What is going to be done and why?

You have been scheduled for a procedure called a “diagnostic stellate ganglion block”. The term “diagnostic” is used because this is a procedure to try to find out the exact diagnosis (the cause and reason) of your arm and/or hand pain.

As discussed in an earlier handout on chronic regional pain syndrome (CRPS), sometimes CRPS has a component of the pain that is “sympathetically maintained”. Today, we are going to try to answer the following question “is there evidence that your chronic pain is sympathetically maintained?”

You already know that the nervous system can be thought of as a very complex network of roads with a particular “map” or layout. The somatic and autonomic divisions of the nervous system differ a little bit in how these roads and connections are laid out. When an autonomic nervous system nerve leaves the spinal cord, it makes its first connection fairly soon after leaving. This connection is made in a structure called a “ganglion” which is basically a big “call center” where a first nerve is communicating with a second nerve. (see diagram below)
Diagnostic Stellate Ganglion Block: Summary and Discharge Instructions

We will be using a X-ray machine to guide a needle until it is near a particular sympathetic ganglion called the “stellate ganglion”. It is named this because it is shaped like a star, and it is the place where all the sympathetic nerves on their way out to all the parts of the upper extremity (shoulder, upper arm, lower arm, and hand) make a first connection. It is here that we will block or shut down the network carrying messages along the sympathetic nervous system. It will remain blocked for somewhere between 4-6 hours and we will observe what happens to your pain.

Diagnostic blocks have to be done very carefully so we are only blocking the ganglion we want and not other places that will just end up confusing us. The X-ray machine guides us to the exact place and makes it less likely we will get confusing information. We cannot actually “see” the stellate ganglion on the X-ray, but we can see the bones and we know precisely where on the bones the stellate ganglion will be. A dye study will also help show us precisely where the medicine is likely to go, so if you have an allergy to contrast dye it is important that you alert us.

We will be using a very thin needle similar in appearance to an acupuncture needle. The surface of the skin and the areas underneath will be frozen with numbing medicine, and then the needle will be guided to the correct place. Typically, the procedure hurts much less than patients are anticipating, and it will take roughly 10 minutes to complete.

What should I do after my diagnostic injection?

Since this injection is a “test block”, it is important that you tell us exactly what happens after it. We will give you a pain diary to fill out, but it is important to remember that pain is NOT just a number. The best way for us to get a sense of your pain is by you telling us how you feel when you DO things. We block the nerves with “freezing” drugs like the ones a dentist uses, and often the nerves will be shut off only for 4-6 hours. This is when you should be testing out the block.

Do whatever activities reliably trigger your pain. If you cannot comfortably use your hand to do particular things, do them. If your arm is typically sensitive to being touched, touch it. If putting on your shirt sleeve or placing your hand into a glove is usually painful, do that. Also, tell us about any other changes such as whether the arm felt warmer or colder after the block and whether it was more or less swollen, for example.

The more information about how you felt after the test block the better. Be very specific. Tell us what used to happen when you did these things, and how it was different this time. If certain parts of your arm felt much better, but other areas continued to hurt, tell us that. And, if it didn’t help at all, tell us that as well. Remember, regardless of whether the test block helps or not, it will give us more information about what your problem might be.
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Then, write the information down so we can discuss it later, and do it right away while you still can really remember exactly how you felt. If you want, you can write your notes on the back of your pain diary. Then send an email with this information to Dr. Smith the next day. The email address is “drsmithfeedback@gmail.com”.

We will also give you a follow-up appointment in a few weeks, and when you come, please bring your notes and tell us what happened. We will discuss what our next steps will be in treating your pain.

What problems might occur after my treatment?

The most common problem is soreness at the needle site. When we do a procedure like this, we have to insert a needle through skin, fat, and muscle, and we will brush against bone. All of this can cause inflammation, and inflammation leads to bruising, swelling, and pain. This procedure only involves one needle and so typically the soreness will be minimal. You should continue all of your other medications as usual unless they are only taken on an “as needed basis” and your pain is better and you just don’t need them.

If your test block works dramatically, it is likely that several hours later all of your regular pain will come back. If you’re at KOPI, you’ve probably been dealing with constant pain for many years and this might be the first time in a long time that you’ve felt good. But, that also means that when the pain comes back it will be the first time it all comes back at once, so we want to make sure you know this may very well happen.

We try to make our diagnostic blocks as accurate as possible, but it is not possible to always prevent the numbing medicine from spreading to other areas and other nerves. Some of the possible side effects of this block have to do with the spreading of medicine to other areas including:

1. Other nearby sympathetic nervous system ganglia going to the face. If these are effected, you will likely notice a “blood shot” eye, a drooping eye lid, or a temperature change and/or a change in the amount of sweating on one side of your face. All changes will be seen on the same side as your procedure.

2. A nearby nerve, the superior laryngeal nerve, on its way to your voice box. This may result in hoarseness or a change in your voice lasting 4-6 hours.

3. The phrenic nerve, a nerve running down into the chest which goes to the diaphragm, the muscle that helps move air in and out of your lungs. If the phrenic nerve is effected, you may notice a change in your breathing. Usually, there will be no symptoms if you are not doing anything strenuous. But if you walk quickly, try to go up several flights of stairs, or take some very deep breaths, you may feel a bit short of breath or as if you cannot “catch your breath”. This is normal and it will go away in 4-6 hours.
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4. All of the somatic nerves going to the arm are nearby as well. If these are partially effected, your arm may feel partially numb or a bit weak for 4-6 hours.

5. Some of the somatic nerves on their way up to the lower face and jaw are also nearby, so you may develop some numbness in these areas.

What will happen next?

We will see you to follow-up on your test block results in several weeks. We will give you this appointment before we discharge you after this procedure. Make sure to come to your appointment because this is when we will discuss the results with you and the treatments that may follow. Our goal will be to find a combination of interventional pain procedures, medications, physiotherapy, massage therapy, and psychological support which will get you back to feeling and living better.

As always, the doctors and staff at KOPI appreciate that you have trusted us with your body and we will do everything possible to make your procedure as smooth and anxiety free as possible. We want to help!

Thank you,

Dr. Greg Murphy
Dr. David Smith
Dr. John Cain
Dr. Joe Quigg
Dr. George Kolbe
and the rest of the KOPI Pain Team