OVERVIEW:
Radiofrequency (RF) lesioning is a procedure using electrical impulses to interrupt nerve conduction on a semi-permanent basis. This technique was developed to provide longer-term benefits for patients who respond temporarily to nerve blocks and injections using local anesthetics and/or steroids. The radiofrequency unit allows heat or pulsed energy to be generated in the nerve tissue sufficient to either destroy or deactivate the nerve.

APPLICATIONS:
There are many uses of RF lesioning in the treatment of chronic neurological and nervous system disorders. The predominant application in the Pain Management Center is for the treatment of mechanical spinal pain. Pain syndromes may be post-traumatic, post-surgical, or degenerative (arthritis). Patients may have pain emanating from the cervical, thoracic, lumbosacral or sacroiliac regions. They are typically refractory to conservative care with rest, NSAIDS, physical therapy, or surgery and have chronic pain that has persisted beyond the normal healing period.

ANATOMY:
The spine articulates at the facet joints. Medial branch or facet nerves are small nerves that branch out from larger spinal nerves exiting the spine. These unmyelinated nerves contain mostly sensory fibers. They innervate the facet joints, ligaments, skin and small paravertebral muscles in each segment. These are not the nerves responsible for the movement and sensation of the extremities.

CANDIDACY:
Candidates for RF lesioning of the medial branch nerves (medial branch rhizotomy) have been shown to have pain originating from the facet joints by their positive response to injection therapy.

PROCEDURE:
RF lesioning is performed under fluoroscopic guidance and sometimes a mild sedative. Since nerves cannot be seen on x-ray, the needles are positioned using bony landmarks where the nerves usually are. A local anesthetic is injected to numb the overlying tissues. The special insulated RF needle is then inserted under x-ray guidance to the bony target. Most commonly only a dull pressure, not pain, is experienced. After confirmation of the needle tip position, an electrode is inserted into the needle assembly. Electrical stimulation is done at varying frequencies to provide sensory and motor testing. Voltage and impedance are measured. It is common and appropriate to experience a brief discomfort and inside movement in the targeted area of the spine, but not in the limb distally. Patients need to be awake during this part of the procedure so they can report what they feel. Once correct positioning is confirmed, the tissues surrounding the needle tip are subjected to a focal current produced by the RF generator. The tissue is either heated or pulsed with energy for 60 – 120 seconds. This “numbs” the nerves semi-permanently.

RISKS/COMPLICATIONS:
RF lesioning is a very safe procedure. Because it is performed under x-ray guidance with an awake patient, the risk of large nerve injury is very small. Nerve stimulation is performed prior to lesioning so that large nerves that supply the extremities are not damaged. Fluoroscopic control ensures that the needle tip is in a safe location. Typical risks of invasive procedures such as site tenderness, infection and bleeding are possible.

BENEFITS:
After a typically uneventful recovery the patient can expect improvement in pain anywhere from a few days to two weeks. Of all the interventional non-surgical techniques for the treatment of spinal pain, RF lesioning is the most long-lasting. Typical duration if successful would provide the patient with at least 6 months of relief. It is not uncommon to last for several years. If pain gradually returns in familiar location and quality due to suspected nerve regrowth or repair, the procedure can be repeated.

Radiofrequency lesioning is covered by most insurance plans. Some require preauthorization. The Pain Management Center is pleased to be able to provide this safe technique for more long-term control of our patients’ chronic pain.

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