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INTERVENTIONAL PAIN MANAGEMENT

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PROCEDURES FOR CHRONIC HEADACHES

GREATER AND LESSER OCCIPITAL NERVE BLOCKS

Occipital nerve blocks are used to diagnose and manage headaches that occur predominantly at the back of the head and radiate upward to the scalp. The goal of an occipital nerve block is to provide temporary pain relief ,by administering a local anesthetic around the occipital nerves. If the patient has significant improvement in pain with the nerve block, he/she may be a candidate for greater and/or lesser occipital nerve radiofrequency ablation.

GREATER AND LESSER OCCIPITAL NERVE RADIOFREQUENCY ABLATION

Occipital nerve radiofrequency ablation provides longer lasting relief for pain in the back of the head and scalp. Radiofrequency energy is used to selectively heat and disrupt the function of these nerves, to reduce or eliminate the pain signals. This may provide relief for an extended period.





PROCEDURES FOR CHRONIC HEADACHES

TRIGEMINAL NERVE BLOCK AND PULSED RADIOFREQUENCY ABLATION

The trigeminal nerve is responsible for providing sensation to the forehead, cheeks and jaws. A trigeminal nerve block is a diagnostic procedure performed to relieve pain associated with trigeminal neuralgia or other conditions impacting the trigeminal nerve. If the nerve block provides significant relief, a pulsed radiofrequency ablation of the trigeminal nerve may be performed.

The pulsed radiofrequency ablation (PRFA) is a minimally invasive procedure used to provide prolonged pain relief for individuals with trigeminal neuralgia or other facial pain caused by trigeminal nerve dysfunction. It is a variation of radiofrequency ablation (RFA) that uses pulsed radiofrequency energy to modulate the function of the trigeminal nerve.



WE ALSO PERFORM NERVE BLOCKS AND ABLATION OF THE:

- Supraorbital and supratrochlear nerve (pain in the forehead)
- Auriculotemporal nerve (pain in the temples)
- Infraorbital nerve (side of the nose, part of the lower eyelid, and anterior cheek)



CERVICAL SPINE PROCEDURES

TRIGGER POINT INJECTIONS

Trigger points are tight bands of muscle fibers that can cause localized pain, and may also refer pain to other areas. Trigger point injections (TPI) involve dry needling and injecting medication, usually a local anesthetic, or a combination of a local anesthetic and a corticosteroid to alleviate pain and promote muscle relaxation. Trigger point injections are used to treat myofascial pain syndrome. We commonly do these injections in the cervical paraspinals, trapezius, rhomboids, and levator scapulae muscles. We also perform these injections in the thoracic and lumbar paraspinal muscles.

CERVICAL MEDIAL BRANCH BLOCK AND ABLATION

The facet joints are small joints located between the vertebrae that allow for movement and provide stability in the spine. When these joints become inflamed or irritated, they can cause pain in the neck and upper back. These joints are innervated by medial branch nerves. The cervical medial branch block is a diagnostic procedures used to determine if neck pain is caused by facet joint dysfunction.

If there is significant pain reduction with this procedure, then neck pain is likely originating from these joints. If there is good pain relief with two sets of these blocks, the patient may be a good candidate for a radiofrequency ablation.

Cervical medial branch RFA involves using radiofrequency energy to selectively heat and disrupt the function of the medial branch nerves. This procedure aims to reduce or eliminate the pain signals, providing relief for an extended period.

CERVICAL FACET JOINT INJECTIONS

This procedure involves the injection of anesthetic and corticosteroid into the cervical facet joints. The duration of pain relief varies among individuals, but it can range from a few days to several weeks or months.

We also have the expertise to perform intraarticular occipito-atlanto (CO-C1) joint and C1-2 joint injections.







