Acute Lymphocytic Leukemia (ALL): Tests After Diagnosis

What tests might I have after being diagnosed?

After a diagnosis of ALL, you will likely need more tests. These tests help your healthcare providers learn more about the cancer and how to treat it. Some of these tests can also be used to help show how well treatment is working, or to look for signs that the leukemia might be coming back. If you have any questions about these or other tests, be sure to talk with your healthcare team.

The tests may include:

- Blood tests
- Lumbar puncture
- Bone marrow biopsy
- Imaging tests

Blood tests

Blood may be taken to test in a lab. Blood tests can measure the numbers of the different types of cells in your blood, such as white blood cells and platelets.

Your blood cell levels should return to normal if treatment is working.

Lumbar puncture

This is also called a spinal tap. The procedure takes about 10 to 20 minutes. First, medicine (called local anesthetic) is used to numb a small part of your lower back. A thin needle is slid between the bones of your lower back, into your spinal canal. This is the area around the spinal cord. You may feel brief pain when the needle is put in. A small amount of cerebrospinal fluid (CSF) is removed. CSF is the fluid that bathes and protects the brain and spinal cord. The CSF is sent to a lab to be tested.

This test is often used for people with ALL because this cancer can spread into the CSF. It can also be used to put chemotherapy into the CSF to prevent or treat leukemia in this part of the body.

Bone marrow biopsy

A biopsy is a small amount of tissue that's taken out and tested in a lab. This procedure is done by taking out small amounts of bone marrow. Bone marrow is the thick liquid center of the big bones in your body. It's where blood cells are made.

Bone marrow samples are usually taken from the back of the hip (pelvic) bone. For the **bone marrow aspiration** , the area over your hip is numbed. A long hollow needle is put into your hip bone. A syringe is used to pull out a small amount of liquid bone marrow. You may have some brief pain when the marrow is removed. A **bone marrow biopsy** is usually done just after the aspiration. A small piece of bone and marrow is removed with a slightly larger needle that's pushed down into the bone. The biopsy may also cause some brief pain.

Bone marrow biopsy samples can be tested to see if there are still have leukemia cells in the marrow. This can help see how well treatment is working. Tests can also look for gene changes linked to certain treatment options. The lab tests done may include:

- **Cytogenetics.** For this test, your cells are grown in a lab for 2 to 3 weeks. The chromosomes inside the cells are then stained with special dyes and looked at with a microscope. Major problems in the chromosomes can often be seen with this test. But smaller changes may not be visible.

- **Fluorescence in situ hybridization.** This test is another way to look for certain changes in chromosomes. The cells in the sample are stained with fluorescent dyes that will only attach to certain parts of chromosomes. The cells are then viewed with a microscope using a special light. This test can find some chromosome changes that can't be seen with standard cytogenetic testing. It's also a quicker test, and it can be done on blood samples, too.

- **Polymerase chain reaction.** This is a very sensitive test that can find very low levels of leukemia cells in a test sample. It can find small levels of chromosome changes that other tests can’t find.

Imaging tests

Imaging tests aren't often used for people with ALL, but they may be done to look for problems caused by ALL, like swollen lymph nodes or organs, or signs of infection. These tests may include:

Chest X-ray

A chest X-ray uses a small amount of radiation to create an image of tissues inside your body. This test can show if you have enlarged lymph nodes in your chest. If can also be used to show if you have an infection in your lungs. The test takes only a few minutes and doesn't hurt.

CT scan

This test uses a series of X-rays and a computer to make detailed images of tissues inside the body. A CT scan can show enlarged lymph nodes, a swollen spleen, or pockets of infection in your organs.

During the test, you lie still on a table as it slides through the center of the ring-shaped CT scanner. The scanner sends a beam of X-rays at your body. You may be asked to hold your breath once or more during the scan. You may be asked to drink a contrast dye after the first set of pictures. This dye can help show abnormal areas in your body. The contrast dye will pass out of your body over the next day or so through your bowel movements. If the dye is given through an IV in your arm, you may feel a flush of warmth in your body for a few minutes. In rare cases, it can also cause hives or other allergic reactions. Tell the test technician if you don’t feel well during the test.

MRI

This test uses large magnets, radio waves, and a computer to create detailed images of tissues inside the body. This test may be used to see if your healthcare provider thinks the leukemia may have spread to your brain.

For this test, you lie still on a table as it passes through a long, tube-like scanner. More than one set of images may be taken. Each set may take up to 15 minutes. The whole test may last an hour or more. Tell the technician if you have a fear of closed-in spaces (claustrophobia). You can be given medicine to help you relax or make you sleepy before the test. You may be injected with a contrast dye before the scan.

Ultrasound

This test uses sound waves and a computer to create images of tissues inside your body. The test can help show if organs, like your spleen, are swollen. The test is painless and takes only a few minutes. You lie on a table. A gel is put on your skin over the area to be examined. A wand called a transducer is moved over your skin. The images show up on a computer screen.

Working with your healthcare provider

Your healthcare provider will talk with you about which tests you'll have. Make sure to get ready for the tests as instructed. Ask questions and talk about any concerns you have. You may want to ask how and when you can expect to get your test results.