Information Handout

Provided by the National Anemia Action Council, Inc., a nonprofit corporation.

Anemia & Cancer

What is anemia?

Anemia is a below-normal level of hemoglobin* or hematocrit*. Hemoglobin is the protein in red blood cells that carries oxygen to all parts of the body. Anemia can be a temporary condition, a consequence of other health conditions, or it can be a chronic problem. People with mild anemia may not have any symptoms or may have only mild symptoms. People with severe anemia may have problems carrying out routine activities and can feel tired or experience shortness of breath with activity.[1]

How common is anemia in people with cancer?

Almost all people with cancer develop mild anemia after chemotherapy, and about 80% experience more serious anemia.[2-4] The type of cancer, how advanced it is, and how it is treated determines whether a patient will develop anemia.

What causes anemia in people with cancer?

There are usually multiple reasons cancer patients develop anemia. Some causes are consequences of the disease and others relate to cancer treatment.

Cancer can cause anemia many different ways. Normally, the kidneys make the hormone erythropoietin which signals the bone marrow to produce red blood cells. Cancer can disrupt this process by slowing erythropoietin production or by not allowing the body to use stored iron. Cancer patients' red blood cells also wear out faster than normal and are not replaced as quickly as they are needed. Additionally, cancer may cause bleeding, which results in blood loss. In each case, fewer red blood cells means there is less hemoglobin to carry oxygen throughout your body.

Cancer treatments, including chemotherapy and radiation therapy, can cause anemia by damaging the bone marrow. This damage lowers your body's ability to produce red blood cells.

What are the effects of untreated anemia in cancer?

Fatigue and other symptoms like feeling short of breath can make it difficult to keep up with regular daily activities. People with severe anemia may not be able to receive their treatments on schedule or may end up with a lower dose of their treatment. People with certain types of cancer do not respond as well as expected to radiation therapy if they have anemia, and chemotherapy can be more toxic or less effective with anemia.[3-6] A study has shown people with both cancer and anemia have a shorter life expectancy than people without anemia.[7] While managing anemia may be life saving in some circumstances, treatment has not proven to guarantee a longer lifespan.

How do I know if I have anemia?

The best way to determine if you have anemia is to discuss your blood counts and changes in hemoglobin and hematocrit with the doctor who treats your cancer. Symptoms and signs usually develop when anemia is moderate to severe, and can include fatigue, weakness, pale skin, chest pain, dizziness, irritability, numbness or coldness in your hands and feet, trouble breathing, a fast heartbeat, and headache. People with cancer may have many different types of symptoms because of other things that change because of cancer or cancer treatment, so it can be difficult to sort out the cause.

What treatments are available to help me?

Several medications are approved to help correct anemia, including a man-made form of erythropoietin which stimulates red blood cell growth in the bone marrow. Noteworthy though are recent studies which suggest that it is best not to try to correct the anemia to normal levels.[8] Sometimes people with cancer receive blood transfusions that are rich in red blood cells in order to raise hemoglobin levels. Close communication with your doctor will help him or her provide the treatment that is best for you based on what is causing the anemia.

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**Normal Lab Values: Normal hemoglobin >12 g/dL for women, >13 g/dL for men; normal hematocrit >36% for women, >39% for men.*

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Anemia & Cancer ...Continued

Glossary

Bone marrow: Soft, spongy tissue found in bone cavities; responsible for production and storage of most blood cells, as well as storage of iron

Erythropoietin: Hormone that regulates red blood cell production

Hematocrit: Percentage of red blood cells in a blood sample

Hemoglobin: Protein carried by red blood cells that transports and delivers oxygen throughout your body

References

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3. Brizel DM, et al. Radiother Oncol. 1999;53:113-117.
4. Silber JH, et al. J Clin Oncol. 1998;16:2392-2400.
5. Extermann M. Eur J Cancer. 2002;38:1466-1473.
6. Vaupel P, et al. Semin Oncol. 2001;28(suppl 8):29-35.
7. Caro JJ, et al. Cancer. 2001;91:2214-2221.
8. Henke M, et al. 2003;362(9392):1255–1260.

NAAC's Online Resources for Patients & Consumers (www.anemia.org)

Information Handouts – Educational handouts describing anemia caused by different conditions including: aging, cancer, diabetes, vitamin deficiency, chronic kidney disease and more; free print or download access

Frequently Asked Questions – Answers to patients' common questions regarding anemia

Anemia Glossary – Definitions for medical terms relating to anemia which are used in NAAC's educational material

Feature Articles – Short articles covering anemia-related topics for patients, caregivers and allied healthcare providers

Anemia Watch – Our free quarterly e-newsletter covering current anemia-related topics and news

Anemia Symptoms Quiz – Printable questionnaire to fill out and take to a physician