

Chronic Myeloid Leukemia (CML): Targeted Therapy



What is targeted therapy?

Targeted therapy is the use of medicines that act on parts of cancer cells that make them different from normal cells. They target proteins that control how cancer cells grow, divide, and spread. They can damage the cancer cells without affecting most normal, healthy cells. These medicines are different from standard chemotherapy medicines. They often have less severe side effects.

Types of targeted therapy for CML

The only type of targeted medicines used to treat chronic myeloid leukemia (CML) are called tyrosine kinase inhibitors (TKIs). TKIs block a protein called tyrosine kinase. This protein is made by an abnormal gene in CML cells. The abnormal tyrosine kinase makes CML cells reproduce uncontrollably.

Some of the TKIs used to treat CML include:

- Imatinib
- Dasatinib
- Nilotinib
- Bosutinib
- Ponatinib
- Asciminib

When is targeted therapy used to treat CML?

TKIs are the first treatment used for CML. These medicines often work well at keeping the CML under control for long periods of time. It's not yet clear if they can cure the leukemia. Your healthcare provider will keep track of your CML with blood tests or other tests during treatment. If one of these medicines doesn't work or stops working over time, the dose might be increased. Or another TKI may be used.

How targeted therapy is done

These medicines are taken as pills or capsules, once or twice a day. Take them exactly as your healthcare team tells you. Taking these medicines as directed gives them the best chance to treat your leukemia. It's likely you'll need to take these pills for a very long time to keep the CML under control.

Tell your healthcare provider about all other medicines you take. This includes over-the-counter medicines and supplements, such as herbs and vitamins. Some medicines and supplements can change the way targeted therapy medicines work. These medicines may also interact with some foods, such as grapefruits and pomegranates. Ask your healthcare team if you need to stay away from certain foods.

During treatment, blood tests will be done. This is to check for a decrease in your white or red blood cells or platelet levels. Blood tests will be done more often at the start of treatment.

Possible side effects of targeted therapy

Side effects of TKIs depend on the medicine used, and may include:

- Bloating or swelling from fluid retention

- Diarrhea
- Itchy skin rashes
- Joint or muscle pain
- Nausea or vomiting
- Severe tiredness (fatigue)
- Belly (abdominal) pain
- Lower blood cell counts, which can increase your risk of infections, bleeding, and bruising

Side effects from these medicines tend to be mild. But, in some cases, they can cause more severe side effects, such as:

- Fluid buildup around the heart or lungs, which can cause trouble breathing
- Changes in heart rhythm
- High blood pressure
- Liver damage

Ponatinib can also cause serious blood clots. This medicine may be used only if none of the other TKIs are working, or if the leukemia cells have a certain gene change (mutation).

Working with your healthcare provider

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

Talk with your healthcare providers about what side effects to watch out for, and when you should report them to your healthcare team. Make sure you know what number to call with problems or questions, even on evenings, holidays, and weekends.

It may be helpful to keep a diary of your side effects. Write down any physical, thinking, and emotional changes. A written list will 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 medical team to make a plan to manage your side effects.

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