
RSNA Press Release

Pulsed Radiofrequency with Steroid Injection Brings Sciatica Relief

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OAK BROOK, Ill. — Researchers found that a minimally invasive procedure combined with epidural steroid injection treatment led to superior pain reduction and disability improvement over one year in patients with sciatica. The results of the study were published in *Radiology*, a journal of the Radiological Society of North America (RSNA). The combined treatment performed better than steroid injections alone.



Alessandro Napoli, M.D., Ph.D.

At A Glance

- Pulsed radiofrequency, combined with epidural steroid injection treatment, led to superior, longer-lasting pain reduction in patients with sciatica.
- Pulsed radiofrequency is a minimally invasive procedure in which pulses of energy from a probe are applied directly to nerve roots near the spine.
- The combined procedure takes only 10 minutes and is performed without general anesthesia.

Sciatica is pain that originates along the sciatic nerve, which extends from the back of the pelvis down the back of the thigh. The sciatic nerve is the largest nerve in the body. Treatments to relieve pain include nonsteroidal anti-inflammatory medications, applying heat or cold, and exercising to help minimize inflammation. When the pain is caused by a lumbar disc herniation, surgery is often the treatment option for pain relief.

“The goal of nonoperative care is to provide the most effective means of symptom resolution, while still avoiding the need for a surgical procedure,” said the study’s lead author, Alessandro Napoli, M.D., Ph.D., associate professor of radiology and interventional radiology at Policlinico Umberto I – Sapienza University of Rome, in Italy. “However, in many cases conventional approaches are ineffective.”

Minimally invasive interventional therapy has become increasingly popular in patients with sciatica who have become resistant to conservative treatments. Among the available options, transforaminal epidural steroid injection (TFESI) is the only interventional procedure recommended in clinical guidelines. However, the duration of benefit is usually short, and additional treatments are often necessary.

Another treatment that researchers have studied for sciatica pain relief is pulsed radiofrequency—a minimally invasive procedure in which pulses of energy from a probe are applied directly to nerve roots near the spine.

For the multicenter randomized trial, researchers wanted to determine the difference in effectiveness between pulsed radiofrequency combined with TFESI versus the steroid injection alone for sciatica pain lasting 12 weeks or longer and not responsive to conservative treatment in patients with due to lumbar disc herniation.

A total of 351 participants (223 men) with sciatica were randomly assigned to receive a single CT-guided pulsed radiofrequency treatment combined with TFESI (174 patients) or TFESI alone (177 patients). Participants were recruited at two tertiary university hospitals and one spine clinic. All procedures were carried out in an outpatient clinic, took only 10 minutes and were performed without general anesthesia.

At four, 12, and 52 weeks there was greater leg pain reduction and greater disability improvement in participants who received pulsed radiofrequency combined with TFESI compared to the participants who only received the steroid injection.

“The results of our trial demonstrate that a combined treatment of pulsed radiofrequency and TFESI leads to better outcomes at one year following a single 10-minute procedure,” Dr. Napoli said.

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“CT-guided Pulsed Radiofrequency Combined with Steroid Injection for Sciatica from Herniated Disc: A Randomized Trial.” Collaborating with Dr. Napoli were Giulia Alfieri, M.D., Alessandro De Maio, M.D., Emanuela Panella, R.N., Roberto Scipione, M.D., Giancarlo Facchini, M.D., Ugo Albisinni, M.D., Paolo Spinnato, M.D., Pier Giorgio Nardis, M.D., Roberto Tramutoli, M.D., Jacopo Lenzi, M.D., Pejman Ghanouni, M.D., Ph.D., Alberto Bazzocchi, M.D., Ph.D., Stefano Perotti, M.D., Andrew J. Schoenfeld, M.D., M.Sc., and Carlo Catalano, M.D.

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