CERVICAL SPINE PROCEDURES

CERVICAL EPIDURAL STEROID INJECTION

A cervical epidural steroid injection is used to provide temporary pain relief and reduce inflammation by delivering corticosteroid medication and local anesthetic directly into the epidural space surrounding the nerve. This procedure can provide temporary relief for conditions such as cervical radiculitis (nerve irritation), cervical disc herniation, or mild-moderate spinal stenosis. The duration of pain relief varies among individuals, but it can range from a few weeks to several months. Using fluoroscopy, a type of x-ray, a needle is guided to the level of interest. We do use contrast for this procedure. If you have an allergy to contrast, you will be pre-medicated. The medication injected is a combination of an anesthetic and steroid.

CERVICAL DORSAL ROOT GANGLION PULSED RADIOFREQUENCY ABLATION

The dorsal root ganglion is responsible for transmitting sensory information, including pain signals, from the peripheral nerves to the spinal cord. Cervical dorsal root ganglion pulsed radiofrequency ablation aims to provide long-term pain relief for pain that radiates from the neck to the arm, by disrupting the function of the nerves within the targeted dorsal root ganglion. The duration of pain relief can vary among individuals, and repeat procedures may be necessary as the nerves regenerate over time.





THORACIC SPINE PROCEDURES

THORACIC EPIDURAL STEROID INJECTION

Thoracic epidural steroid injections can help reduce pain, inflammation, and provide temporary relief. This procedure delivers corticosteroid medication and local anesthetic directly into the epidural space surrounding the nerves in the thoracic spine. The duration of pain relief varies among individuals, but it can range from a few weeks to several months.

THORACIC FACET JOINT INJECTIONS

Facet joints are small joints located between the vertebrae that provide stability in the spine. This procedure involves the injection of anesthetic and corticosteroid into the facet joints in the thoracic spine. These injections can be used as part of a comprehensive treatment plan that may include physical therapy, medications, and other interventions.

THORACIC MEDIAL BRANCH BLOCK AND ABLATION

When facet joint become inflamed or irritated (due to arthritis), they can cause mid-upper back pain. These joints are innervated by medial branch nerves. The thoracic medial branch block is a diagnostic procedure used to determine if upper back pain is caused by facet joint dysfunction.

If there is significant pain reduction with this procedure, then the pain is likely originating from these joints. If there is good pain relief with two sets of these blocks, the patient may be a good candidate for a radiofrequency ablation.

Thoracic medial branch RFA involves using radiofrequency energy to selectively heat and disrupt the function of the medial branch nerves. This procedure aims to reduce or eliminate the pain signals, providing relief for an extended period.



LUMBOSACRAL SPINE PROCEDURES

EPIDURAL STEROID INJECTION

Epidural steroid injections can help reduce pain, inflammation in the lumbosacral spine, providing temporary relief for conditions such as herniated discs. This procedure is done to reduce radicular pain, or pain that radiates down the leg. The steroid reduces inflammation also reduces pain. Using fluoroscopy, a type of x-ray, a needle is guided to the level of interest. The medication that is injected is a combination of an anesthetic and steroid. The procedure takes about 10 minutes. It may take 3-7 days for the full effect of the steroids to set in. The duration of relief may depend on various factors. It may provide relief for several weeks to months. Sometimes a single injection may provide long term relief.



LUMBAR MEDIAL BRANCH BLOCK AND RADIOFREQUENCY ABLATION

Lumbar medial branch blocks are diagnostic procedures to determine if the lower back pain is caused by facet joint dysfunction in the thoracic spine. The facet joints are small joints located between the vertebrae that allow for movement and provide stability in the spine. These joints are innervated by the medial branches nerves. When these joints become inflamed or irritated, they can cause pain in the low back/pain referring to the legs. A medial branch block is a diagnostic procedure done as a preliminary test before a radiofrequency ablation. If there is significant pain reduction with two sets of these blocks, the patient may be a good candidate for a radiofrequency ablation.

