NONSURGICAL TREATMENT OF BACK AND NECK PAIN

FACT SHEET

The spine is a masterpiece of design, absorbing nearly every bump, jolt and shock while also providing an incredible amount of agility and flexibility.

The spine has three natural curves: in the neck, upper back and lower back. These curves help absorb the impact of movement. The lower back bears most of the body's weight and is the most vulnerable to injury.

Treatment Options at the GW Pain Center

The Pain Center at GW Hospital was established to help people living with acute, subacute or chronic pain, especially pain related to the total spine. The Center offers evaluation, treatment and follow-up for a wide range of pain conditions.

Treatment options at the GW Pain Center include use of pain control medications, nerve blocks and stimulation techniques.

Nerve Blockades and Other Anesthesia Injections

Patients may be treated with any of several types of regional anesthetic techniques, including facet blocks, epidural blocks, trigger point injections, botulinum toxin injections, nerve blocks and neurolytic blocks. Some procedures may be performed under X-ray guidance.

Epidural Steroid Injections (Transforaminal, Interlaminar & Caudal)

Epidural steroid injections are used to deliver medication close to the injury or pathology within the spine. Steroids help reduce inflammation, decrease pain and possibly improve function. A local anesthetic is often injected with the steroid, providing short-term pain relief and diagnostic information. This injection commonly is used for nerve root irritation, radiculopathy (sciatica) or even neck or low back pain. Other indications include degenerative disc disease, spine arthritis, postsurgical pain and post-herpetic neuralgia.

Three common approaches are used with this technique:

- *Interlaminar epidural injection:* This technique typically delivers medication to the posterior epidural space via fluoroscopic guidance. This procedure is particularly useful in the treatment of diffuse spinal disorders such as spinal stenosis.
- *Caudal epidural injection:* This approach uses an access point at the tailbone and often is chosen for pain in the lower spine or coccyx. It is particularly useful in patients with previous spinal surgery. This injection is also performed under fluoroscopic guidance.
- *Transforaminal epidural injection:* This technique is a very precise, fluoroscopically guided approach to delivering a small volume of medication to the site of the pathology in the spine, typically located at the anterior epidural space. Additionally, this method is superior in treating nerve root pain (extremity pain).

Facet Joint (Zygapophysial) Injections (Intra-articular, Medial Branch Block)

Common sources of pain, the facet joints often are affected by degenerative arthritis or acute injuries such as whiplash. In the neck, pain from this joint might manifest as headaches, shoulder pain and upper back pain. These joints can cause low back, buttock or thigh and leg pain when originating in the lumbar spine.

During intra-articular injections, the joints are penetrated with a needle followed by an injection of contrast to confirm placement. A combination of local anesthetic and steroid are then injected. Medial branch blocks involve the injection of a small amount of local anesthetic at the two small nerves that supply each facet joint. This highly specific procedure is diagnostic, often predicting success with radiofrequency ablation.

Sacroiliac Joint Injections

The sacroiliac joints represent the junction of the spine and the pelvis. These paired joints are implicated in the etiology of chronic low back pain and are susceptible to stress, injury and arthritis. They often respond to steroid injections under fluroscopic guidance. Alternatively, diagnostic injections with local anesthetic might positively predict for radiofrequency ablation.

Discography (Provocative)

Provocative discography is used to diagnose internal disc disruption and resultant discogenic pain. This procedure is divided into provocative and morphological components. The provocative portion is an attempt to reproduce the patient's "typical" pain. Abnormal discs are identified and injected; adjacent control (normal) discs are also injected. Concordant pain is

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elicited when an abnormal disc is injected, replicating the patient's typical pain. Disc morphology often can also be noted with injection of contrast material. The morphology is also confirmed via CT scan immediately following the procedure. The combination of the information gleaned from these two components of the study can be useful in identifying the causative agent in disc-related low back pain.

Sympathetic Nerve Interventions

The sympathetic nervous system, which controls nonvoluntary activities such as pupil dilation, digestion and heart rate, can contribute to various pain syndromes. Interventions targeting this system involve the injection of local anesthetic at the sympathetic ganglia in the cervical or lumbar spine. Radiofrequency ablation, chemical neurolysis and spinal cord stimulation are other procedures that target this system.

Epidural Lysis of Adhesions

In rare situations following neck or low back surgery, scar tissue (adhesions) develops around a nerve root, causing compression and severe pain. With a steerable catheter placed through an introducer needle, these adhesions are destroyed or "broken up." Epidural lysis is recommended for patients who have not had success with conservative treatments such as medications and epidural injections.

Percutaneous Lumbar Disc Decompression (DeKompressor®, Acutherm®)

Disc decompression can be effective for the treatment of small, contained disc herniations primarily causing lower extremity pain. This procedure involves the percutaneous removal of nuclear material from the disc to reduce pressure on the nerve roots and to potentially resolve the disc protrusion. In this procedure, a small extraction device enters the disc through a needle.

Intradiscal Anuloplasty (IDET®, Transdiscal Biaculoplasty)

These procedures are used for the treatment of disc-related low back pain. Thermal energy is delivered to the posterior aspect of the disc, resulting in collagen formation that "seals" the disc and reduces aberrant nerve growth into the disc. In IDET, a catheter enters the disc via an introducer needle. Transdiscal biaculoplasty is performed via a bipolar method, producing a field between two introducer needles.

Trigger Point Injections

In some instances, the source of pain is a specific muscle that develops taut bands either as a primary process or as a result of an underlying trigger. These trigger points can be treated with injections of local anesthetic, often with steroids, as one portion of a treatment plan that also includes physical therapy, stretching and other modalities.

Botolunim Toxion Injections (Botox®, Myobloc®)

Growing evidence suggests that botulinum toxin injections might be beneficial in treating recalcitrant musculoskeletal conditions such as plantar fasciitis, lateral epicondylitis and myofascial pain syndrome. These muscle-specific targeted treatment modalities often are used after conservative therapies have failed. Combining these injections with a course of intensive physical therapy is often beneficial.

Stimulators and Implants

Radiofrquency Neuroablation

In situations where pain originating from the facet joint is isolated via medial branch blocks, these specific nerves can be destroyed selectively with thermal energy. This technology can also be used in sympathetic-mediated pain. This procedure involves the precise placement of radiofrequency needles along the appropriate nerves confirming location with motor and sensory stimulation followed by the delivery of thermal energy.

Spinal Cord Stimulation

This procedure places two electrodes into the epidural space at appropriate levels to electrically stimulate the spinal cord to block the transmission of pain. This technique is effective for persistent extremity pain (e.g., arm, leg), nerve-related pain, certain types of low back pain, specific cases of abdominal pain and other resistant cases of pain of multifactorial etiology. Patients can adjust the stimulation, allowing them to customize treatment.

Before permanent implantation, the patient undergoes a three- to seven-day trial in which the electrodes are placed without an incision and attached to an external power source. This period is a "test-drive" to determine the effectiveness of this device. Electrodes are permanently placed surgically in an outpatient procedure.

Intrathecal Drug Delivery

Initially developed to deliver medications directly into the spinal canal of cancer patients, intrathecal catheters provide a system to deliver analgesia with much lower doses than required orally or intravenously. Medications including narcotics and other agents are often delivered this way. Before implantation of a permanent system, a trial procedure determines the effectiveness of this delivery method.

Infusion Therapy (Ketamine, Lidocaine)

Intravenous delivery of local anesthetics and other medications can be helpful in treating neuropathic pain. Recent studies have clarified the role of these medications, particularly for patients who have not had success with other treatment modalities. This therapy typically is performed over the course of several days under a monitored setting.

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