

Topics in Pain Management

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Comprehensive Pain Management presents Topics in Pain Management as a service to the medical community.

Women more likely to have low back pain from facet joint osteoarthritis; RF denervation may help

New evidence confirms the prevalence of facet joint osteoarthritis is greater in women than men, that it increases with age and that the problem is found to manifest in pain most often at the L4-L5 spinal level.

Researchers writing in the Nov. 1, 2008 issue of the journal *Spine* noted that, among their study cohort, 59.6% of males compared to 66.7% of females with facet joint osteoarthritis complained of chronic low back pain. They believe this difference is explainable by the fact that cartilage is a sex hormone-sensitive tissue – specifically, increased expression of estrogen receptors correlates directly with the severity of facet joint osteoarthritis. “Female motion segments showed significantly greater motion in lateral bending, flexion and extension,” the authors write. “Greater motion in spinal segment can lead to excessive wear and tear, and therefore, to higher prevalence of facet joint osteoarthritis in females.”

Further, the authors note that several previous studies have shown facet joint degeneration develops much more rapidly at the L4-L5 motion segment than at any other level. A possible reason for the high prevalence and severity of this condition at the L4-L5 spinal level may be the relatively greater stability of the L5-S1 spinal segment compared to L4-L5, they propose. “Greater stability arises from a more coronal orientation of the L5-S1 joints as opposed to the more sagittal orientation of the L4-L5 facet joints, an increased pedicle facet angle at the L5-S1 level and additional anatomic

stability provided the fifth lumbar vertebra by large transverse processes supported by strong iliolumbar ligaments,” write the authors.

Large burden of morbidity

The *Spine* article was penned by researchers who set out to evaluate the association between lumbar spine facet joint osteoarthritis and low back pain. Their investigation uncovered data suggesting that the prevalence of lumbar facet joint pain among injured workers in the U.S. with chronic low back pain is about 15% (whereas an Australian study they cited reported a prevalence of 40% among patients with chronic low back pain in a general rheumatology practice).

An earlier *Spine* article (from the May 2008 edition) points out that most patients who develop low back pain recover within three months, but the minority whose pain is persistent represents a large – and often hidden – problem. Indeed, by the reckoning of another study’s authors, about 5% of back pain patients account for something on the order of 75% of the costs associated with care for back pain generally.

In many patients with low back pain, symptoms can be simultaneously widespread, bilateral and radicular. Accordingly, no single treatment is likely to relieve or resolve all of their pain. But, as the earlier *Spine* article writers assert, a particular, identifiable component of low back pain can be relieved with the

use of medial branch blocks in the form of radiofrequency neurotomy, or denervation. “Radiofrequency facet denervation is not a placebo and could be used in the treatment of carefully selected patients with chronic low back pain,” the authors conclude.

Provides significant relief

Radiofrequency neurotomy has been shown to provide dramatic pain relief. “This relief is accompanied by significant improvements in paravertebral tenderness, various movements, quality of life and use of analgesics,” write the authors of the May 2008 *Spine* article. “Most of these improvements are readily attributed to the relief of pain.”

One descriptive study the authors cite indicates the procedure can be very effective if patients are selected using controlled diagnostic blocks and if anatomically accurate technique is used. “Sixty percent of patients enjoy at least 80% relief from their pain... and 80% enjoy at least 60% relief,” they write.

Meanwhile, an article in the March 2007 issue of *Medical Clinics of North America* by researchers from the University of Rochester Medical Center, in Rochester, N.Y., reviews a number of clinical trials involving radiofrequency neurotomy and finds overall benefit to the medial branch that would not be seen with a conventional facet joint injection – 50% reduction in pain as well as a decrease in opioid use and improved stability index were common.

How it is performed

Importantly, radiofrequency denervation is safe – nerve root injury and paralysis are extremely rare complications, studies show.

The procedure entails coagulation of the nerves that mediate the patient's pain. Here is how it is performed in treatment of chronic low back pain.

First, the patient is positioned prone on the procedure table. The lumbar spine is then visualized using either fluoroscopy (preferred) or computed tomography. Skin points are marked and anesthetized with 1% lidocaine.

A cannula with a 5 mm active tip is introduced along the direction of the radiograph beam until bone contact is made with the lower part of the transverse process (L5 and higher). The cannula is then rotated so that its bevel is against the bone – this allows the needle to slide up in the groove while maintaining contact with the bone surface. (This continues until the tip is at the upper border and in the center of the curvature formed by the upper border of the transverse process where it ascends to become the lateral border of the articular process.)

The position is checked and rechecked, after which 2 ml of bupivacaine (0.5%) is injected through the cannula to anesthetize the target nerve and its surrounding tissues.

A thermistor probe is inserted. The tip is heated to a temperature of 85°C and held against the nerve's target site for 60 seconds to create a lesion. The cannula is then withdrawn 5 mm and another lesion made. To accommodate possible variations in location of the target nerve, additional lesions may be performed just lateral and just medial to the first two lesions.

Operator skill crucial

By way of reminder, radiofrequency neurotomy is not a total treatment; it provides relief for only one component of the patient's pain. However, evidence suggests that it can be used successfully as a complement to other interventions in patients with complex low back pain.

A well-tolerated procedure, the success of radiofrequency neurotomy depends on the ability of the operator to place the thermistor probe with precision. Developing expertise in the use of fluoroscopy and correct interpretation of the images also is essential.

Typically, denervated facet joints grow back. If relief wanes because of that regrowth, radiofrequency neurotomy can be repeated.

Conclusions

Radiofrequency medial branch neurotomy may be appropriate for patients with a particular, identifiable component of complex low back pain.

There exists a considerable body of evidence in support of radiofrequency neurotomy as a well-tolerated outpatient procedure that can provide substantial and lasting relief, even in patients with longstanding pain. Many patients who undergo radiofrequency neurotomy express satisfaction with the results and feel it was a worthwhile procedure.

Morbidity is low when the procedure is properly performed. Proper performance requires expert hands. Comprehensive Pain Management is noted for – among other things – methodical, careful, highly skilled performance of radiofrequency neurotomy. Our approach is notably successful because

we always test the nerve prior to denervation to ensure the precision of our targeting.

Comprehensive Pain Management has over the years acquired a well-deserved reputation for providing genuine life-changing relief to those who suffer pain – and not just pain of the low back. It is the reason so many Baton Rouge area physicians refer to us, particularly when it involves pain cases of an exceptionally challenging, time-consuming nature.

When you send your patients to us, our goal is to return them to you well-satisfied by the diagnostic, and/or interventional services we provide.

For more information about Comprehensive Pain Management, please call 225-368-2300.

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