

Anemia

What Is Anemia?

ANEMIA IS A SHORTAGE OF RED BLOOD CELLS AND of hemoglobin, a substance in red blood cells whose job is to carry oxygen around the body. Without hemoglobin, no oxygen is delivered to the cells. Just as you need oxygen to breathe, your body's cells need oxygen to function properly. A shortage of oxygen can have a wide variety of effects on almost every part of your body. Anemia is a very common problem in people with cancer, especially those who are being treated with chemotherapy or radiation. Some patients have anemia before they even begin treatment, which makes the overall problem even more difficult.

What Causes Anemia in People With Cancer?

Anemia in people with cancer can have a number of different causes. What these causes have in common is that they interfere with the body's ability to make new red blood cells. A shortage of red blood cells means a shortage of hemoglobin to carry the oxygen your body needs.

Normally, your kidneys produce a hormone called erythropoietin (eh-RITH-roh-POY-eh-tin) that stimulates the bone

marrow to make red blood cells. One of the effects of cancer can be to slow down the kidneys' ability to make this hormone. With less erythropoietin being made, the bone marrow does not get the stimulus it needs to make a normal number of new red blood cells.

Patients who receive chemotherapy with drugs that contain platinum (for example, carboplatin, cisplatin, or oxaliplatin) have an especially high risk for anemia because these drugs can damage the kidneys. Damaged kidneys produce less erythropoietin. As a result, the bone marrow gets less of a stimulus to make new red blood cells, so it produces fewer of them.

People with cancer can also get anemia in other ways.

- Chemotherapy or radiation can cause anemia by damaging the bone marrow. Damaged bone marrow makes fewer red blood cells than healthy bone marrow.
- Normal red blood cells live about 120 days, and then die.
- In people with cancer, red blood cells wear out faster than they do in healthy people. When red blood cells die more quickly than the body can replace them, pretty soon the body has a shortage of red blood cells.
- Having too little iron in the blood can cause anemia. Without enough iron, the blood cannot make enough hemoglobin to carry oxygen around the body.
- Losing a lot of blood through surgery or internal bleeding may cause anemia.
- Patients with cancer who are not eating well can get anemia because their diet lacks essential nutrients, especially iron.

What Are the Symptoms of Anemia?

The most common symptoms of anemia are feeling tired, difficulty breathing (shortness of breath), and low energy.

However, mild anemia may have no symptoms or very few obvious symptoms.

Having a low red blood cell count or hemoglobin count means your body is not getting enough oxygen. A shortage of oxygen can affect your body in many different ways (see Symptoms of Anemia).

Symptoms of Anemia

In addition to tiredness, difficulty breathing (shortness of breath), and lack of energy, symptoms of anemia may include

- Apathy
- Cold skin
- Constipation
- Dizziness when moving from a lying to a standing position
- Dry or thinning hair
- Feeling irritable
- Headache
- Nails that break easily
- Pale skin
- Rapid heart beat
- Running a fever
- Sores in the mouth
- Swelling in the legs or feet
- Upset stomach

Can I Do Anything to Prevent Anemia?

If you have cancer, it is not easy to prevent anemia, but you may be able to prevent it from becoming serious. Tell a member of your healthcare team right away if you have any of the symptoms listed under Symptoms of Anemia. Treatment of cancer-related anemia may be more effective if it is started early, before symptoms become severe.

How Is Anemia Diagnosed?

Anemia is diagnosed with blood tests. These tests measure how much iron and how many red cells are in your blood, as well as how much hemoglobin is in the red blood cells.

Other blood tests measure levels of vitamin B₁₂ and folate (another B vitamin). Adequate amounts of these vitamins help the body to produce red blood cells.

In addition to these blood tests, a member of your health-care team will ask you about how tired you feel and how being tired and low on energy is affecting your life.

How Are People With Cancer Treated for Anemia?

