Treating Chronic Myelomonocytic Leukemia

General treatment information about chronic myelomonocytic leukemia

Treatment of chronic myelomonocytic (MY-eh-loh-MAH-noh-SIH-tik) leukemia (CMML) is based on how severe the disease is, as well as the patient’s age and health. Patients with CMML are treated by specialists such as hematologists or oncologists.

Treatment for CMML may include:

- Supportive therapy
- Chemotherapy
- Growth factors
- Radiation therapy
- Surgery
- Stem cell transplant

See “General approach to treatment of chronic myelomonocytic leukemia” for information about common treatment plans.

Thinking about taking part in a clinical trial

Clinical trials are carefully controlled research studies that are done to get a closer look at promising new treatments or procedures. Clinical trials are one way to get state-of-the-art cancer treatment. In some cases they may be the only way to get access to newer treatments. They are also the best way for doctors to learn better methods to treat cancer. Still, they are not right for everyone.

If you would like to learn more about clinical trials that might be right for you, start by
asking your doctor if your clinic or hospital conducts clinical trials. You can also call our clinical trials matching service at 1-800-303-5691 for a list of studies that meet your medical needs, or see the Clinical Trials section to learn more.

**Considering complementary and alternative methods**

You may hear about alternative or complementary methods that your doctor hasn’t mentioned to treat your cancer or relieve symptoms. These methods can include vitamins, herbs, and special diets, or other methods such as acupuncture or massage, to name a few.

Complementary methods refer to treatments that are used along with your regular medical care. Alternative treatments are used instead of a doctor’s medical treatment. Although some of these methods might be helpful in relieving symptoms or helping you feel better, many have not been proven to work. Some might even be dangerous.

Be sure to talk to your cancer care team about any method you are thinking about using. They can help you learn what is known (or not known) about the method, which can help you make an informed decision. See the Complementary and Alternative Medicine section to learn more.

**Help getting through cancer treatment**

Your cancer care team will be your first source of information and support, but there are other resources for help when you need it. Hospital- or clinic-based support services are an important part of your care. These might include nursing or social work services, financial aid, nutritional advice, rehab, or spiritual help.

The American Cancer Society also has programs and services – including rides to treatment, lodging, support groups, and more – to help you get through treatment. Call our National Cancer Information Center at 1-800-227-2345 and speak with one of our trained specialists on call 24 hours a day, every day.

*The treatment information given here is not official policy of the American Cancer Society and is not intended as medical advice to replace the expertise and judgment of your cancer care team. It is intended to help you and your family make informed decisions, together with your doctor. Your doctor may have reasons for suggesting a treatment plan different from these general treatment options. Don’t hesitate to ask him or her questions about your treatment options.*
Supportive Therapy for the Patient With Chronic Myelomonocytic Leukemia

For many patients with chronic myelomonocytic leukemia (CMML), the main goal of treatment is to prevent the problems caused by low blood cell counts. For example, low red blood cell counts (anemia) can cause severe fatigue. Treating the anemia with red blood cell transfusions and/or erythropoietin can help patients feel better and allow them to be more active. More information about erythropoietin can be found in Growth Factors for the Treatment of Chronic Myelomonocytic Leukemia. To learn more about transfusions, see Blood Transfusion and Donation.

Some people are concerned about a slight risk of infection (hepatitis or HIV) spread by blood transfusion. This possibility is very unlikely, and the benefits of the transfused cells greatly outweigh this risk.

Blood transfusions can cause excess iron to build up in the body. This extra iron can deposit in the liver and heart, causing the organs to function poorly. This iron build up is usually seen only in people who receive many transfusions over a period of years. Drugs called chelating agents (substances that bind with iron so that the body can get rid of it) can be used to treat and prevent iron overload from transfusions. The most commonly used drug is desferoxamine. This drug can be given intravenously or as an injection under the skin. It is inconvenient because the injection must be given slowly (over several hours) 5 to 7 times per week. In some patients, treatment continues for years. Deferasirox (Exjade®) is a newer drug that is taken by mouth once a day to treat iron overload. It has been used more for patients with certain congenital anemias (like thalassemia), but it can also be used to treat iron overload in patients with CMML.

