How Do I Do Suprascapular & Intrabursal Blocks

Nerve blocks, once within the sole domain of our specialty, but now provided by numerous practitioners, are a common therapy utilized in the contemporary management of patients with acute and chronic pain. They are most effectively used within the framework of a comprehensive program of treatment modalities because the nerve block may relieve the pain but will not affect the psychosocial consequences of pain. Local anesthetics can provide prompt, but often only, temporary relief of pain. A number of adjunctive medications are now used to 'extend' the duration of benefit.

The advantages of such interventional therapy include not only (the expected) reduction in pain, but also less reliance on analgesic medications, increased cooperation (by the motivated patient) with the physical rehabilitation program, improved functional ability, enhanced quality of life, and less need to consider surgical approaches. Careful selection of patients for nerve block therapy will foster favorable outcome data. In general, the benefits of nerve block therapy are greater than the possible side effects which generically include neuritis, creation of a neuropathic pain focus, drug reactions and toxicity, lack of effect contributing to disappointment and frustation in the patient, or (perhaps a more problematic issue in patients with embedded chronic pain), perceived complications.

Shoulder pain is a common and disabling complaint of patients, and we have valuable therapy to apply in their care. While acute shoulder pain has not often been observed by anesthesiologists, the advent of acute pain services and the attendant follow-up of patients in the days immediately after surgery has revealed a number of patients with new onset pain after procedures performed with the patient in an awkward position. The acute, dull, aching pain results in decreased range of motion (ROM) and discomfort.

More commonly, patients are referred to pain centers with more chronic complaints of shoulder pain, stiffness and decreased ROM, and some degree of frozen shoulder/adhesive capsulitis. Acute bursitis (subacromial, subdeltoid)results in pain complaints around the shoulder or the cap of the upper lateral arm with the patient saying they can't find a comfortable position in which to hold the shoulder. Pain is increased with shoulder movement. If chronic, there may be calcium deposits found on x-ray in the bursae. If bicipital tendinitis is present, pain is localized to the antero-lateral shoulder in the region of the bicipital groove, increased with flexion of the arm, and may radiate down the arm. Additional diagnoses to consider include acromioclavicular joint arthritis and rotator cuff tendinopathy.

SUPRASCAPULAR BLOCK

Indications: In ACUTE pain circumstances of shoulder pain after positioning for a surgical procedure (i.e., post-thoracotomy, post-nephrectomy), for relief of postoperative pain (i.e., post-arthroscopy), and following shoulder dislocation.

In CHRONIC pain patients with adhesive capsulitis/frozen shoulder or chronic shoulder pain from arthritis or other degenerative conditions.

Contraindications: Infection at the needle insertion site, patient refusal, and perhaps the patient who is fully anticoagulated (since the needle will pass through muscle tissue)

Anatomic considerations: The suprascapular nerve is a derivative of C 5-6 roots of the brachial plexus. It comes off the plexus above the clavicle, courses through the posterior triangle of the neck under the border of the trapezius muscle. It runs through the supra-scapular notch and under the transverse scapular ligament.

It provides motor branches to the supraspinatus muscle (a primary abductor of the shoulder) while running laterally along the supraspinatus fossa to wrap around the lateral margin of the scapular spine and descend in the infraspinatus fossa. It provides motor branches to the infraspinatus muscle (a primary external rotator of the shoulder), as well as sensory branches to the posterior and superior portions of the shoulder joint capsule, the acromioclavicular joint, and the tendinous portion of the rotator cuff

Technique: The patient assumes a seated position with their arms in their lap. The medial and acromial borders of the scapular spine are palpated and the midpoint along a line connecting them is marked. One cm above this midpoint mark will be the point of needle insertion. The skin area is prepped and draped in routine fashion. 1% plain xylocaine is used to create a skin wheal and infiltrate along the proposed path of needle placement. An 8cm, 22 gauge needle has a marker threaded up its shaft. The needle with the stylet in place is directed through the skin wheal, in a plane that is perpendicular to the skin. It is advanced through the supraspinatus muscle to the back of the scapula. This defines the depth of the bone. The marker on the needle shaft is moved up the shaft 1.5cm. The needle is withdrawn to the subcutaneous level and re-directed 15 degrees laterally and 15 degrees cephalad, and inserted to the depth of the marker. The needle tip is now in the vicinity of the suprascapular notch.