The two main types of treatment for anemia in people with cancer are blood transfusions and drugs that help the body make more red blood cells. Most people who take drugs to treat anemia need to take iron supplements as well.

Blood Transfusions

Your doctor may recommend a blood transfusion if your hemoglobin level is extremely low or your anemia symptoms are very severe. A blood transfusion raises your hemoglobin level quickly. This may help you feel better for a while.

Blood transfusions, however, also pose risks for people with cancer. For example, a few people get infections and others may get a serious reaction that makes it hard to breathe. Because of these risks, your doctor will monitor and weigh the need for blood transfusions, only giving you a transfusion when it is important.

Drugs

Two drugs are now approved in the United States to treat anemia in people with cancer who are receiving chemotherapy: Procrit[®], also called epoetin alfa, and Aranesp[®], also called darbepoetin alfa.

Remember erythropoietin, the hormone produced by the kidneys that stimulates the bone marrow to make red blood

cells? Like erythropoietin, both Procrit and Aranesp work by helping the body make more red blood cells. You may hear them referred to as erythropoietin-stimulating agents (ESAs).

Both drugs are given as injections (shots) under the skin. It usually takes at least a couple of weeks for the drugs to start working. If the shots cause discomfort, try putting ice or a pain-relieving cream or lotion on the site prior to injection.

In studies, patients with cancer who took one of these drugs while receiving chemotherapy

- Had higher hemoglobin levels
- Needed fewer blood transfusions
- Felt better
- Had more energy for activities of daily life.

Similar to blood transfusions, however, these drugs pose risks. Some patients with cancer who take them get high blood pressure or blood clots.

Iron Supplements

Most patients who take Procrit or Aranesp also need to take iron pills or get iron injections to make sure that the body has an ample, steady supply of iron.

Some recent studies suggest that iron injections may work better than pills. Iron that is injected goes directly into the blood, where it gets to work right away helping to build new red blood cells.

Iron pills, on the other hand, have to be digested first, so it takes longer for them to get to work. Iron pills may also cause side effects such as pain in the abdomen, nausea, vomiting, and constipation. If you take iron pills, taking them with food helps to reduce the risk of these side effects. Tell a member of your healthcare team right away if you have pain in the abdomen or other side effects that may be caused by iron pills.

What Else Can I Do to Cope With Anemia During My Cancer Treatment?

These tips may help you cope with anemia during your cancer treatment.

- Save energy by choosing the most important things you need to do each day. You can also spread the things you do out over an entire day instead of doing them all at once.
- Take short naps (no more than an hour at a time) during the day.
- Get eight hours of sleep every night.
- Take a walk or get some other exercise every day. Some studies show that exercise helps with tiredness during cancer treatment.
- Eat a healthy diet and drink plenty of fluids. Talk with a member of your healthcare team about whether it would be helpful for you to eat foods that are high in protein (for example, meat, eggs, peanut butter) or high in iron (for example, leafy green vegetables, red meat, cooked beans).
- Keep a journal of your symptoms.

For More Information

For additional information about anemia, see the following resources.

American Cancer Society

- Anemia in People With Cancer: www.cancer.org/Treatment/TreatmentsandSideEffects/PhysicalSideEffects/Anemia/index?sitearea=MBC

American Society of Clinical Oncology (ASCO)

- What to Know: The ASCO and ASH Guideline on Epoetin and Darbepoetin Treatment for Adults With Cancer:

www.cancer.net/patient/ASCO%20Resources/What%20to%20Know/What%20to%20Know%20PDFs/What_to_Know_Epoetin_and_Darbepoetin_Treatment.pdf

National Anemia Action Council

- Anemia and Cancer: www.anemia.org/patients/information-handouts/cancer/?handout=cancer%2F
- Are Iron Injections Right for You?: www.anemia.org/patients/feature-articles/content.php?contentid=000403§ionid=00015

National Cancer Institute

- Managing Chemotherapy Side Effects: Anemia: www.cancer.gov/cancertopics/chemo-side-effects/anemia