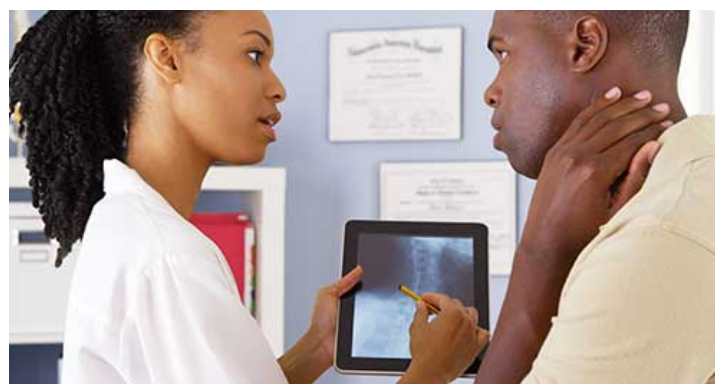




Nerve Blocks

A nerve block is an injection to decrease inflammation or "turn off" a pain signal along a specific distribution of nerve. Imaging guidance may be used to place the needle in the right location for maximum benefit. A nerve block may allow a damaged nerve time to heal, provide temporary pain relief and help identify a more specific cause of pain.



This procedure requires little to no special preparation. Tell your doctor if there's a possibility you are pregnant. Wear loose, comfortable clothing and leave jewelry at home. You may be asked to wear a gown.

What is a Nerve Block?

A nerve block is an anesthetic or anti-inflammatory injection targeted toward a certain nerve or group of nerves to treat pain. The purpose of the injection is to "turn off" a pain signal coming from a specific location in the body or to decrease inflammation in that area.

Imaging guidance, such as fluoroscopy or computed tomography (CT or "CAT" scan), may be used to help the doctor place the needle in exactly the right location so that the patient can receive maximum benefit from the injection.

What are some common uses of the procedure?

People who suffer from either acute or chronic pain might have a nerve block injection to achieve temporary pain relief. Often, such pain originates from the spine, but other areas commonly affected include the neck, buttocks, legs and arms. Delivering a nerve block injection allows a damaged nerve time to heal itself from a state of constant irritation. Additionally, nerve blocks can provide diagnostic information to the doctor. By performing a nerve block and then monitoring how the patient responds to the injection, the doctor can often use this information to help determine the cause or source of the pain as well as guide further treatment.

How should I prepare for the procedure?

Usually, no special preparation is required prior to arrival for a nerve block procedure.

You may be asked to wear a gown during the procedure.

You will probably be asked to use the restroom before the procedure.

You will then be positioned on your stomach, back or side on a special fluoroscopic or CT table that will give the doctor easiest access to the injection site(s). The nurse will help to make you as comfortable as possible, both during and after the procedure.

What does the equipment look like?

A small needle will be inserted through the skin and directed towards the injection site. A small amount of contrast material may be used to confirm needle placement in the appropriate location. The injection itself will be administered with a syringe much like one that would be used for a routine vaccination. The doctor will fill the syringe from a small vial of medication. The type of medication used depends on individual patient needs.

The imaging guidance used, such as fluoroscopy or CT, will require additional equipment around the table. Both types of imaging are painless and involve the use of x-rays to obtain essential images that allow the physician to place the needle in exactly the right location for the injection.

The equipment typically used for this examination consists of a radiographic table, one or two x-ray tubes and a television-like monitor that is located in the examining room. Fluoroscopy, which converts x-rays into video images, is used to watch and guide progress of the procedure. The video is produced by the x-ray machine and a detector that is suspended over a table on which the patient lies.

The CT scanner is typically a large, box-like machine with a hole, or short tunnel, in the center. You will lie on a narrow examination table that slides into and out of this tunnel. Rotating around you, the x-ray tube and electronic x-ray detectors are located opposite each other in a ring, called a gantry. The computer workstation that processes the imaging information is located in a separate control room, where the technologist operates the scanner and monitors your examination in direct visual contact and usually with the ability to hear and talk to you with the use of a speaker and microphone.

How does the procedure work?

The medication delivered by the injection will be placed as close to the nerve causing the pain as possible. It will then "shut down" the pain receptors within the nerve(s) causing the problem. Imaging can help the doctor place the needle in exactly the right spot. The imaging itself is painless.

The effects of the injection are usually immediate. It only takes a short time for the medication to achieve pain relief. However, nerve blocks are only a temporary fix—they typically last for up to one or two

weeks and then wear off as they are absorbed by your body. Some patients undergo several rounds of nerve blocks before they feel a more permanent sense of relief. Others may not receive any permanent pain relief from this type of injection and may require different treatment methods to manage the pain or inflammation.