After aspiration is negative for blood (there are vessels running with the nerves), 7-10 mL of 0.25% bupivacaine are injected. There is very little/no cutaneous anesthesia consequences of this block, so decreased pain (from analgesia of the shoulder joint capsule) and improved ROM (from decreased muscle spasm of the supra- and infra-spinatus muscles) are signs of success. (figure 1)

Complications: Infection, bleeding, and pain at the injection site (you ARE going through skin, muscle, and bone, at least twice, depending upon how satisfied you are with your needle placement) are possible. If you go over the top of the scapula or through the notch, you can inject drug into the brachial plexus or the vessels associated with it, or create a pneumothorax.

INTRABURSAL BLOCK

Indications: ACUTE bursitis presents as new onset anterior-lateral shoulder pain. The subacromial and subdeltoid bursae are contiguous structures, so it is not necessary to define which bursa is causing more trouble. The pain can be moderate to severe and markedly limits ROM. This arises after many kinds of trauma, including abnormal positioning and repetitive motion activities.

CHRONIC complaints of shoulder pain will likely include chronic bursitis as well as some degree of bicipital tendinitis. An intrabursal block is combined with the suprascapular block when the patient is going to their first physical therapy session to maximize the benefit of the therapy.

Contraindications: Infection at the skin site of needle insertion, patient refusal, and previous injection of steroids within the biceps tendon in the last six to twelve months (yes, this IS an arbitrary statement)

Anatomic considerations: The bicipital groove serves as a notable landmark through which access to the subacromial (and subdeltoid) bursae can be gained. The bursae serve as cushions between the muscles inserting or orginating from the nearby bones. When the bursae distend, as with inflammation, pain with motion becomes manifested.

Technique: The patient sits comfortably with their arms flexed and across their lap. To accentuate identifying the icipital groove, the ipsilateral hand is supinated to externally rotate the shoulder. The skin in the area is prepped and draped in routine fashion. A skin wheal is created with 1% plain xylocaine at the level of the bicipital groove. The acromion and the joint space below it are defined. An 8cm, 22 gauge needle (or a 25 ga needle in smaller patients, but beware of the great possibility of deflection of the needle given its small gauge and the density of the tissues being approached) is advanced through the wheal (at approximately a 45 degree angle to the skin) to contact the bottom of the acromion. The needle is withdrawn to a near-subcutaneous level, and the angle of approach lessened so the needle will slide into the bursa below the acromion (usually about 1.5cm farther than when bone was contacted) (figure 2). The stylet is removed and placed over the skin (parallel to the needle) to demonstrate the location of the tip (hopefully under the acromion).

A syringe containing 2mL 0.25 % bupivacaine and 40mg (1mL)-80mg (2mL) methylprednisolone is attached and 75% of the solution volume injected. The needle is withdrawn at least 50% of its depth and the remainder of the solution injected to treat the bicipital tendinitis.

Complications: Infection, bleeding, and pain at the injection site are possible. The patient should be cautioned that the local anesthetic effect might dissipate before the steroid action is present so recurrent pain may be an issue in the first 24 hours after injection. Repeated injections of steroids into the biceps tendon can lead to rupture, thus the cautionary comments about knowing how many previous injections the patient has received.

NEAT THINGS TO (ALSO) KNOW ABOUT THESE BLOCKS

Suprascapular:

1) if the patient places the ipsilateral hand on the opposite shoulder, the scapula is moved away from the chest wall and the likelihood of pneumothorax decreased
2) with patients in the sitting position, and with the potential pain from needle passage through skin and muscle to bone, vagal reactions are not uncommon. So, have your resuscitation equipment/drugs handy.
3) deposteroids are injected if there is clinical evidence that the suprascapular nerve is entrapped by the transverse scapular ligament. This is manifested by atrophy of the supraspinatus muscle, noticed upon inspection of the back and comparing one side to the other.
4) this block can be repeated every day for a week, before the patient goes to PT. However, there are reports of myo-necrosis with repeated injections with high concentration of local anesthetics
5) coordinate the patient receiving block therapy with the PT appointments. This way, you get a third party observer's input about the patient's progress AND you can more accurately assess how much of the patient's problem is reversible with PT (as opposed to their needing manipulation under anesthesia to restore ROM).
6) the patient can use walk-the-fingers-up-the-wall therapy at home to supplement the formal PT. The patient must stand perpendicular to the wall to gain true abduction of the arm.

Intrabursal:

1) expanding a painful bursa with the injectate will cause more discomfort. Warn the patient that they may have pain the night of the injection, as the depo-steroid may take 24-36 hours to create benefit.
2) the anterior portion of the deltoid muscle may cover the bicipital groove, so it may be hard to delineate bicipital tendinitis from muscle pain
3) biceps tendon rupture is a possibility if too many steroid injections are given through the tendon. Set a limit on how many you will do.

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Complete Bibliogrphy is on www.asra.com