Transcript Details
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Peripheral Nerve Stimulation for Acute Pain: Lessons from Early and Ongoing Trials

Announcer:
You're listening to *Clinician's Roundtable* on ReachMD. On this episode, we'll learn about an ongoing study exploring the use of peripheral nerve stimulation to reduce acute pain after surgery 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 did a series of pilot studies of peripheral nerve stimulation for acute postoperative pain before we embarked on the larger study that we're currently doing. So these studies started in 2015 and 2016, and we did several proof-of-concept studies where we applied peripheral nerve stimulators to the sciatic nerve for painful foot and ankle surgery through the femoral nerve for ACL reconstructions and to the brachial plexus for rotator cuff surgery. So in each of those proof-of-concept studies, we placed peripheral nerve stimulators percutaneously prior to surgery, and then in the recovery area, the participants were randomized to either active or sham for a short duration and we asked them about their pain while they were receiving that treatment. They were blinded to which treatment they were receiving for each of those time periods, and then we let the peripheral nerve stimulator run in the PACU for 30 more minutes and asked them how their pain was changing.

And what we did find was that peripheral nerve stimulation did appear to be providing pain relief during that acute postoperative pain period, but one of the things that we were looking at in these proof-of-concept studies was, did we provide enough pain relief that patients did not need local anesthetic-based nerve blocks, and the majority of patients in these proof-of-concept studies did still need local anesthetic-based nerve blocks.

So that really informed how we designed the next study that was published in 2021. So those participants were enrolled from about 2019 to 2020 where we randomized 66 people to receive sciatic nerve stimulation for major foot and ankle surgery or brachial plexus stimulation for rotator cuff repairs, and all the participants in this trial did receive local anesthetic-based nerve blocks. So then we followed those people for a year after surgery. The primary outcomes of the study were cumulative opioid consumption during the first seven days after surgery and the mean average daily pain scores reported by participants during the first seven days, and it was strongly positive for both of those people who received active treatment, requiring substantially less opioids and reporting significantly reduced pain scores during that first week after surgery. So that study was done to power the larger randomized clinical trial that we're now undergoing.

So the current study is really a definitive trial to determine whether and how much analgesia is provided by percutaneous peripheral nerve stimulation after painful orthopedic surgeries. And we're enrolling 250 individuals, and I'm happy to report that we are very close to achieving that goal. Everyone receives a single-injection peripheral nerve block with a long-acting numbing medicine: ropivacaine. And then the participants are randomized to either active or sham stimulation with that stimulator that was inserted before surgery.

We're following these patients for a year looking at opioid consumption, pain, and various quality of life metrics, and we have dual primary outcomes of cumulative opioid consumption over the seven days following surgery and the mean average pain score during the first seven days following surgery.

Announcer:
That was Dr. John Finneran discussing the use of peripheral nerve stimulation to reduce acute pain after surgery. 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!