Anemia

WHAT IS ANEMIA?

Anemia is a shortage of hemoglobin (HGB). HGB is a protein in red blood cells (RBCs) that carries oxygen from the lungs to the rest of the body.

Anemia causes fatigue, shortness of breath, and dizziness. People with anemia don't feel as good as people with a normal level of HGB. They find it harder to work or exercise. This is called having a lower quality of life.

HGB levels are measured as part of a complete blood count (CBC). HGB is measured as grams per deciliter (g/dL), the amount in a specific sample of blood.

Anemia is defined by the level of HGB. Most healthcare providers agree that HGB levels below 6.5 g/dL indicate life-threatening anemia. Normal levels are:

- At least 12 g/dL for people assigned female at birth (AFAB)
- At least 14 g/dL for people assigned male at birth (AMAB)

Overall, AFAB people have lower levels of HGB. So do very old and very young people. More Black/African American people have anemia than people in other racial/ethnic groups.

WHAT CAUSES ANEMIA?

The bone marrow produces RBCs. This process requires iron, vitamin B12, and folic acid (or folate). Erythropoietin (EPO), a hormone made by the kidneys, stimulates the production of RBCs.

Anemia can be caused by the body not making enough RBCs or by RBC loss or destruction. Several factors can cause anemia:

- Too little iron, vitamin B12, or folate. A shortage of folate can cause megaloblastic anemia, where RBCs are large and pale.
- Damage to bone marrow or kidneys.
- Blood loss from internal bleeding or the menstrual cycle.
- Destruction of RBCs (hemolytic anemia).

HIV infection can cause anemia. So can many opportunistic infections (OIs) related to HIV disease. Many antiretroviral medications (ARVs) commonly used to treat HIV and related infections can cause also anemia.

ANEMIA AND HIV

Serious anemia used to be much more common. Over 80% of people with an AIDS diagnosis had some degree of anemia. People with more advanced HIV disease, or a lower CD4 cell count, had higher rates of anemia.

The rate of anemia went down when people started using combination antiretroviral therapy (ART). Severe anemia has become rare. However, ART has not eliminated anemia. A large study found that about 46% of people with HIV had mild or moderate anemia, even after one year of ART.

Several factors are linked to a higher rate of anemia in people with HIV:

- Lower CD4 cell counts
- Higher viral load
- Lower levels of vitamin D
- Taking medications for hepatitis C virus (HCV) infection
- Black/African American race
- Assigned female at birth (AFAB)

HIV disease progression is about 5 times more common in people with anemia. Anemia is also linked to a higher risk of death. Treatment of anemia seems to eliminate these risks.

HOW IS ANEMIA TREATED?

Treating anemia depend on its cause:

- First, **treat any chronic bleeding.** This could be internal bleeding, hemorrhoids, or even frequent nosebleeds.
- Next, **correct any shortages of iron, vitamin B12, or folate.**
- Finally, **stop using or reduce the dosage of medications** that cause anemia.

These approaches might not work. It may not be possible to stop using all medications that cause anemia. Two additional treatments include injections of EPO and blood transfusions.

EPO stimulates the production of RBCs. In 1985, scientists learned how to make synthetic EPO. It is injected under the skin, usually once a week. The most common brand of EPO is Procrit. In 2011, the FDA warned that using Procrit can increase the risk for stroke, heart problems, and death. It recommended lower doses be used in people with chronic kidney disease.

A large study of people with HIV found that EPO injections decreased the risk of death. Transfusions seemed to increase the risk of death. Because of the risks of transfusions, they are rarely used to treat anemia.

Blood transfusion used to be the only treatment for severe anemia. However, transfusions can cause infection and suppress the immune system. They appear to cause faster progression of HIV disease and to increase the risk of death for people with H4IV.

THE BOTTOM LINE

Anemia increases fatigue and makes people feel ill. It increases the risk of disease progression and death. It can be caused by HIV infection or other diseases. Many drugs used to treat HIV and related infections also cause anemia.

Anemia has always been a problem for people with HIV and AIDS. The rate of serious anemia has dropped considerably since people started using ART. However, almost half of people with HIV still have mild or moderate anemia.

Treating anemia improves the health and survival of people with HIV. Correcting bleeding or shortages of iron or vitamins are the first steps. If possible, medications that cause anemia should be stopped. If necessary, the patient should be treated with erythropoietin, or, in rare cases, with a blood transfusion.

MORE INFORMATION

POZ: Feeling Tired (Fatigue and Anemia)

nam aidsmap: Blood Problems and HIV

Reviewed July 2025