

Non-Hodgkin Lymphoma: Chemotherapy



What is chemotherapy?

Chemotherapy (chemo) uses strong medicines to kill cancer cells. These medicines travel all over your body in your bloodstream. They attack and kill cancer cells, which grow quickly. Some normal cells also grow quickly. Because of this, chemo can also harm those cells. This can cause side effects.

When might chemotherapy be used for non-Hodgkin lymphoma?

Chemo is a main part of treatment for most people with non-Hodgkin lymphoma. It may be used along with other treatments, like radiation or targeted therapy. You'll see a medical oncologist for chemo. This is a healthcare provider who specializes in using medicines to treat cancer.

How is chemotherapy given for non-Hodgkin lymphoma?

You can get chemo in many ways:

- **IV (intravenous).** Chemo is most often put right into your blood as in infusion. This is done through an IV line (intravenous tube or catheter) that's put into a vein in your hand or arm. IV chemo can also be given through an implanted port that's put under the skin of your upper chest. The chemo might go in over a few minutes or for a much longer time. IV chemo is the most common way to get chemo for non-Hodgkin lymphoma.
- **Shot (injection).** You might get chemo as a shot. A needle is used to put it into a muscle or under your skin.
- **By mouth (oral).** You swallow the chemo as pills you take at home.
- **Intrathecal.** If the lymphoma is in your brain or spinal cord, you may need chemo put into your cerebrospinal fluid (CSF). This fluid protects and cushions your brain and spinal cord. A thin needle is put between the bones in your lower back, and chemo is put into the CSF.

How you get chemo and how often you get it depends on which medicines are used. Most people get chemo in an outpatient part of the hospital or at their healthcare provider's office. This means you go home the same day. But depending on which medicines you're getting and your overall health, you may need to be in the hospital for treatment.

You'll likely need to have many IVs put in to get all of your chemo. Because of this, it can be helpful to have a central venous catheter (CVC) put in. This is also called a venous access device (VAD). This device is put in during surgery. It's most often a small drum that sits just under your skin. There's a tube attached to it that goes into a vein near your heart. You may hear it called a port. A needle is put into the drum each time you get chemo. Ports can stay in for a long time. This means you don't need a new IV each time you get treatment. Talk with your healthcare team about the risks and benefits of having a CVC.

You get chemo in cycles over a period of time. This means you get chemo for a set amount of time and then you have a rest period. Each period of treatment and rest is one cycle. You may have several cycles. Having treatment in cycles helps by:

- **Killing more cancer cells.** The medicines can kill more cancer cells over time. Chemo kills cells at certain points when they're dividing and growing. Cycles of chemo can kill more cells because cells aren't all at the same stage of growth at the same time.
- **Giving your body a rest.** Chemo is hard on other cells in your body that divide quickly. This includes blood cells and cells in the lining of your mouth and stomach. It also includes your hair, skin, and nail cells. Damage to these healthy cells causes side effects such as low blood counts, mouth sores, upset stomach (nausea), and hair loss. Between cycles, your body can heal and get a rest from the chemo.

- **Giving your mind a rest.** Getting chemo can be stressful. Taking breaks between cycles can let you get an emotional rest between treatments.

What types of medicines are used to treat non-Hodgkin lymphoma?

You'll most likely get more than one type of chemo medicine. This is called combination chemotherapy. Taking more than 1 type of medicine reduces the risk that the lymphoma will become resistant to chemo. This improves your chance of successful treatment.

Which medicines you get and how often you get them depends on things like:

- The type of lymphoma you have
- How much cancer is in your body (the stage)
- If radiation will be used at the same time
- Your overall health

B-cell lymphoma

These medicines are most often used for B-cell lymphoma. The first four are often combined in a regimen called CHOP:

- Cyclophosphamide
- Doxorubicin (also called hydroxydaunorubicin)
- Vincristine (or oncovin)
- Prednisone or dexamethasone
- Chlorambucil
- Carboplatin
- Cytarabine
- Etoposide
- Methotrexate
- Gemcitabine
- Oxaliplatin

T-cell lymphoma

For T-cell lymphoma, these are the chemo medicines most often used:

- Cyclophosphamide
- Doxorubicin
- Vincristine
- Cytarabine
- Etoposide
- Prednisone or dexamethasone

- Cisplatin
- Ifosfamide
- Gemcitabine
- Oxaliplatin
- Pralatrexate
- Methotrexate

Combination chemotherapy and other medicines

For many types of non-Hodgkin lymphoma, chemo is given along with other medicines called monoclonal antibodies. For instance, one of the most commonly used treatments is called RCHOP. It's the monoclonal antibody rituximab given along with CHOP chemo (the medicines cyclophosphamide, doxorubicin, vincristine, and prednisone).

What are common side effects of chemotherapy?

Chemo side effects depend on many things. These include which medicines you get, the doses, how long you take them, and how your body reacts to them. Side effects also depend on how much cancer is in your body and your overall health.

Most side effects get better or go away over time after treatment ends. But some can last a long time. Or they may not even show up until many years later. Talk with your treatment team about what to expect.

Here are some of the more common chemo side effects:

- Hair loss
- Infections due to low white blood cell counts
- Mouth sores
- Easy bruising or bleeding
- Fatigue because of low red blood cell counts (anemia)
- Loss of appetite
- Nausea and vomiting
- Constipation or diarrhea
- Nerve damage (called peripheral neuropathy), which can cause numbness, tingling, or pain in your hands or feet

You'll have a lot of blood tests done while you're getting chemo. This is so your healthcare provider can check that treatment isn't damaging too many healthy cells.

Many chemo side effects can be treated to keep them from getting worse. There may even be things you can do to help prevent some of them.

Make sure to ask which problems need to be reported to your provider right away. For instance, chemo can make you more at risk for infections. So you should call your healthcare provider if you have any of these symptoms:

- Fever of 100.4°F (38.0°C) or higher, or as instructed by your healthcare provider
- Sore throat

- Shaking chills
- Redness, swelling, and warmth at the site of an injury, IV, or incision
- New cough or shortness of breath
- Burning when you urinate

Chemo for lymphoma can also cause less common but serious side effects such as:

- **Tumor lysis syndrome.** This is caused by the breakdown of large numbers of lymphoma cells. It can affect your kidneys, heart, and nervous system. It's seen most often with the first chemo treatment for big (bulky) or fast-growing lymphomas. If your healthcare provider thinks this might happen, you'll be given fluids and certain medicines to help reduce this risk.
- **Organ damage.** This can include damage to your kidneys, liver, testicles, ovaries, brain, heart, or lungs.
- **Leukemia.** This is a rare but serious late side effect of chemo. It can happen many years after treatment.

Working with your healthcare provider

Discuss any questions or concerns with your healthcare team. It's important to know which medicines you're taking. Write down the names of all your medicines. Ask your healthcare team how they work and what side effects they might cause.

Talk with your healthcare providers about what problems to watch for and when to call them. For instance, chemo can make you more likely to get infections. You may be told to check your temperature and stay away from people who are sick. You may need to call if you have a fever or chills. Make sure you know what number to call if you have problems or questions. Is there a different number to use? Ask how to get help after office hours, including weekends and holidays.

Keep a written record of your treatment plan. Also include your side effects. Write down physical, thinking, and emotional changes. A written list will make it easier for you to remember your questions when you see your healthcare provider. It will also make it easier for you to work with your healthcare team to manage your side effects.

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