How is the procedure performed?

This procedure is often done on an outpatient basis. However, some patients may require admission following the procedure. Please consult with your physician as to whether or not you will be admitted.

Nerve blocks usually take only minutes to administer.

You will be positioned on a table or other surface to allow the doctor access to the site(s) to be injected. The doctor will then identify the spot the needle needs to be placed, using palpation and/or imaging guidance. He or she will clean the area with antiseptic solution, and then the needle will be inserted at a specific depth to deliver the medication as close to the problematic nerve(s) as possible. Contrast material may be injected to confirm needle position prior to injection of medicine.

More than one injection may be required, depending on how many areas of pain you have or how large an area needs to be covered. The doctor will most likely tell you when he or she inserts the needle and when the injection is done.

When finished, you will be allowed to rest for 15 to 30 minutes to let the medication take effect. The nurse will also make sure you don't have any unexpected side effects before you leave the doctor's office.

What will I experience during the procedure?

You will probably feel a "pinch" when the needle is inserted. As soon as the medication is delivered, though, you should feel less discomfort. Sometimes the needle has to be inserted fairly deep to reach the nerve causing your problem. This can be temporarily uncomfortable, but it is important to hold still so that the needle is inserted correctly.

If you require an injection close to a major nerve or bundle of nerves, such as the sciatic nerve, your doctor will tell you to speak up if you get a sudden jolt of pain. This means that the needle has come too close to the major nerve and will need to be retracted and re-positioned. This happens rarely, however, so it should not be a major concern.

After the injection, you will probably experience a sensation of pain relief in the area injected. This will typically last up to one or two weeks, or even permanently in some cases.

Who interprets the results and how do I get them?

A radiologist or anesthesiologist will most likely perform the nerve block injection.

The doctor who delivers the injections will follow up with you to see how you are doing and determine if further action is required. Any imaging that is performed during the procedure itself will conclude with the procedure, and no follow-up image interpretation is necessary.

What are the benefits vs. risks?

Benefits

- Temporary pain relief
- Temporary reduction of inflammation in the region of the spine causing pain
- May help the doctor identify a more specific cause of pain
- Better ability to function in daily life without the restrictions previously caused by pain

Risks

- Infection at the injection site
- Bleeding
- Accidental delivery of medication into the blood stream
- Unexpected spread of medication to other nerves
- Hitting the "wrong" nerve in an attempt to block the targeted nerve, if the nerves are close together
- When fluoroscopy or CT is used, there will be minimal low-level radiation. See the Safety page for more information about radiation dose.

Women should always inform their physician and x-ray technologist if there is any possibility that they are pregnant. Many imaging tests are not performed during pregnancy so as not to expose the fetus to radiation. If an x-ray is necessary, precautions will be taken to minimize radiation exposure to the baby. See the Safety page for more information about pregnancy and x-rays.

What are the limitations of Nerve Block?

Typically, the effects of a nerve block injection are temporary and offer little to no long-term relief. Each individual is different; however, nerve block injections are often delivered in a series and then discontinued, depending on the results they achieve. A patient may feel benefits after a round of injections, or none at all. Delivery of the medication to the correct spot can fail, thereby rendering the injection ineffective. If the nerve blocks don't help alleviate your pain, however, your doctor will most likely recommend a different treatment approach.

Disclaimer

This information is copied from the RadiologyInfo Web site (<http://www.radiologyinfo.org>) which is dedicated to providing the highest quality information. To ensure that, each section is reviewed by a physician with expertise in the area presented. All information contained in the Web site is further reviewed by an ACR (American College of Radiology) - RSNA (Radiological Society of North America) committee, comprising physicians with expertise in

several radiologic areas.

However, it is not possible to assure that this Web site contains complete, up-to-date information on any particular subject. Therefore, ACR and RSNA make no representations or warranties about the suitability of this information for use for any particular purpose. All information is provided "as is" without express or implied warranty.

Please visit the RadiologyInfo Web site at <http://www.radiologyinfo.org> to view or download the latest information.

Note: Images may be shown for illustrative purposes. Do not attempt to draw conclusions or make diagnoses by comparing these images to other medical images, particularly your own. Only qualified physicians should interpret images; the radiologist is the physician expert trained in medical imaging.

Copyright

This material is copyrighted by either the Radiological Society of North America (RSNA), 820 Jorie Boulevard, Oak Brook, IL 60523-2251 or the American College of Radiology (ACR), 1891 Preston White Drive, Reston, VA 20191-4397. Commercial reproduction or multiple distribution by any traditional or electronically based reproduction/publication method is prohibited.

Copyright © 2017 Radiological Society of North America, Inc.