Lumbar medial branch RFA involves using radiofrequency energy to selectively heat and disrupt the function of the medial branch nerves, which transmit pain signals from the facet joints to the brain. This procedure aims to reduce or eliminate the pain signals, providing relief for an extended period. This procedure can provide pain relief for up to two years, and can be repeated after a period of six months.





LUMBOSACRAL SPINE PROCEDURES

DORSAL ROOT GANGLION PULSED RADIOFREQUENCY ABLATION

The dorsal root ganglion is responsible for transmitting sensory information, including pain signals, from the peripheral nerves to the spinal cord. Lumbar dorsal root pulsed radiofrequency ablation aims to provide longer lasting pain relief by disrupting the function of the nerves within the targeted dorsal root ganglion. The duration of pain relief can vary among individuals, and repeat procedures may be necessary as the nerves regenerate over time.

SACROILIAC JOINT INJECTION

The sacroiliac joint is located at the junction between the sacrum (the triangular bone at the base of the spine) and the ilium (the large pelvic bone). A sacroiliac joint injection is a diagnostic and therapeutic procedure for individuals experiencing pain in this joint. The medication injected is a combination of an anesthetic and steroid.



SACROILIAC JOINT BLOCK AND RADIOFREQUENCY ABLATION

The sacroiliac joint is innervated by the dorsal ramus of L5, and the lateral branches of S1,S2, S3. These are the nerves that are blocked in the sacroiliac joint block. This procedure is diagnostic and is used to determine if the pain is due to the sacroiliac joint. If the patient has significant relief with the sacroiliac block, he/she may be a candidate for radiofrequency ablation.

Sacroiliac joint radiofrequency ablation (RFA) is a minimally invasive procedure used to provide long-term pain relief for individuals experiencing chronic sacroiliac joint pain that has not responded to conservative treatments. This procedure involves the use of radiofrequency energy to disrupt the function of the nerves that transmit pain signals from the sacroiliac joint to the brain. This procedure can provide pain relief for up to two years, and can be repeated after a period of six months.



PELVIC AND SACRAL PROCEDURES

PUDENDAL NERVE BLOCK AND PULSED RADIOFREQUENCY ABLATION

Pudendal nerve blocks can be diagnostic, to determine if the pudendal nerve is the source of perineal pain. This nerve block involves the injection of a local anesthetic, near the pudendal nerve to provide temporary pain relief. If there is significant relief, a pudendal pulsed radiofrequency ablation is typically performed. This procedure uses radiofrequency energy to disrupt the function of the pudendal nerve, thereby reducing transmission of pain signals.

GANGLION IMPAR BLOCK AND ABLATION

The ganglion impar is a small cluster of nerves located in front of the coccyx (tailbone) at the level of the sacrococcygeal junction. Ganglion impar blocks can be useful in diagnosing chronic pain conditions, particularly those involving the pelvic region, perineum, or coccyx. Conditions that may benefit from ganglion impar blocks include coccydynia (tailbone pain), chronic pelvic pain, perineal pain, and certain types of cancer pain. If the block is successful, a pulsed radiofrequency ablation is typically performed for longer lasting relief.





PROCEDURES FOR OTHER JOINTS

JOINT INJECTIONS

Joint corticosteroid injections or cortisone injections, are commonly used in the management of joint-related pain and inflammation. These injections involve the administration of a combination of a local anesthetic and a corticosteroid medication into the targeted joint. This can be performed in any of the joints, including the knee, hip, and shoulder joint.

KNEE BLOCK AND RADIOFREQUENCY ABLATION

This procedure is indicated for chronic knee pain due to arthritis, pain after a joint replacement, and pain that does not improve with other types of injections. The genicular nerves are sensory nerve that provide sensation to the knee. By blocking the genicular nerves, this procedure can help identify the source of knee pain and provide temporary pain relief. This diagnostic information can guide further treatment decisions, such as pursuing genicular nerve radiofrequency ablation (RFA) or other interventions for longer-lasting pain relief.



