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Leukemia - Chronic Lymphocytic - CLL - Treatment Options

[1]

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ON THIS PAGE: You will learn about the different ways doctors use to treat people with CLL. To see other pages, use the menu on the side of your screen.

This section outlines treatments that are the standard of care (the best proven treatments available) for this specific type of leukemia. When making treatment plan decisions, patients are also strongly encouraged to consider clinical trials as an option. A clinical trial is a research study to test a new approach to treatment to evaluate whether it is safe, effective, and possibly better than the standard treatment. Clinical trials may test such approaches as a new drug, a new combination of standard treatments, or new doses of current therapies. Your doctor can help you review all treatment options. For more information, see the [Clinical Trials \[3\]](#) and [Latest Research \[4\]](#) sections.

Treatment overview

In cancer care, different types of doctors often work together to create a patient's overall treatment plan that combines different types of treatments. This is called a [multidisciplinary team \[5\]](#).

Treatment options and recommendations depend on several factors, including the type and stage of leukemia, possible side effects, and the patient's preferences, age, and overall health. Your care plan may also include treatment for symptoms and side effects, an important part of cancer care. Because CLL often develops slowly, many people may not need treatment right away, and some may never need treatment at all. Although the current standard treatments can be highly effective, it is uncertain whether any treatment can completely get rid of CLL, and most patients are not cured of the disease with treatment. The goal of treatment is to ease symptoms and produce a long-term remission (see below).

Descriptions of the most common treatment options for CLL are listed below. Take time to learn about all of your treatment options and be sure to ask questions about things that are unclear. Also, talk about the goals of each treatment with your doctor and what you can expect while receiving the treatment. Learn more about [making treatment decisions](#) [6].

Watch and wait/active surveillance for early-stage CLL

Patients with symptoms and/or large amounts of CLL in the blood, lymph nodes, or spleen need treatment shortly after the diagnosis is made. For other patients, however, immediate treatment is not needed, and it is recommended that the disease is monitored carefully without active treatment. During this time, the patient's blood counts are watched closely and physical examinations are performed on a regular basis. If the CLL shows signs of worsening, active treatment would then begin. Research studies have shown that no harm comes from the watch-and-wait approach, also called active surveillance or watchful waiting, when compared with immediate treatment for early-stage CLL. Some patients do not develop symptoms for years, or even decades, and will not need any treatment.

Although many patients can live comfortably with CLL without active treatment, it is beneficial to use this time to improve overall health. This includes [stopping smoking](#) [7] and bringing all immunizations up to date. However, patients with CLL should not receive the herpes zoster (shingles) vaccine because it may cause a shingles infection in patients who have a lowered immune system.

Treatment is recommended for patients with worsening blood counts and for those who develop symptoms. These might include increased fatigue, night sweats, enlarged lymph nodes, or lowered red blood cell or platelet counts. People with CLL are encouraged to talk with their doctor about whether their symptoms need treatment, balancing the benefits of treatment with the side effects.

Chemotherapy

Chemotherapy is the use of drugs to destroy cancer cells, usually by stopping the cancer cells' ability to grow and divide. Chemotherapy is given by a medical oncologist, a doctor who specializes in treating cancer with medication, or a hematologist, a doctor who specializes in treating blood disorders.

Systemic chemotherapy is delivered by mouth or through the bloodstream to reach cancer cells throughout the body. Common ways to give chemotherapy include an intravenous (IV) tube placed into a vein using a needle or in a pill or capsule that is swallowed (orally). Chemotherapy may also be given as an injection under the skin, called a subcutaneous injection. A chemotherapy regimen (schedule) usually consists of a specific number of cycles given over a set period of time. Sometimes, a doctor may use a combination of drugs, but a combination of drugs is not always better than a single drug. When treatment begins, doctors may use a number of different drugs depending on the stage of the disease and the person's age and health.

A standard drug that people with CLL may receive is called fludarabine (Fludara). Similar drugs called pentostatin (Nipent) and cladribine (Leustatin) are also sometimes used to treat CLL,

although fludarabine is used most commonly.

Chlorambucil (Leukeran) and cyclophosphamide (Neosar) can be given orally, while cyclophosphamide can also be given intravenously. Cyclophosphamide may be given alone or with fludarabine or with prednisone (multiple brand names), a type of oral corticosteroid.

