

Nerve Blocks

This procedure is reviewed by a physician with expertise in the area presented and is further reviewed by committees from the American College of Radiology (ACR) and the Radiological Society of North America (RSNA), comprising physicians with expertise in several radiologic areas.

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.

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 or side on a special fluoroscopic or CT table that will give the doctor easy 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?

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, an x-ray tube and a television-like monitor that is located in the examining room or in a nearby room. When used for viewing images in real time (called fluoroscopy), the image intensifier (which converts x-rays into a video image) is suspended over a table on which the patient lies. When used for taking still pictures, a drawer under the table holds the x-ray film or image recording plate that captures the images.

The CT scanner is typically a large machine with a hole, or tunnel, in the center. You will lie on a table which slides into and out of this tunnel. The x-ray tube and electronic x-ray detectors rotate around you. They are opposite each other in a ring, called a gantry. The computer workstation that processes the imaging information is located in a separate room.

How does the procedure work?

The medication delivered by the injection will be placed as close to the site of 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.

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.

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 repositioned. 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.
- Women should always inform their physician or x-ray technologist if there is any possibility that they

are pregnant. Many imaging tests are not performed during pregnancy because radiation can be harmful to the fetus. If an x-ray is necessary, precautions will be taken to minimize radiation exposure to the baby.

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.

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