

CHRONIC MYELOGENOUS LEUKEMIA TREATMENT UPDATE

Chronic myelogenous leukemia (CML), also known as chronic myeloid leukemia, is a type of blood cancer. CML occurs from genetic changes in a person's bone marrow cells. Human cells contain 46 chromosomes (packets of genetic material). CML results from a mistaken "swap" between two chromosomes (9 and 22) during the division of cells. The swap creates what is known as the Philadelphia (Ph) chromosome. This chromosome causes two genes to become one gene called BCR-ABL, which acts like a switch that can't be turned off, leading to a build up of blood cells in the patient's body. Almost everyone who gets CML has this genetic alteration. It's a change that happens gradually during your lifetime—you do not inherit it from your parents or pass it on to your children.



CML HAS THREE PHASES:

Chronic: The leukemia is slow growing and responds more easily to treatment.

Accelerated: The cancer cells start to grow more quickly.

Blast crisis: The leukemia is fast growing and treatment is needed urgently.

TARGETED DRUGS FOR CML: TYROSINE KINASE INHIBITORS

People coping with CML have seen great progress in managing their diagnosis over the last decade due to a class of drugs called tyrosine kinase inhibitors. These drugs target a substance produced by the BCR-ABL gene, preventing the growth of cancer cells and killing them without harming a person's normal, healthy cells.

The current standard of treatment for someone who is newly diagnosed with CML is to consider a group of therapies. It's important that patients work with their health care team in

choosing therapies that are best for them, and weigh the benefits of different treatment options with potential side effects. To learn about managing side effects of CML treatments, read CancerCare's fact sheet, "Coping With Side Effects of Chronic Myelogenous Leukemia (CML)."

Imatinib (Gleevec) was the first targeted drug for CML approved by the U.S. Food and Drug Administration, revolutionizing the treatment of CML. A daily pill, imatinib is the standard treatment for people newly diagnosed with CML. It's able to put the majority of patients into remission (cancer stops growing) and has an excellent track record. But some patients develop resistance to treatment and need more options.

Dasatinib (Sprycel) and **nilotinib (Tasigna)** are two FDA-approved drugs that, like imatinib, are taken in pill form and treat CML by blocking

the gene that causes cells to grow and divide. These two drugs are used to treat patients whose CML has developed resistance against imatinib or who cannot continue to tolerate imatinib's side effects. Recent data has suggested that these newer drugs may be used as a first choice rather than as a second choice because of the benefits of putting people into remission faster without significant side effects.

Bosutinib (Bosulif) is an option for people who did not respond to imatinib, dasatinib or nilotinib. Patients should speak with their doctor about managing side effects of this drug.

Ponatinib (Iclusig) is being tested for patients who have highly specific mutations (genetic changes) and who have had multiple previous therapies. Patients should speak with their doctor about any side effects of this drug.

Omacetaxine mepesuccinate (Synribo) was developed for patients whose CML has developed resistance to two or more tyrosine kinase inhibitors. It is unique from the other targeted drugs for CML in that it is injected under the skin twice a day. Patients should speak with their doctor about any side effects of this drug.

WHAT IS THE FUTURE OF CML TREATMENT?

As more and more people continue to manage their CML as a chronic illness, researchers are looking for ways to deepen remission and lower the risk of relapse (cancer comes back). None of the advances in CML treatment would be possible without clinical trials. People who take part in these studies receive state-of-the-art care and often gain access to and benefit from new medicines, which are being developed every year.

Your doctor can guide you in making a decision about whether a clinical trial is right for you. Here are a few things you should know:

- Before you take part in a clinical trial, you will be fully informed as to the risks and benefits of the trial.
- No patient receives a placebo (a look-alike containing no active ingredient) unless there is an effective standard treatment available. Most clinical trials are designed to compare a new treatment to a standard treatment to find out whether the new treatment has any added benefit.
- You can stop taking part in a clinical trial at any time for any reason.

CancerCare Can Help

If you or a loved one has been diagnosed with CML, contact CancerCare. We are a national nonprofit organization providing free, professional support services for anyone affected by cancer. Our services include individual counseling, support groups, education, financial help and referrals to other resources. To learn more, call us at **800-813-HOPE (4673)** or visit www.cancercare.org.

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