

Spotlight on Health

Acute Myeloid Leukemia: Laboratory Testing Can Guide Treatment

Just like other parts of your body, blood can get cancer. One type of blood cancer is called acute myeloid leukemia, or AML. AML is not a common disease, accounting for only 1 in 100 of all cancers.¹ But it is very serious. People with AML get very sick, very quickly. Because symptoms start off being quite general (see Sidebar), people may think they just have a cold or feel tired and run-down. This means that AML can be far along before it is diagnosed.

This newsletter will discuss AML, its symptoms, and how the laboratory can help to make a diagnosis and determine the type of AML. Knowing the type of AML can help your healthcare provider choose the best treatment option.

Leukemia and AML

Leukemia is a type of blood cancer that begins in the bone marrow, which is where blood cells are made. “Myeloid” cells in the bone marrow normally develop into the different types of cells in the blood. In people with leukemia, the myeloid cells don’t grow normally. Instead, they grow into abnormal blood cells (called blasts or leukemic cells) that don’t work properly. In AML, these cells multiply very quickly until there are more abnormal than normal cells. Without enough normal blood cells, the body cannot get enough oxygen, so people feel tired. Also, the body cannot effectively fight infections, so people get sick.^{2,3} The cells that stop bleeding are also affected, so people get bruises or notice bleeding (see Sidebar).

Who Gets AML?

Anyone can get AML, regardless of age, sex, or ethnicity.¹ However, the disease is more common in older people: about two-thirds of AML cases are in people 65 years and older.¹ People are most commonly diagnosed at 68 years old or older, but some types of AML are more common in children.^{1,4}

Experts do not know the exact cause of AML and other types of leukemia. But some people are more at risk, especially if they³

- Have had too much exposure to radiation (such as x-rays)
- Have been repeatedly exposed to certain chemicals (eg, benzene)
- Have had chemotherapy (eg, previous treatment for cancer)
- Have Down syndrome
- Have a strong family history of leukemia

Diagnosis

AML is diagnosed by examining blood and bone marrow. A person has AML when more than one-fifth of blood cells or bone marrow cells are abnormal.⁵ Special tests on the bone marrow are also done to find out what type of AML people have (there are many types).^{4,5} These tests also look at whether cells have characteristically abnormal changes. This information helps your healthcare provider decide which treatment options are best.



Symptoms of AML³

Many of the symptoms of AML can be caused by other illnesses. If you have any of the symptoms below, you should see your healthcare provider:

- Bleeding from the gums or nose
- Bone pain
- Fever, chills, or night sweats
- Frequent infections
- Increased bruising
- Shortness of breath
- Swollen tonsils
- Pale skin
- Pinhead-size red spots on the skin
- Tiredness, fatigue, or weakness
- Unexplained weight loss

Treating AML

AML is usually treated with drugs that kill cancer cells (chemotherapy).⁵ However, certain tests may help decide whether different treatments are likely to work better.^{4,5} Also, if testing shows that you have a certain type of AML, called acute promyelocytic leukemia (APL), normal chemotherapy can actually make your condition worse. Instead, APL is treated with drugs that can turn abnormal cells into normal cells.⁶

When a person has responded to treatment, and there are no abnormal leukemic cells anywhere in the body, the person is said to be in remission. In general, younger people are more likely to go into remission than older people.⁵

How Your Healthcare Provider Can Help

If you have symptoms, your healthcare provider will most likely order blood tests. If the blood tests indicate AML, your provider will probably refer you to a specialist who treats blood cancer—a hematologist–oncologist.

How the Laboratory Can Help

Quest Diagnostics offers blood and bone marrow tests. The tests can help your healthcare provider find out if you have AML. The tests can also help find out the exact type of AML, and specific changes in the abnormal cells. This information can help your healthcare provider decide which treatment is going to be the most effective. Tests can also tell your healthcare provider how well a treatment is working, whether you're in remission, and whether AML is likely to come back.

Additional Information

For more information, visit the American Cancer Society website ([Cancer.org/cancer/leukemia.html](https://www.cancer.org/cancer/leukemia.html)) or these helpful websites:

- MedlinePlus: [MedlinePlus.gov/ency/article/001299.htm](https://medlineplus.gov/ency/article/001299.htm)
- WebMD: [WebMD.com/cancer/lymphoma/understanding-leukemia-basics#1](https://www.webmd.com/cancer/lymphoma/understanding-leukemia-basics#1)
- Leukemia and Lymphoma Society: [LLS.org/leukemia](https://lls.org/leukemia)

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