Pain Management Education

This is a quick informational document that will provide you the most common pain management injections. WHAT IS…

Epidural Injections

An epidural injection is an interventional procedure done to reduce pain and inflammation in the spine. Many different spinal issues can cause pain including: vertebral disc disease, nerve impingement, joint arthritis and spinal stenosis. Epidural injections can help relieve pain caused by these types of issues.

Our physicians use fluoroscopy to guide as the needles are positioned in the spine near the epidural space. The placement is confirmed using dye. This ensures that the medications will be in the proper area in order to relieve pain. Once the needle position is verified the medication is injected. Steroids and local anesthetics are usually the medications used.

Spine pain is caused by inflammation of the spine and surrounding structures. The combination of local anesthetics and steroids are used to reduce inflammation which then reduces pain. The medications used have been proven safe and effective.

Cervical Epidural Steroid Injection, CESI

A CESI is identical to a TFESI, except the needle approach is interlaminar instead of transforaminal. This approach is associated with less risk when injecting the cervical spine due to the structures located in the neck. This injection includes both a long-lasting steroid (kenalog or dexamethasone) and a local anesthetic (usually lidocaine). The steroid reduces the inflammation/irritation and the anesthetic works to interrupt the pain signal transmission. The medications also spread to other levels and portions of the spine, further reducing inflammation and irritation.

It is important to know the patient may not receive significant relief from the first or even second CESI. The local anesthetic is short term, however the steroid is a long-lasting medication and its effect on the inflammation happens over the course of several weeks.

CESIs do not require a side or levels to be ordered, as the injection site is always performed at the midline C7-T1 space. These injections are also generally scheduled in a series of three, each one week apart. This series of injections has been found to confer with optimal pain relief for the patient.

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Transforaminal Epidural Steroid Injections, TFESI

A TFESI involves injecting medications into the epidural space, where irritated nerve roots are located. This injection includes both a long-lasting steroid (kenalog or dexamethasone) and a local anesthetic (usually lidocaine). The steroid reduces the inflammation/irritation and the anesthetic works to interrupt the pain signal transmission. The medications also spread to other levels and portions of the spine, further reducing inflammation and irritation. TFESIs can be performed in the cervical, thoracic, lumbar or sacral portion of the spine.

It is important to know the patient may not receive significant relief from the first or even second TFESI. The local anesthetic is short term, however the steroid is a long-lasting medication and its effect on the inflammation happens over the course of several weeks.

TFESI are generally ordered for two injections at once, either a bilateral one level (i.e. B/L L4-L5) or unilateral two level (i.e. left L4-L5, L5-S1). These injections are scheduled in a series of three, each one week apart. This series of injections has been found to confer with optimal pain relief for the patient.

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Joint Injection

A joint injection is an interventional procedure designed to relieve pain and inflammation by injecting a steroid or other medication into a joint. This pain can be caused by inflammatory joint conditions, such as rheumatoid arthritis, psoriatic arthritis, gout, tendinitis, bursitis, Carpal Tunnel Syndrome, and osteoarthritis.

Using Fluoroscopic guidance, x-ray, or ultrasound, needles are advanced into the affected joint. After correct needle position is confirmed by either the ultrasound or fluoroscopy, the proper medications are injected. The most common medications used are Lidocaine, Hyaluronic acid, and a low-dose steroid.
The medication injected, usually a steroid, is meant to reduce the inflammation and/or swelling of tissue in the joint space. This may in turn reduce pain, and other symptoms caused by inflammation or irritation of the joint and surrounding structures. The use of Hyaluronic acid is sometimes used to replace bursa fluids and facilitate movement to reduce pain. These medications used have been proven safe and effective.

Medial Branch Blocks, MBB & Peripheral Nerve Blocks, PNB

A facet injection, also known as a MBB or PNB in the sacrum, is a diagnostic injection used to determine the source of a patient's pain. The medial branch nerve or the peripheral branch nerve originates from the facet joint (the connection point between two vertebrae in the spine). During this procedure a needle is placed over this nerve and a mix of steroid and a local anesthetic is injected. The steroid reduces the inflammation/irritation and the anesthetic works to interrupt the pain signal transmission. If the source of the patient's pain is indeed coming from the facet, the patient should experience fairly rapid pain relief after the procedure. If this diagnostic test is successful at relieving the patient's pain, a more long-term treatment option can be employed- radiofrequency ablation (RFA) of the nerve.

MBB/PNB are performed in a series of two, each procedure one week apart. The number of blocks performed at each procedure is dependent on the patient's insurance. The block is a diagnostic tool used to determine the nerves responsible for generating the patient's pain. If these blocks work to temporarily relieve the patient's pain a RFA procedure would be recommended which can provide longer lasting pain relief.

Radiofrequency Ablation, RFA

Radiofrequency ablation is an advanced pain management technique that can treat a variety of pain syndromes. The most common use of radiofrequency ablation is in the cervical and lumbar spine where the procedure is employed to reduce pain from arthritic joints. Radiofrequency ablation is a technique that employs heat to disable the pain-transmitting nerves in the spine. The procedure is very safe and is only used on sensory nerves that transmit pain impulses. There is no risk of paralysis or weakness from this procedure. There is also another type of radiofrequency ablation called "pulsed" radiofrequency ablation. This procedure does not use heat to disable the nerve, and is appropriate for treating a wide variety of pain problems that originate in the sensory nerves.

Radiofrequency ablation uses heat to disable the pain-transmitting nerves in the spine. The process is analogous to microwave ovens that use microwave energy to heat food. Radiofrequency energy is transmitted to the tip of a needle where it is converted to heat, which is applied directly to the nerve fibers. Once the nerves undergo this heat treatment, they slowly stop transmitting pain.

Sympathetic Block

A sympathetic block is an interventional procedure designed to relieve pain by injecting local anesthetics around the sympathetic nerves by the spinal vertebra. This pain may be caused by an imbalance in the sympathetic nervous system (sometimes called Reflex Sympathetic Dystrophy or Chronic Regional Pain Syndrome), but can also be used for other causes of pain such as post-herpetic neuralgia, circulatory insufficiency and phantom limb pain.

Using Fluoroscopic guidance or an x-ray, needles are advanced along the vertebral body. Proper needle tip placement is confirmed by an injection of contrast (dye). After correct needle position is confirmed by either the x-ray or fluoroscopy, the proper medications are injected. The most common medications used are Lidocaine, Marcaine and a low-dose steroid.

The sympathetic nerves run outside of the front of the spinal column. The sympathetic nerves are part of the autonomic nervous system, which is responsible for controlling things people do not have to think about or have direct control over. An imbalance in the sympathetic nervous system can be responsible for chronic pain in the extremities. A sympathetic block uses local anesthetics that “turn off” the sympathetic nerves and sometimes can allow them to function normally.