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CHEMOTHERAPY- INDUCED PERIPHERAL NEUROPATHY

Information Guide



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Table of contents

Peripheral neuropathy	3
Symptoms	3
Other possible causes	4
Onset of peripheral neuropathy	5
Chemotherapy medications more likely to cause neuropathy ...	5
Duration.....	6
Can peripheral neuropathy be avoided?	6
Ways to reduce the risks	7
Treatment for neuropathy	8
How to best manage neuropathy?	9
Notes.....	10
References.....	11

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- decrease or loss of reflexes as tested by a physician with a reflex hammer.

Sometimes, these symptoms are temporary and gradually disappear once the chemotherapy is over. In other cases, these symptoms persist for a longer period (several months). Occasionally, certain severe neuropathy symptoms can be permanent. Nerve recovery depends on the structure that is damaged in the nerve by the chemotherapy.

It is important to mention all peripheral neuropathy symptoms caused by chemotherapy to your physician, oncologist or nurse. They will monitor the evolution symptoms and will be able to offer the best intervention strategies.

Other possible causes

Peripheral neuropathy can also be caused by:

- surgery or radiation;
- compression on a nerve (caused by a tumor or metastasis, fracture, swelling);
- cancer itself (e.g.: multiple myeloma);
- diabetes;
- spinal cord injuries;
- neurodegenerative or autoimmune diseases;
- infections that affect nerves (e.g.: Shingles, HIV);
- alcohol abuse;
- low vitamin B levels;
- circulatory system disorders.

It is very important that your health care team determines what is causing the peripheral neuropathy so that the right treatment can be given.

How to best manage neuropathy?

There are several things you can do to better manage the symptoms of peripheral neuropathy or improve your quality of life.

- Tell your oncologist or nurse about any symptoms connected to peripheral neuropathy.
- In consultation with your health team, find the best strategies for managing neuropathic pain.
- Use cane or walker for walking if you are experiencing weakness or loss of balance.
- Stay active, walk, do light exercises daily
- Turn lights on during the evening and at night to improve vision when moving around.
- Clear floors of any object that might cause you to trip (rugs, furniture, animals).
- Wear shoes with good support for feet and ankles.
- Check the state of your feet daily.
- Take your time to do your activities.
- Ask family members for help with difficult tasks.
- Be careful handling objects that are sharp, hot or cold, or other dangerous objects if you are experiencing trouble with your hands.
- Wear gloves when you clean or work in the garden.
- If you are feeling weak or experiencing pain in your hands, use objects with large handles.
- Use a chair or stool in the bathroom or kitchen to do activities sitting down rather than standing up.
- Install support bars in the bathroom to ease the use of toilet or bathtub.
- Install a non-slip mat in the bathtub or shower to avoid slipping.
- Temperature
 - Adjust the water heater to 40-50°C (105-120°F).
 - Use oven mitts or rubber gloves for handling hot dishes and pots or food from the freezer.
 - Use a thermometer for the bath water.
 - Keep hands and feet well covered when it is cold.
- Use assistive devices available during you housekeeping chores.

Treatment for neuropathy

Treatment is usually given to relieve pain that may be experienced. Among some patients, the following medications may be prescribed after consultation with a doctor:

- Duloxetine (Cymbalta®);
- Pregabalin (Lyrica®);
- Gabapentin (Neurontin®);
- Amitryptilline (Elavil®);
- creams to apply: preparations of lidocaine, capsaicin (Zostrix®) or ketamine.

Other possible interventions may be tried to reduce neuropathic pain and its effect on your quality of life. These include:

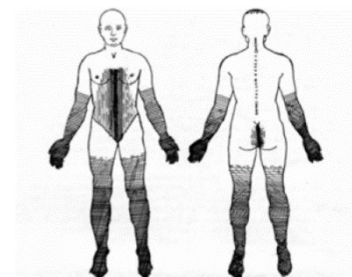
- occupational therapy;
- physiotherapy;
- relaxation;
- mental imagery;
- distraction therapy;
- acupuncture;
- electrical stimulation (e.g.: TENS);
- biofeedback.

Physiotherapy and occupational therapy can help you increase your physical and functional capabilities so you can perform activities more easily in spite of peripheral neuropathy.

Onset of peripheral neuropathy

Chemotherapy infiltrates the entire body and some types of chemotherapy can damage various nerves. In general, symptoms begin at the extremities: in hands and feet. Peripheral neuropathy might start in the toes, then spread to the ankles and legs. Symptoms might also begin in the fingers and progress to the hands and arms.

Peripheral neuropathy usually affects both sides of the body equally. Neuropathy affects sensory nerves more than motor nerves.



Chemotherapy induced peripheral neuropathy can occur at any time following the start of chemotherapy and can sometimes worsen during treatments or even after the chemotherapy has ended.

Chemotherapy medications more likely to cause neuropathy

- Paclitaxel (Taxol®), docetaxel (Taxotere®), cabazitaxel (Jevtana®)
- Cisplatin, oxaliplatin
- Vincristine, vinblastine, vinorelbine
- Bortezomib (Velcade®), carfilzomib (Kyprolis®), ixazomib (Ninlaro®)
- Eribulin (Halaven®)
- Trastuzumab emtasine (Kadcyla®)
- Arsenic trioxide
- Brentuximab vedotin

Duration

Chemotherapy induced peripheral neuropathy may be short-term. It can, however, persist for a long period of time. The duration of symptoms varies depending on the following factors:

- age;
- other medical conditions causing neuropathy (e.g.: diabetes or HIV);
- medications;
- a family history of neuropathy;
- type of chemotherapy;
- the combination of different chemotherapies (including previously administered chemotherapies);
- the chemotherapy dosage;
- frequency of chemotherapy treatments;
- the total amount of chemotherapy received over time.

Can peripheral neuropathy be avoided?

A number of medications are being studied in an attempt to prevent chemotherapy induced peripheral neuropathy.

At present, given the lack of good quality evidence on the subject, there is no recommended medication for effective prevention of neuropathy.

Research on this subject is ongoing.

Ways to reduce the risks

There are a few things your physician could try to reduce the risks of chemotherapy induced peripheral neuropathy.

Depending on the type of treatment chosen to treat the illness, he or she could:

- reduce the dose of chemotherapy causing the neuropathy;
 - for some problems, it is possible to reduce the dose without changing the efficacy of the chemotherapy which allows you to continue your treatment over a longer period of time.
- hold the use of chemotherapy that is causing the neuropathy for a period of time;
 - the chemotherapy can be resumed as the neuropathy symptoms subside.
- lengthen the infusion time for intravenous chemotherapy (e.g.: over 4 hrs instead of 1 hr);
- administer smaller but more frequent doses of chemotherapy (e.g.: a small dose weekly rather than a large dose every three weeks);
- find another means of administering the chemotherapy (e.g.: subcutaneous injection instead of intravenous injection);
- administer another kind of chemotherapy.

It is important to mention any peripheral neuropathy symptoms as soon as possible to your attending physician or nurse. They will also ask you about symptoms during your treatments and monitor them with you if your symptoms worsen and or disrupt your quality of life.

Your team may also change your treatment plan in order to prevent worsening nerve damage and or reduce the risk of it becoming irreversible.