CMML patients with bleeding problems resulting from a shortage of platelets may benefit from platelet transfusions.

Patients with CMML are susceptible to infections. They should be especially careful to avoid cuts and scrapes and to care for any that occur right away. They should tell their doctors immediately about any fever, signs of pneumonia (cough, shortness of breath), urinary infection (burning when urinating), or other symptoms of an infection. Doctors will treat any known or suspected infections with antibiotics. See Infections in People with Cancer for more detailed information.

- References
  See all references for Chronic Myelomonocytic Leukemia
Chemotherapy for Chronic Myelomonocytic Leukemia

Chemotherapy (chemo) is the use of drugs for treating a disease such as cancer. The drugs can be swallowed as pills, or they can be injected by needle into a vein or muscle. Chemo is considered systemic treatment because these drugs enter the bloodstream and reach most areas of the body. This type of treatment is useful for diseases such as chronic myelomonocytic leukemia (CMML) that are not localized to one part of the body. The purpose of the chemo is to eliminate the abnormal bone marrow cells and allow normal ones to grow back.

Hydroxyurea

Hydroxyurea (hydroxycarbamate, Hydrea®) is a chemo drug that has helped some patients with CMML live longer. This drug comes as a capsule and is taken by mouth daily. It can lower the counts of white blood cells and monocytes to normal. It may also help shrink an enlarged spleen. Because the main effect of hydroxyurea is to lower blood counts, anyone taking this drug will have their blood counts checked regularly. Other side effects are usually mild and easily tolerated. Some patients have stayed on this drug for years without ill effects.

Hypomethylating agents

These drugs are actually a form of chemo that affects the way genes are controlled. Examples of this type of drug include azacytidine (Vidaza®) and decitabine (Dacogen®). These drugs have been studied best in the treatment of myelodysplastic syndromes, where they seem to help stop abnormal cells in the bone marrow from dividing to make new cells. This lets the normal cells grow again, often leading to improved blood counts and less need for transfusions. Fewer patients with CMML were treated with these drugs in studies, but they had similar benefits in terms of blood counts.

Side effects are usually mild and rarely lead to stopping treatment, but these drugs can
have some of the same side effects as regular chemotherapy, including:

- Nausea/vomiting
- Diarrhea
- Fatigue and weakness
- Low blood counts (most often the white blood cells or platelets)

**Conventional chemotherapy**

For a long time, CMML was grouped with myelodysplastic syndromes, and so it was treated with the same chemo drugs. Some of the chemo regimens that have been used include:

- Cytarabine (ara-C) with idarubicin,
- Cytarabine with topotecan
- Cytarabine with fludarabine

Sometimes, topotecan is given by itself.

This type of treatment can help some patients, but it is very toxic. Side effects can be severe and may even hasten death. This treatment is generally only used in young and otherwise healthy CMML patients. Most patients with CMML are older and have other health problems. They are less likely to benefit from this intense type of chemo. Still, this may be an option for some patients with advanced CMML.

Another option is to use lower doses of chemo drugs. This approach can lower the chance of serious side effects.

Chemo drugs can cause many side effects. The side effects depend on the type and dose of the drugs that are given and the length of time they are taken. Common side effects include:

- Hair loss
- Mouth sores
- Loss of appetite
- Nausea and vomiting
- Low blood counts

Chemotherapy often slows blood production, leading to low blood counts. In CMML, this problem is usually made worse before it gets better. It can lead to:

- Lowered resistance to infection (due to low white blood cell counts)
• Easy bruising and bleeding (due to low platelet counts)
• Fatigue (due to low red blood cell counts).

When platelet counts get very low, patients may receive platelet transfusions to prevent or stop bleeding. Likewise, fatigue caused by low red blood cell counts can be treated with red blood cell transfusions.

Most side effects are temporary and will go away after treatment is finished. Your health care team often can suggest ways to lessen side effects. For example, other drugs can be given along with the chemo to prevent or reduce nausea and vomiting.