In the past, patients initially received either fludarabine only or chlorambucil plus prednisone, switching to the other regimen if the treatment did not work well, but more recent combinations are now recommended for initial therapy. Today, the following drugs are often given together in combinations:

- Rituximab (Rituxan) (see monoclonal antibodies below) and fludarabine (sometimes abbreviated as FR)
- Cyclophosphamide and fludarabine (called FC)
- Cyclophosphamide, fludarabine and rituximab (called FCR)
- Pentostatin, cyclophosphamide, and rituximab (called PCR)
- Bendamustine (Treanda) and rituximab (called BR)

The choice of treatment often depends on the patient's age, general health, and the interest in and availability of clinical trials. Clinical trials evaluating other experimental drugs, including alvocidib (flavopiridol), lenalidomide (Revlimid), and ABT-199 are described in [Latest Research](#) [4].

Learn more about [chemotherapy](#) [8] and [preparing for treatment](#) [9]. The medications used to treat cancer are continually being evaluated. Talking with your doctor is often the best way to learn about the medications prescribed for you, their purpose, and their potential side effects or interactions with other medications. Learn more about your prescriptions by using [searchable drug databases](#) [10].

Targeted therapy

Targeted therapy is a treatment that targets the leukemia's specific genes, proteins, or the tissue environment that contributes to its growth and survival. This type of treatment blocks the growth and spread of leukemia cells while limiting damage to healthy cells.

Recent studies show that not all cancers have the same targets. To find the most effective treatment, your doctor may run tests to identify the genes, proteins, and other factors in your leukemia. As a result, doctors can better match each patient with the most effective treatment whenever possible. In addition, many research studies are taking place now to find out more about specific molecular targets and new treatments directed at them. Learn more about [targeted treatments](#) [11].

Monoclonal antibodies. A monoclonal antibody is a type of targeted therapy. It is directed against a specific protein in the surface of leukemia cells, and it does not affect cells that do not have that protein.

Rituximab is a monoclonal antibody given intravenously, that binds to a protein on the surface of B cells, destroying some of the CLL cells and also making chemotherapy more effective. As

mentioned above, rituximab is currently being used in combination with chemotherapy.

Alemtuzumab (Campath) is another monoclonal antibody that has been approved by the U.S. Food and Drug Administration (FDA) as a treatment for advanced CLL when other treatments no longer work. It can be used for both T-cell and B-cell CLL. This antibody can be given either intravenously or as an injection under the skin. Similarly, two new antibodies called ofatumumab (Arzerra) and obinituzumab (Gazyva) have recently been approved for the treatment of CLL.

Kinase inhibitors. Ibrutinib (Imbruvica) is a drug called a kinase inhibitor that is given orally which targets Bruton's tyrosine kinase, an important factor influencing the growth of B cells. Kinases are enzymes found in both normal cells and cancer cells. Some cancer cells can be destroyed by drugs that block this particular kinase enzyme. Ibrutinib is approved by the FDA for patients with CLL who have already received at least one other treatment.

Idelalisib (Zydelig) is another type of kinase inhibitor. It is approved by the FDA in combination with rituximab for patients with CLL that comes back after treatment when rituximab alone would be considered appropriate therapy; see more below.

Side effects from chemotherapy and targeted therapy

Chemotherapy and targeted therapy cause side effects. It is important to talk with your doctor about possible side effects for a specific medication and how they can be managed. The side effects of the common medications used to treat CLL are discussed below.

Chemotherapy for CLL may cause hair loss and nausea and vomiting, although nausea and vomiting can often be prevented [12] with drugs. Doctors will also closely watch for decreases in normal blood counts, which can increase a person's risk of infection, bleeding, and fatigue. To manage these side effects, some patients need transfusions of red blood cells and platelets or antibiotics to treat infections.

Decreases in blood counts after chemotherapy are sometimes more severe for people with CLL than for people with other types of cancer because of the CLL cells in the bone marrow. Patients should talk with their doctors about the symptoms they might experience, how they could be prevented, and how closely they should be monitored.

Sometimes, subcutaneous injections of white blood cell growth factors such as filgrastim (Neupogen), sargramostim (Leukine), or pegfilgrastim (Neulasta) are used to help the bone marrow make normal white blood cells. Injections of epoetin (Epogen, Eprex, Procrit) or darbepoetin (Aranesp) may be given to treat anemia caused by chemotherapy. However, these drugs also have risks, and it is important for you and your doctor to carefully consider the risks and the benefits. Read more about ASCO's recommendations for when white blood cell growth factors [13] and epoetin and darbepoetin treatment [14] should be used.

