PATIENT & CAREGIVER EDUCATION

About Peripheral Neuropathy

This information describes peripheral neuropathy, including its causes and symptoms.

Peripheral neuropathy (peh-RIH-feh-rul noor-AH-puh-thee) is the term used to describe changes that happen when your peripheral nerves are damaged. Peripheral nerves are all the nerves outside of your brain and spinal cord. They send messages from your brain and spinal cord to the rest of your body.

There are 3 types of peripheral nerves:

- **Sensory nerves** that help you feel pain, touch, temperature, and vibration. They also help with position sense. Position sense is how you know where your body parts are and how they're moving, even when you can't see them.
- **Motor nerves** that help you move and keep your muscle tone.
- **Autonomic nerves** that control things that happen naturally, such as how fast your heart beats and how

much you sweat.

Causes of peripheral neuropathy

The most common cause of peripheral neuropathy is diabetes (also called diabetic neuropathy). Other causes of peripheral neuropathy are:

- Certain types of chemotherapy. To learn more, read the "Chemotherapy agents" section.
- Some medicines that treat certain conditions, such as anticonvulsants (phenytoin), heart or blood pressure medicines (amiodarone), and antibiotics (metronidazole).
    - The Foundation for Peripheral Neuropathy® has a full list of medicines that may cause peripheral neuropathy. Visit www.foundationforpn.org/causes/drug-induced-pn to learn more.
- Certain types of immunotherapy (IH-myoo-noh-THAYR-uh-pee). Immunotherapy is a form of cancer treatment that uses your immune system to attack cancer cells.
- Certain autoimmune diseases, such as multiple sclerosis, Guillain-Barré syndrome or chronic inflammatory demyelinating polyneuropathy (CIDP). An autoimmune

disease is when your body attacks its own healthy tissues and organs.

- Physical injury, such as:
  - Trauma from an injury or accident
  - A spinal cord injury
  - When something presses on a nerve for a long time
- Hormonal imbalance (when the hormone levels in your body are too high or too low). If you're concerned about this, ask your healthcare provider to check your hormone levels, such as your thyroid stimulating hormone (TSH) level.
- Nutritional imbalance (when your body doesn't get the right amount of food and nutrients it needs to stay healthy). Examples are not having enough vitamin B12 or having too much vitamin B6.
- Certain infections, such as:
  - Lyme disease (if left untreated)
  - Varicella-zoster virus, which causes chickenpox and shingles
  - West Nile virus
  - Cytomegalovirus (SY-toh-MEH-guh-loh-VY-rus)
  - Herpes simplex virus

- Certain types of cancer, such as:
  - Lung cancer
  - Multiple myeloma (a type of blood cancer)
  - Other forms of cancer, such as leukemia-induced neuroleukemiosis
- Alcohol abuse.
- Brain or spinal cord tumors.

If you have any of these possible causes of peripheral neuropathy, talk with your healthcare provider. Tell them what medicines you're taking now and have taken in the past. Include over-the-counter medicines and supplements.

Sometimes, there's no known cause of peripheral neuropathy.

Symptoms of peripheral neuropathy

Many people with peripheral neuropathy have changes in the feeling in their toes, feet, fingers, hands, or face. These changes in feeling may not go past your wrists or ankles.

The symptoms of peripheral neuropathy are different depending on which peripheral nerves are damaged. Sometimes, just 1 type of nerve is damaged. More often, several types are damaged. You may also have a few other

symptoms. Some examples are:

- If your **sensory nerves** are damaged, you may have a feeling of "pins and needles" or "electric shocks." You may also feel coldness, prickling, pinching, or burning in your hands and feet. Some people become very sensitive to touch, while other people feel numbness.
- If your **motor nerves** are damaged, you may have muscle weakness, cramping, and twitching. You may also have loss of balance and coordination (control of your body movements). This makes it hard to walk, drive, or handle small objects (such as holding a pen or buttoning a shirt).
- If your **autonomic nerves** are damaged, your heart may beat faster or slower than usual. You may sweat more or less than you usually do. You may also see changes in your bowel and bladder function (changes in how you're pooping and peeing).

Be sure to talk with your healthcare provider about your symptoms. They can suggest ways to manage them.

Symptoms of peripheral neuropathy can happen quickly or grow slowly over time. They may come and go, or get better or worse, at certain times. Depending on what caused your peripheral neuropathy, your symptoms may get better over time, or they may be lifelong. These

symptoms are not life threatening.

Chemotherapy agents

Some common types of chemotherapy (chemo) drugs can also cause peripheral neuropathy. We've listed some of them here, along with the symptoms they cause.

- Bortezomib (Velcade®), Carfilzomib (Kyprolis®)
  - You may have a feeling of numbness, pain, or burning in your feet or hands.
- Cisplatin, Carboplatin (Paraplatin®), Oxaliplatin (Eloxatin®), and Thalidomide (Thalomid®)
  - You may have trouble with position sense, such as knowing where your hands and feet are, and how they're positioned. If this happens, you could slip out of your shoes if they're not tied. You could slip out of your slippers if they don't come up past the middle of the top of your foot (your instep).
  - When you walk, you may not be able to feel the floor under your feet. You may feel like your bare feet have socks on them or like you're walking on broken glass.
- Paclitaxel (Taxol®), Docetaxel (Taxotere®), and Nab-paclitaxel (Abraxane®)
  - You may have trouble feeling the shape of an object in your hand or picking up small objects.

- Vincristine (Vincasar PFS®), Vinblastine (Alkaban-AQ®), and Paclitaxel
    - You may have trouble telling the difference between hot and cold temperatures.

With all these medicines, you may also have problems doing things that need muscle strength and coordination. For example, you may have trouble lifting your foot from the gas pedal to the brake pedal while driving. Some people also feel muscle cramps, heaviness, swelling that isn't there, or weakness in their arms or legs.

There's no way to prevent these symptoms from happening while you're getting chemo. If your symptoms get worse, your healthcare provider may stop your treatment or decrease your dose of chemo.

Some of these symptoms may get better over the first 6 to 18 months following your treatment.

Managing peripheral neuropathy

At this time, there's no known cure for peripheral neuropathy. There are ways to manage symptoms and stay safe while you have peripheral neuropathy. Read *Managing Peripheral Neuropathy* (www.mskcc.org/pe/managing_peripheral_neuropathy) to learn more.

Resources

The Foundation for Peripheral Neuropathy®

www.foundationforpn.org

This organization can give you general information about peripheral neuropathy. They also have support groups. Call 847-883-9942 or email info@tffpn.org to learn more.

If you have questions or concerns, contact your healthcare provider. A member of your care team will answer Monday through Friday from 9 a.m. to 5 p.m. Outside those hours, you can leave a message or talk with another MSK provider. There is always a doctor or nurse on call. If you're not sure how to reach your healthcare provider, call 212-639-2000.

For more resources, visit www.mskcc.org/pe to search our virtual library.

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