Chemo drugs can also damage organs such as the kidneys, liver, testes, ovaries, brain, heart, and lungs. With careful monitoring, such side effects are rare. If serious side effects occur, the chemo treatments may have to be reduced or stopped, at least temporarily.

Carefully monitoring and adjusting drug doses are important because some of these side effects can be permanent.

See the Chemotherapy section of our website for more information about chemo and its side effects.

- References
See all references for Chronic Myelomonocytic Leukemia

Last Medical Review: January 19, 2014 Last Revised: February 17, 2016

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Growth Factors for Treating Chronic Myelomonocytic Leukemia

Hematopoietic growth factors are hormone-like substances that stimulate bone marrow to produce blood cells. These substances occur naturally in the body, but scientists have found a way to make them in large amounts. This lets patients receive these factors in larger doses than would be produced by their own body.
Shortages of blood cells cause many of the symptoms in people with chronic myelomonocytic leukemia (CMML), and growth factors can help the blood counts become more normal.

Erythropoietin (Epo® or Procrit®), a growth factor that promotes red blood cell production, can help avoid transfusions of red blood cells in some patients. Recently it has been found that combining erythropoietin with a growth factor for white blood cells (G-CSF, Neupogen®, or filgrastim) improves the patient’s response to the erythropoietin. Darbepoetin (Aranesp®) is a long-acting form of erythropoietin. It works in the same way but can be given less often.

A drug called oprelvekin (Neumega®, interleukin-11, or IL-11) can be used to stimulate platelet production after chemotherapy and in some other diseases. This drug can help increase the platelet counts of some CMML patients for a time, but then the counts go back down again. For most patients, this drug is not very helpful.

More studies are being done to find the best way to predict which patients will benefit from growth factors and the best way to combine growth factors with each other and with other treatments, such as chemotherapy or hormones. Patients usually receive the growth factors through subcutaneous (under the skin) injections. Your health care team can give the injections, or you or your family members can learn to give them.

- References

See all references for Chronic Myelomonocytic Leukemia

Last Medical Review: January 19, 2014 Last Revised: February 17, 2016

Radiation Therapy for Chronic Myelomonocytic Leukemia

Radiation therapy is treatment with high-energy rays or particles to destroy cancer cells. The most common form of radiation therapy, external beam radiation therapy, aims x-rays from a machine outside the patient’s body. The treatment is much like getting an x-ray, but the radiation is more intense. The procedure itself is painless. Before your
treatments start, the radiation team will take careful measurements to determine the
correct angles for aiming the radiation beams and the proper dose of radiation. Each
treatment lasts only a few minutes, but the setup time -- getting you into place for
treatment -- usually takes longer.

If someone who has chronic myelomonocytic leukemia (CMML) is having problems from
a very enlarged spleen, radiation therapy may be used to shrink it. Shrinking the spleen
can improve symptoms like abdominal (belly) pain and trouble eating, but there are
some risks. Treating the spleen with radiation can affect the way it works. Since the
spleen helps protect against infection, this can increase the risk of severe infections. If
you are considering treatment with radiation for an enlarged spleen, you should talk
about the risks and benefits with your doctor. You may also need to get certain vaccines
before radiation starts.

- References
See all references for Chronic Myelomonocytic Leukemia

Surgery for Chronic Myelomonocytic Leukemia

Surgery is rarely used to treat chronic myelomonocytic leukemia (CMML). Sometimes,
though, surgery to remove the spleen may be an option if the patient is having problems
from an enlarged spleen. Like all surgeries, this has risks related to anesthesia and
wound infection. Also, since the spleen helps protect against infection, removing it can
increase the risk of severe infections. If you are considering having your spleen
removed, discuss the risks and benefits with your doctor.

General information about surgery in the treatment of cancer can be found in Cancer
Surgery.

