

# Primary Bone Cancer: Chemotherapy



## What is chemotherapy?

Chemotherapy (chemo) uses strong medicines to kill cancer cells. The medicines attack and kill cancer cells, which grow quickly. Some normal cells also grow quickly. As a result, chemo can also harm those cells, causing side effects.



## When might chemotherapy be used for primary bone cancer?

Chemo is an important part of treatment for certain types of bone cancers, mostly osteosarcoma and Ewing sarcoma. It's usually not helpful for other types of bone cancer. Whether you need chemo and the type of chemo you need depends mainly on these factors:

- The type of bone cancer you have
- The stage (extent) of the cancer
- The goal of treatment
- Your overall health
- What treatments you have had in the past, if any
- Your personal choices

Your healthcare provider may suggest chemo to treat bone cancer:

- **Before surgery.** In this case, it's called neoadjuvant chemotherapy. It might help shrink the tumor and make it easier to remove.
- **After surgery.** This is called adjuvant chemotherapy. It can help lower the chance that the cancer will come back later.
- **If surgery can't be done.** Chemo might be used if surgery can't be done for some reason, or if the cancer has spread to other parts of the body or come back after treatment.

## How is chemotherapy given for primary bone cancer?

Before treatment starts, you'll meet with a medical oncologist. This healthcare provider specializes in treating cancer with medicines like chemotherapy. You will talk about your treatment choices and what you might expect.

Chemo for bone cancer is usually given through a small, flexible tube (called an IV) that has been put into a vein. Sometimes minor surgery is done to put a thin, soft tube called a central venous catheter into a large vein in your chest. Doing so limits damage to your veins and makes it easier to get chemo. One end of the catheter is put in a vein, while the other end lies just under or outside your skin.

Chemo is often done as an outpatient visit to a hospital, healthcare provider's office, or infusion clinic. You can go home the same day. In some cases, you may need to stay in the hospital during treatment.

You get chemo in cycles over a period of time. That means you may get the medicine 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. Your healthcare provider will discuss your chemotherapy schedule with you.

## What types of medicines are used to treat primary bone cancer?

These are some common chemo medicines used to treat bone cancer:

- Cisplatin
- Cyclophosphamide
- Doxorubicin
- Etoposide
- Ifosfamide
- Methotrexate
- Vincristine

Many times, 2 or 3 of these medicines are used at the same time.

## What are common side effects of chemotherapy?

Side effects of chemotherapy depend on the type and dose of chemo. They vary from person to person. Ask your healthcare provider for details about the side effects linked to the medicines you're getting.

These are some of the most common short-term side effects of chemo for bone cancer:

- Hair loss
- Nausea and vomiting
- Mouth sores
- Diarrhea
- Loss of appetite or changes in the way things taste
- Increased risk of infection from low white blood cell counts
- Bleeding and bruising more easily
- Extreme tiredness (fatigue)

Some other side effects can also be seen with certain medicines. For instance:

- Cisplatin can cause nerve damage (called peripheral neuropathy). That can lead to pain, tingling, and numbness in your hands and feet. Cisplatin can also affect hearing and can damage the kidneys.
- Ifosfamide and cyclophosphamide can damage the bladder, which can cause bloody urine. Your healthcare provider may give you a medicine called mesna to help prevent this side effect. Drinking plenty of fluids can also help.
- Over time, doxorubicin can damage the heart. The risk increases with the total amount given. Your healthcare provider may test your heart function before giving the medicine to make sure it is safe for you.

Tell your treatment team about any side effects you notice. Some side effects can be prevented. Others can be treated to make them better or keep them from getting worse.

## Possible long-term or late side effects

Some chemotherapy medicines can also have long-term side effects. Or there may be side effects that don't show up until many years later. This risk is very important for bone cancer, which often happens in children, teens, or young adults. Some possible long-term problems include:

- **Effects on fertility.** Some chemo medicines can affect a person's ability to have children later in life. Talk to your cancer care team before starting treatment about the risks of infertility, and ask if there are choices for preserving fertility.
- **Second cancers.** Certain types of chemo can increase the risk of second cancers, like leukemia or lymphoma, later in life.
- **Long-term damage to other organs.** Some chemotherapy medicines can cause long-term damage to the heart, kidneys, or other organs.

Because of these risks, if you've been treated for bone cancer, it's very important to see your healthcare provider regularly. You should also keep your follow-up visits to look for any problems.

## Working with your healthcare provider

It's important to know which medicines you're taking. Write down the names of all your chemo medicines. Ask your healthcare team how they work and what side effects they might have.

Talk with your healthcare providers about what signs to watch out for and when you should call them. For instance, chemo can make you more likely to get infections. Make sure you know what number to call with questions or problems. Is there a different number for evenings, holidays, and weekends?

It may be helpful to keep a diary of your side effects. A written list can make it easier for you to remember your questions when you go to your appointments. It will also make it easier for you to work with your healthcare team to make a plan to manage any side effects.

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