. Thanks for listening!