- References
See all references for Chronic Myelomonocytic Leukemia
Stem Cell Transplant for Chronic Myelomonocytic Leukemia

Stem cell transplant (SCT) is the only treatment that can cure chronic myelomonocytic leukemia (CMML). In this treatment, the patient receives high-dose chemotherapy often along with radiation to the entire body to kill the cells in the bone marrow (including the abnormal bone marrow cells). Then the patient receives new, functioning blood-forming stem cells. There are 2 main types of SCT: allogeneic and autologous.

In an autologous stem cell transplant, after the bone marrow is destroyed, the patient gets back their own stem cells. This type of transplant is not a standard treatment for patients with CMML because their bone marrow contains abnormal stem cells.

For an allogeneic stem cell transplant, the patient receives blood-forming stem cells from another person - the donor. The best results are when the donor’s cells are closely matched to the patient’s cell type and the donor is closely related to the patient, such as a brother or sister. Less often, the donor is matched to the patient, but is not related.

Allogeneic stem cell transplant can have serious, even fatal, side effects and so is rarely used in elderly patients. Because of these side effects, some doctors restrict this treatment to people younger than a certain age.

A special type of allogeneic transplant, called non-myeloablative allogeneic stem cell transplant may be an option for older patients. This type of transplant is sometimes called a mini-transplant or a mini-allo. For this kind of transplant, the doses of chemotherapy and/or radiation that are given are lower than those used for a standard allogeneic transplant. These doses are not high enough to kill all the bone marrow cells, but they are just enough to allow the donor cells to take hold and grow in the bone marrow. The lower doses of chemotherapy and/or radiation cause fewer side effects, which makes this type of transplant easier for older patients to tolerate. Still, some serious side effects remain.
Transplant side effects

The early side effects from a SCT are similar to the side effects expected from chemotherapy and radiation, only more severe. One of the most serious side effects is low blood counts, which can lead to risks of serious infections and bleeding.

The most serious side effect from allogeneic transplants is called graft-versus-host disease (or GVHD). This occurs when the new immune cells (from the donor) see the patient’s tissues as foreign and so attack them. This can affect any part of the body and can be life threatening.

Allogeneic SCT is currently the only treatment that can cure some patients with CMML, but not all patients who get a transplant are cured. And many patients may die from complications of this treatment.

For more information about stem cell transplants, see Stem Cell Transplant (Peripheral Blood, Bone Marrow, and Cord Blood Transplants).

- References
See all references for Chronic Myelomonocytic Leukemia

Last Medical Review: January 19, 2014 Last Revised: February 17, 2016

General Approach to Treatment of Chronic Myelomonocytic Leukemia

Stem cell transplant (SCT) is the only way to cure patients with chronic myelomonocytic leukemia (CMML). It may be the treatment of choice for younger patients when a matched donor is available. This may also be an option for some older patients.

If SCT is not an option, CMML is not curable. In that case, the goal is to relieve symptoms while avoiding the complications and reducing side effects of treatment. Supportive care, such as transfusions, blood cell growth factors, and antibiotics to treat infections, is given to all patients.
If treatment is needed, either of the drugs azacytidine (Vidaza) or decitabine (Dacogen) is often the first choice for CMML. Azacytidine is injected under the skin for 7 days in a row every month. Decitabine is also injected, either once every 8 hours for 3 days, or once a day for 5 days. These drugs may make blood counts drop for a time after treatment is started. Then, if the drug is successful, blood counts rise to levels above those seen before treatment was started.

A major benefit for patients receiving azacytidine or decitabine is a lessened need for transfusions and an improved quality of life. In particular, if their disease responds, the patients have less fatigue and are able to function more normally. Finally, the drugs may increase life span, although this isn’t certain.

Treatment with hydroxyurea can help some patients who have high white blood cell counts. This drug can help lower monocyte counts and decrease the need for transfusions. It can also shrink the spleen to help the patient feel more comfortable.

Conventional chemotherapy using drug combinations used to treat acute myeloid leukemia can be an option for patients who are younger and otherwise healthy, but it is rarely used.

- References
  See all references for Chronic Myelomonocytic Leukemia

Last Medical Review: January 19, 2014 Last Revised: February 17, 2016

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