Often, a person's first treatments with rituximab, alemtuzumab, obinituzumab, or ofatumumab cause fevers and chills, which usually go away after the first few treatments.

One of the side effects of both CLL and its treatment is the risk of developing a bacterial, viral, or fungal infection. Doctors may call these opportunistic infections. In particular, patients with CLL

often develop infections with herpes viruses, either as cold sores or as shingles. Shingles can become quite painful and turn into a severe infection. Patients should tell their doctors right away if they notice a rash or skin problems that look like blisters and are grouped together in a band across the chest or abdomen, or down one leg or arm, or on the face. These infections can be treated with antiviral drugs, and treatment works better when started sooner.

Radiation therapy

Radiation therapy is the use of high-energy x-rays or other particles to destroy cancer cells. A doctor who specializes in giving radiation therapy to treat cancer is called a radiation oncologist. A radiation therapy regimen usually consists of a specific number of treatments given over a set period of time. Radiation therapy is not often used to treat CLL because the disease is located throughout the body. However, radiation therapy can be very helpful to shrink an enlarged spleen or swollen lymph nodes and relieve symptoms.

Side effects from radiation therapy may include fatigue, mild skin reactions, upset stomach, and loose bowel movements. Most side effects go away soon after treatment is finished. Learn more about [radiation therapy](#) [15].

Surgery

Occasionally, surgery to remove the spleen, called a splenectomy may be recommended because the spleen can become very enlarged in CLL. A surgical oncologist is a doctor who specializes in treating cancer using surgery. Learn more about [surgery](#) [16].

Getting care for symptoms and side effects

Leukemia and its treatment often cause side effects. In addition to treatment to slow, stop, or eliminate the disease, an important part of care is relieving a person's symptoms and side effects. This approach is called palliative or supportive care, and it includes supporting the patient with his or her physical, emotional, and social needs.

Supportive care can help a person at any stage of illness. People often receive treatment for the leukemia and treatment to ease side effects at the same time. In fact, patients who receive both often have less severe symptoms, better quality of life, and report they are more satisfied with treatment.

Palliative treatments vary widely and often include medication, nutritional changes, relaxation techniques, and other therapies. You may also receive palliative treatments similar to those meant to eliminate the CLL, such as chemotherapy, surgery, and radiation therapy. Talk with your doctor about the goals of each treatment in your treatment plan.

Before treatment begins, talk with your health care team about the possible side effects of your specific treatment plan and supportive care options. And during and after treatment, be sure to tell your doctor or another health care team member if you are experiencing a problem so it is addressed as quickly as possible. Learn more about [palliative care](#) [17].

Refractory CLL

If the leukemia has not responded to treatment, the disease is called refractory CLL. Patients with this diagnosis are encouraged to talk with doctors who are experienced in treating this stage of leukemia, because there can be different opinions about the best treatment plan. Learn more about seeking a [second opinion](#) [18] before starting treatment, so you are comfortable with the treatment plan chosen. This discussion may include [clinical trials](#) [3]. Supportive care will also be important to help relieve symptoms and side effects.

If CLL becomes resistant to one drug, meaning that the drug no longer works, treatment with other types of drugs is often recommended. Some symptoms of CLL can be treated in other ways, such as with radiation therapy or rarely, a splenectomy. Some patients who have infections that keep coming back may benefit from immunoglobulin given by IV each month because patients with CLL have fewer normal antibodies. Patients who make antibodies that destroy their own red blood cells and/or platelets (see [Symptoms](#) [19]) often need high doses of corticosteroids to stop the body from making these antibodies. Sometimes, treatment with rituximab or a splenectomy can be helpful for these patients.

Stem cell transplantation/bone marrow transplantation. A stem cell transplant is a medical procedure in which bone marrow that contains leukemia is replaced by highly specialized cells, called hematopoietic stem cells, that develop into healthy bone marrow. Hematopoietic stem cells are blood-forming cells found both in the bloodstream and in the bone marrow. Today, this procedure is more commonly called a stem cell transplant, rather than bone marrow transplant, because it is the stem cells in the blood that are typically being transplanted, not the actual bone marrow tissue.