HIP BLOCK AND RADIOFREQUENCY ABLATION

This procedure is indicated to diagnose and treat chronic hip pain due to arthritis, pain after surgery, pain that does not improve with other injections. The branches of two nerves are targeted, the obturator and the femoral nerve. These two nerves provide sensation to the hip joint. If adequate pain relief is achieved, a radiofrequency ablation may be considered.



PROCEDURES FOR OTHER JOINTS

SUPRASCAPULAR NERVE BLOCK AND RADIOFREQUENCY ABLATION

Suprascapular nerve blocks are commonly used in the management of various shoulder conditions, including chronic shoulder pain, rotator cuff injuries, frozen shoulder, shoulder arthritis, when the pain is refractory to conservative management. It can also be used for chronic shoulder pain after a shoulder replacement surgery. The effect will last 4-6 hours. This is a diagnostic block. Once the anesthetic wears off, the pain will likely return.

If the pain reduces significantly, you may be a candidate for a radiofrequency ablation of the suprascapular nerve (the suprascapular nerve is burned to provide longer lasting pain relief).





OTHER SPINE PROCEDURES

KYPHOPLASTY

Kyphoplasty is a minimally invasive procedure performed to treat vertebral compression fractures in the spine. It is commonly used to address fractures resulting from osteoporosis/trauma. Kyphoplasty aims to relieve pain, stabilize the fractured vertebra, and restore vertebral height. By restoring the height of the vertebra and stabilizing it with cement, kyphoplasty can reduce pain, improve spinal alignment, and potentially prevent further collapse of the vertebra.

SACROPLASTY

Sacroplasty is a minimally invasive procedure used to treat painful vertebral fractures or lesions in the sacrum. Sacroplasty aims to relieve pain, stabilize the fractured sacral bone, and restore function. The injected cement helps strengthen the weakened bone, providing stability and reducing pain associated with the fracture. The procedure can improve mobility and quality of life for individuals suffering from sacral fractures..



SPINAL CORD STIMULATOR TRIAL

The spinal cord stimulator trial allows you to experience the potential benefits of spinal cord stimulation and evaluate its effectiveness in managing your specific pain condition before committing to a permanent implantation. It also helps determine if the stimulation significantly improves your pain and function, considering factors such as pain reduction, medication use, and improvement in daily activities.



OTHER SPINE PROCEDURES

STELLATE GANGLION BLOCK AND PULSED RADIOFREQUENCY ABLATION

Stellate ganglion block (SGB) is used for the treatment of many medical conditions including complex regional pain syndrome, Peripheral vascular disease, post-herpetic neuralgia, etc. This procedure may reduce sympathetically mediated pain (SMP), that occurs due to abnormal connections between sympathetic and sensory nervous systems. If the block is successful in reducing symptoms, a pulsed radiofrequency ablation can be performed for longer lasting results.

CELIAC PLEXUS BLOCK AND PULSED RADIOFREQUENCY ABLATION

The celiac plexus block (CPB) is indicated when there is intractable abdominal pain that does not respond to less aggressive analgesic interventions. This procedure blocks the pain fibers from the liver, gallbladder, omentum, pancreas, mesentery, and digestive tract from the stomach to the mid-transverse colon, and reduces severe chronic abdominal pain. It may also be helpful in abdominal pain due to certain cancers. If the block is successful in reducing symptoms, a pulsed radiofrequency ablation can be performed for longer lasting results.

LUMBAR SYMPATHETIC BLOCK

A sympathetic nerve block can be used to diagnose or treat pain originating from the nerves of the sympathetic nervous system, often in the lower extremities.





EMERGING PROCEDURES

INTRACEPT

A potential cause of chronic low back pain may be linked to a nerve found within the vertebral bone (basivertebral nerve). Degeneration of the spine can out more pressure on this nerve. This procedure interupts the transmission of pain signals from this nerve, found within the vertebral bone. A radiofrequency probe is then inserted to access the center of the vertebrae at the trunk of the basivertebral nerve. This procedure uses radiofrequency energy to disrupt the function of the nerve, thereby reducing transmission of pain signals.

