Diagnostic & Therapeutic Nerve Blocks

1. What is a Nerve Block?

A Nerve Block is a procedure performed by an anesthesiologist or other qualified physician to anesthetize or numb a particular nerve in the body, either as part of a surgical anesthetic or to treat certain forms of acute (postoperative) or chronic pain. A Nerve Block involves the injection of a local anesthetic like Lidocaine or Bupivicaine onto a target nerve or group of nerves. An example of a nerve block used for surgical anesthesia is the ***Brachial Plexus Nerve Block,*** performed in the armpit to numb the arm or hand for operations on the upper extremity. An example of a therapeutic nerve block used to treat chronic pain is the ***Stellate Ganglion Block,*** performed in the front of the neck to treat Complex Regional Pain Syndrome (CRPS or RSD). The local anesthetic works by interrupting conduction of electrical impulses along the target nerve for a limited period of time. The duration of the numbing effect varies with the local anesthetic used. Lidocaine usually lasts for one hour, and Bupivicaine lasts for 3-4 hours. When the local anesthetic effect wears off, nerve conduction and function to the numbed area resumes normally.

2. What is a Diagnostic Nerve Block?

A Diagnostic Nerve Block involves numbing a specific nerve or group of nerves that may be involved in carrying a patient's pain. The physician performing the nerve block is assumed to be an expert in anatomy so that he/she knows the location of various pain-carrying nerves. An anesthesiologist is most often involved in this type of procedure, but other specialists may be qualified as well. A local anesthetic is injected in very small amounts onto target nerves, and the patient is then assessed for any change in pain symptoms. If a particular pain-carrying nerve or group of nerves is/are numbed and a patient notes significant improvement in pain symptoms, the location of the pain generator is likely confirmed. If a patient notes no change or limited change in pain symptoms following a diagnostic nerve block, the treating physician may conclude that a patient's pain is originating from a different area.

3. Why is a Diagnostic Nerve Block used in the treatment of chronic pain?

One of the most important aspects to the treatment of chronic pain is the identification of the underlying cause of pain or the **PAIN GENERATOR**. For many forms of chronic pain, especially neck and back pain, there can be significant overlap or similarity in the pain symptoms produced by multiple pain generators. For example, low back pain can originate from at least six different sources, including the intervertebral disc, facet joint, sacroiliac joint, vertebral body, interspinous ligaments, and the paraspinal muscles. The treatment for each of these problems can be quite different, so it is very important to identify the pain generator. A Diagnostic Nerve Block is used to confirm the location of the pain generator(s) and the nerve(s) carrying pain impulses from these painful structures. Once identified, the pain generator can be treated with a variety of interventional treatments including repeated nerve blocks, ***Radiofrequency Lesioning***, or ***Cryotherapy***.

4. What is the Medial Branch Nerve?

The Medial Branch Nerves are small nerves that supply sensory innervation to the ***Facet Joint*** in the spine, from the base of the skull down to the sacrum. If a facet joint in the neck or back becomes painful due to injury, wear and tear, or arthritis then the medial branch nerves will carry that pain information from the pain source to the brain. For patients with chronic neck or back pain who have limited or short term pain relief with

medication and physical therapy or after cortisone injection directly into the facet joints, a diagnostic nerve block to the Medial Branch Nerves in the area of the pain will tell the physician if the patient has painful facet joints and if he/she is a candidate for **Medial Branch Neurotomy** – a ***Radiofrequency Lesioning*** procedure that very specifically targets and destroys the sensory nerve supply to painful facet joints. Selective destruction of well selected Medial Branch Nerves can result in pain relief for several months or longer.

5. How is a Diagnostic Nerve Block performed?

The technique will depend on the target nerve. For superficial nerves that are located outside of the spine, the doctor may simply palpate or feel the area to locate the nerve. For other nerves, including those in or around the spine (eg. Medial Branch Nerve), fluoroscopy or live video X-ray will be employed to locate the target nerve. A peripheral nerve stimulator may also be used to find certain nerves. In using a nerve stimulator, the physician will place a small needle next to a particular nerve, pass a small amount of electrical current through the tip of the needle at two different frequencies, and reproduce a patient's typical pain symptoms to find the nerve. A patient is generally **not sedated** for a diagnostic nerve block procedure because he/she must be able to provide reliable information regarding any change in pain symptoms immediately after the procedure. Although a diagnostic nerve block sounds like it might be painful, this technique is very well tolerated by adult patients of all ages.

6. What should I do to prepare for my procedure?

You should not eat or drink anything at all for at least four (4) hours before your scheduled procedure. **You must have a responsible adult available to drive you home.** If possible, you should shower and use an antibacterial soap like Lever 2000 before your procedure. If you usually take medication for high blood pressure or any kind of heart condition, it is very important that you take this medication at the usual time with a small sip of water before your procedure.

If you are taking any type of medication that can thin the blood and cause excessive bleeding, you should inform Dr. Siegel and discuss with your other doctors (PCP, Cardiologist) whether to discontinue this medication prior to the procedure. Examples of medications that could promote surgical bleeding include Coumadin, Plavix, Aggrenox, Pletal, Ticlid, and Lovenox. Anticoagulant meds are usually prescribed to protect a patient against stroke, heart attack, or other vascular occlusion event. Therefore, the decision to discontinue one of these medications is not made by the pain management physician but by the primary care or specialty physician (cardiologist) who prescribes and manages that medication.

7. Could there be side effects or complications?

Modern medicine has improved safety with every aspect of patient care, but there is no guarantee of a perfect outcome with any test or procedure. Fortunately the side effects and complication profile for a Diagnostic Nerve Block is very low. There may be some temporary discomfort in the area of injection, but this will improve within a few days or sooner. The doctor will discuss this issue with you before the procedure.

8. What should I do after a Diagnostic Nerve Block procedure?

Immediately after this procedure, the office or recovery room staff will question you to determine if there has been a change in your pain symptoms. You will be asked to stand, walk, bend, twist, and perform other activities that will provoke your typical pain symptoms. You will also be asked to provide a numerical (0 to 10) pain score every few

minutes until you are discharged home. The information that you provide regarding the presence or absence of pain as well as its location will be used to formulate a treatment plan. You will also be given a form so that you can continue to record your pain score at home every hour for the next four hours after arrival home. Following discharge home, apply ice to the injection sites for the next few hours. You should be able to return to work or your usual daily routine the next day.