There are two types of stem cell transplantation depending on the source of the replacement blood stem cells: allogeneic (ALLO) and autologous (AUTO). ALLO uses donated stem cells, while AUTO used the patient's own stem cells. ALLO is the type of transplant used for treating CLL and is typically considered for younger patients either when the standard treatments have not worked well or the patient has a high risk of the CLL returning more quickly. The goal is to destroy all of the cancer cells in the marrow, blood, and other parts of the body using high doses of chemotherapy and/or radiation therapy and then allow replacement blood stem cells to create healthy bone marrow. Learn more about [stem cell and bone marrow transplantation](#) [20].

For most patients, a diagnosis of refractory CLL is very stressful and, at times, difficult to bear. Patients and their families are encouraged to talk about the way they are feeling with doctors, nurses, social workers, or other members of the health care team. It may also be helpful to talk with other patients, including through a support group.

Remission

The goal of treatment is to relieve any symptoms from CLL and to reduce the amount of remaining CLL as much as possible. A complete remission (CR) occurs when the doctor cannot find any evidence of leukemia remaining after repeated testing. A partial remission (PR) is when there is some leukemia remaining. A PR is most common for people with CLL who receive the current standard treatments. With a PR, patients can feel quite well with normal blood counts,

have no swollen lymph nodes or spleen, but still have detectable amounts of CLL in the bone marrow.

The goal of newer, more intensive treatments or targeted therapies is to destroy more cancer cells in the hope of lengthening a person's life. In the future, the definition of a CR in CLL is likely to change with advances in technology. For example, some sensitive tests can find very small levels of the abnormal DNA changes specific to CLL. When these sensitive tests can no longer find any CLL, it is called a molecular remission.

The chance of recurrence

A remission can be temporary or permanent. This uncertainty leads to many survivors feeling worried or anxious that the leukemia will come back. Recurrent CLL is CLL that has come back after treatment. While many remissions last for a long time, it is important to talk with your doctor about the possibility of the disease returning. Understanding the risk of recurrence and the treatment options may help you feel more prepared if the leukemia does return. Learn more about [coping with the fear of recurrence](#) [21].

When this occurs, a cycle of testing will begin again to learn as much as possible about the recurrence, including whether the leukemia's stage has changed. After testing is done, you and your doctor will talk about your treatment options. Often the treatment plan will include the therapies described above such as chemotherapy and targeted therapy, but they may be used in a different combination or given at a different pace. Your doctor may also suggest clinical trials that are studying new ways to treat this type of recurrent leukemia.

Finding a CLL recurrence does not mean that treatment is needed right away. In fact, the watch-and-wait approach (see above) is usually recommended, with active treatment beginning only if the disease causes symptoms again.

People with recurrent leukemia often experience emotions such as disbelief or fear. Patients are encouraged to talk with their health care team about these feelings and ask about support services to help them cope. Learn more about [dealing with cancer recurrence](#) [22].

If treatment fails

Recovery from leukemia is not always possible. If treatment is not successful, the disease may be called advanced or terminal leukemia.

This diagnosis is stressful, and it may be difficult to discuss. However, it is important to have open and honest conversations with your doctor and health care team to express your feelings, preferences, and concerns. The health care team is there to help, and many team members have special skills, experience, and knowledge to support patients and their families. Making sure a person is physically comfortable and free from pain is extremely important.

Patients who have advanced disease and who are expected to live less than six months may want to consider a type of palliative care called hospice care. Hospice care is designed to provide the best possible quality of life for people who are near the end of life. You and your family are encouraged to think about where you would be most comfortable: at home, in the hospital, or in a

hospice environment. Nursing care and special equipment can make staying at home a workable alternative for many families. Learn more about [advanced cancer care planning](#) [23].

After the death of a loved one, many people need support to help them cope with the loss. Learn more about [grief and loss](#) [24].

The next section helps explain clinical trials, which are research studies. Use the menu on the side of your screen to select About Clinical Trials, or you can select another section, to continue reading this guide.

Links:

- [1] <http://www.cancer.net/cancer-types/leukemia-chronic-lymphocytic-cll/treatment-options>
- [2] <http://www.cancer.net/about-us>
- [3] <http://www.cancer.net/node/19100>
- [4] <http://www.cancer.net/node/19103>
- [5] <http://www.cancer.net/node/25356>
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