Pacific Coast Spine Institute and Pain Center

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Radiofrequency Ablation (RFA)

Radiofrequency Ablation is a procedure that uses a specialized device to disrupt nerve conduction. A probe is inserted through a needle and controlled delivery of heat is placed along a painful nerve. RFA causes nerve destruction through heat. Pulsed-RFA does not cause nerve destruction, but instead is used to stun painful nerves.

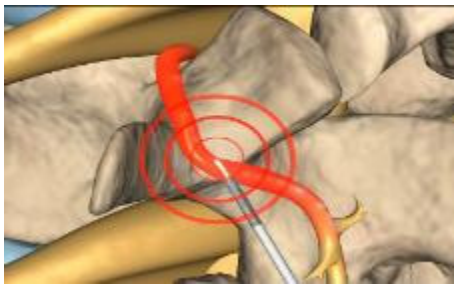
Medial Branch

The anatomy and physiological function of the spine is the key in evaluating a person with spine related pain. The bony spine is positioned so that individual vertebrae (bones of the spine) provide a flexible support structure while also protecting the spinal cord. The facet joints of the spine are a moveable connection that connects one vertebra to another. Facets are innervated by the medial branch nerve, which provide sensation to the joint. The joints may become arthritic or damaged causing extreme pain with activity.

Medial branch nerves are small nerve branches that communicate pain to the brain caused by the facet joints in the spine. The nerve is located at the junction of the transverse process and superior articular process of the facet joint. Medial branch radiofrequency ablation is a minimally invasive outpatient procedure that reduces back pain by interrupting the nerve supply from painful facet joints in the neck or back.

Procedure Description

Radiofrequency Ablation is a procedure which creates a nerve lesion produced by localized heat. When the lesion is placed over a painful nerve, pain signals are interrupted and pain perception by the brain is decreased. The procedure is performed in an outpatient setting. The treatment is done with local anesthesia along with IV sedation when needed. Before the procedure begins your physician starts by cleaning the skin over the injection site and injecting a local anesthetic to numb your skin. Another needle is placed through the numb tissue and the entire procedure is performed using fluoroscopic (X-ray) guidance. When the needle is in the correct location, an electrode is introduced into the center of the needle. Stimulation is initiated first with sensory stimulation and then with motor stimulation. When the correct needle position is verified, local anesthetic and sometimes a steroid medication are injected.



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Radiofrequency thermo-coagulation - The electrode is heated to 50-80°C and kept at that temperature for several minutes. Electro-thermal heat is generated, which allows for destruction of surrounding pain fibers, thereby decreasing your pain.

Pulsed Radiofrequency - This technique is similar to thermo-coagulation RFA, but differs by a lower level of heat produced. This does not destroy the nerve tissue, but instead stuns the nerve. This method is less uncomfortable and in general only a mild pulsating sensation is felt.

After a brief recovery period, you are able to go home after the procedure. You may have some discomfort when the local anesthetic wears off.

Risks

As with any medical procedure, there are risks and potential complications. Although complications rarely occur, patients need to know what complications can occur. In general, the risks are low and complications are rare. Potential complications that may occur include: bleeding, infection, worsening of pain symptoms, discomfort at the point of injection, and rarely motor nerve damage.

Benefits

In a recent clinical research study for patients treated with radiofrequency therapy, 21% had complete pain relief, and 65% reported mild to moderate pain relief. The majority of the respondents reported reduction in the use of pain medications. None of the patients developed significant infection, bleeding, hematoma formation, or numbness as complications to their therapy.

RFA has been used for many years, and the technique continues to improve with better efficacy and fewer risks. Patients can experience significant pain relief with a minimally invasive procedure that does not require a long hospital stay. Radiofrequency therapy averages three to six months relief.