BONE TUMOR ABLATION

Bone tumor ablation can alleviate the pain that is due to the tumor in the bone. It is typically used for benign (non-cancerous) tumors or small, localized cancerous tumors. The choice of ablation technique depends on factors such as tumor size and location in the spine. It is combined with conventional therapies or other percutaneous treatments, e.g., cementoplasty, offering faster pain relief and bone strengthening.

SPINE JACK KYPHOPLASTY

Spine jack kyphoplasty is a procedure to treat acute compression fractures of the spine. This procedure uses an expandable titanium implant, similar to a car jack. Cement is then injected to restore height and reduce pain.

INTRADISCAL INJECTIONS

An Intradiscal Steroid Injection is a treatment for pain that is suspected to be coming from one of the discs between the vertebral bodies. This procedure involves injecting steroid into the disc to reduce pain and inflammation. Local anesthetic and antibiotics may be administered along with the steroid.

PLATELET RICH PLASMA (PRP)

Platelet-rich plasma (PRP) injections use plasma enriched with concentrated platelets (vital blood proteins that promote cell function and immunity) to reengage and boost the body's healing process. PRP is a minimally invasive, nonsurgical option that can alleviate pain, improve mobility and reduce inflammation resulting from injuries or chronic conditions.

PERIPHERAL NERVE STIMULATOR

Peripheral nerve stimulation involves neuromodulation of nerves outside the spine. A lead is placed in a target area of pain. The system sends mild electrical pulses directly to the nerves to reduce pain signals.



CLINIC APPOINTMENT

Interventional procedures are indicated when pain does not improve with conservative management comprising of greater than 3 months of physical therapy, activity modification, medications. They are also indicated if pain is severe and interferes with activities of daily living. Once you and the provider decide that the treatment plan consists of an interventional procedure, an order is placed on the same day. Procedures requiring the use of X-ray guidance are done at the ambulatory surgical center, on a scheduled day. They cannot be done in clinic.

SCHEDULING

Within 2-3 days, our scheduling service will call you to arrange the **date** of your procedure. If you miss the call please look in MyChart for messaging or check your email for a message from them.

You may also reach out to them at (410) 955-0943 or 410-502-2199

The surgery center will call you one-two days before your appointment with the **time** that you will need to arrive.

PRE-OP

- There is no formal pre-operative testing or lab work that is required for these procedures.
- For certain procedures, blood thinners may need to be held.
- If there is allergy to contrast, you may need to be pre-medicated for certain procedures (see below)
- If you are having the procedure with local anesthetics (no sedation), you may drive on your own.
- We do offer light sedation for patients who request it. Anesthesia, or the nurses from the surgery center will contact you for any information that they might need.
- If you are getting sedated, we will require you to have a driver.
- They will also go over fasting instructions to occur after midnight before your procedure.



DAY OF PROCEDURE

- Please follow given instructions regarding eating and drinking prior to procedure
- Take your medications as instructions. If you are holding any blood thinners, make a note of when you last took them.
- Shower as you normally do.
- Wear loose comfortable clothing and shoes
- Remove any jewelry

WHAT TO BRING

- List of current medications
- Insurance card and ID card
- A driver, if you are getting sedation
- Any iodine allergy medications (if indicated). See below.

PRE-MEDICATION PROTOCOL

If you have a contrast/iodine/shellfish allergy, and you are getting a cervical epidural injection, you will need to pre-medicate before your procedure, to limit the risk of adverse contrast reactions. These medications will be sent to your pharmacy prior to your procedure date.

- Take 1 tablet of Methylprednisolone (Medrol) 32 mg by mouth 12 hours the procedure
- Take 1 more tablet of methylprednisolone 32mg 2 hours before the procedure
- Take 1 tablet of Diphenhydramine (Benadryl) 50 mg PO 1 hour before the procedure

Due to the side effects of Benadryl, you will need to have a driver for the procedure.



WHERE TO ARRIVE

All procedures are done at the Green Sping Ambulatory Surgical Center on Mondays and Tuesdays using Xray guidance or Howard County General Hospital on Thursdays and Fridays.

1-2 days before your procedure you will receive a call from the facility to inform you of the time of your procedure and when to arrive. If you do not receive a call please reach out to the number below between 7:30AM - 3pm to get in contact with the staff.

Addresses:

Green Spring Station - Pavilion 3 3rd floor 10803 Falls Rd, Timonium, MD 21093 **410-616-7650**

Hereford Collision Center Lauren Hurlbrink Interiors Univest Bank Greenspring Univest Bank Greenspring Univest Bank Greenspring Pavilon III at Green The Maryland Pediatric Group Pure Raw Julice-Green Spring Station Juor 35 B Boral Fetes Coronr Money S. Del Schmidt Coronr Money S.

Course Repeated (SW) Provide Packet (SW) Columbia Pediatric Col

Howard County General Hospital

5759 Cedar Lane Berman Pavilion Ground floor Columbia, MD 21045 **410-884-4707**



WHERE TO ARRIVE

Procedures are also done at the White Marsh ambulatory surgical center.

White Marsh

2nd floor 4924 Campbell Blvd Nottingham, MD 21236





DAY OF PROCEDURE

- After registration, the nurses will seat you, go over your medications, and take your vitals.
- A provider will go over the procedure, answer any questions you may have, and obtain your consent.
- If you have requested light sedation, an IV will be placed. An anesthesia provider will speak to you and answer any questions you have.

WHAT TO EXPECT POST PROCEDURE

- Resume light activity as instructed. If there are any activity restrictions, we will inform you.
- Do NOT use a pool/hot tub for 72 hours.
- You may shower after 24 hours.
- Use an ice pack on the site as needed; 20 minutes on, 20 minutes off.
- Resume your pre-procedure medications as prescribed.
- After the procedure you may experience some soreness, which will improve.
- Monitor for signs of infection (redness, warmth, drainage)
- You will receive Dr. Chhatre's email (achhatr1@jhmi.edu) with your discharge paperwork.
- If you have any concerns or questions, please feel free to contact us.

POST PROCEDURE PAIN

- After the procedure you may experience some soreness, which will improve.
- You may take tylenol, NSAIDs (if appropriate), and any pain medications you normally take
- Nerve blocks last between 4-6 hours, before they wear off
- Epidural injections- The steroid takes 3-5 days to start working
- RFAs may take 2-3 weeks, and up to 8 weeks to "take"
- If you are having severe pain after the procedure, please email us.



RISKS AND SIDE EFFECTS

• Nerve blocks and RFAs:

- Serious side effects and complications are rare.
- The most common side effect is pain at the site of injection.
- After an ablation, there may be a chance of post-ablation neuritis, or irritation and inflammation of the nerves. This can be treated with ice, steroids, and medications such as gabapentin.
- It may take about 2-3 weeks, and up to 6-8 weeks to have decrease in pain and swelling after an ablation
- Other complications are infection, bleeding, swelling.
- These complications are minimized by using sterile technique, and fluoroscopy for x- ray needle guidance, and the use of ice post RFA.

• Epidural injections:

- The most common side effect is pain at the site of injection, infection, bleeding or nerve injury.
- Steroids may cause irritability, headache, flushing.
- There is also a risk that the procedure may not improve pain, occasionally may cause more pain (if there is little space surrounding the nerve), and transient weakness.
- These complications are minimized by stopping blood thinners, using sterile technique, and fluoroscopy for x- ray needle guidance.



IMPORTANT CONTACT INFORMATION



EMAIL: ACHHATR1@JHMI.EDU

CLINIC LOCATIONS

