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Leukemia - B-cell Prolymphocytic Leukemia and Hairy Cell Leukemia - Diagnosis [1]

This section has been reviewed and approved by the Cancer.Net Editorial Board [2], 06/2014

ON THIS PAGE: You will find a list of the common tests, procedures, and scans that doctors can use to find out what?s wrong and identify the cause of the problem. To see other pages, use the menu on the side of your screen.

Doctors use many blood and bone marrow tests to diagnose both HCL and PLL and to find out how much the disease has spread. Although a patient?s signs and symptoms may cause a doctor to suspect HCL or PLL, it is diagnosed only by blood and bone marrow tests. Some tests may also determine which treatments may be the most effective. This list describes options for diagnosing HCL and PLL, and not all tests listed will be used for every person. Your doctor may consider these factors when choosing a diagnostic test:

- Age and medical condition
- Type of cancer suspected
- Signs and symptoms
- Previous test results

The following tests may be used to diagnose PLL and HCL:

Blood tests [3]**.** The diagnosis of PLL or HCL begins with a blood test, called a complete blood count (CBC). A CBC measures the numbers of different types of cells in a person's blood. If the blood contains many white blood cells, a type of B-cell leukemia may be suspected. However, patients with HCL often have very low levels of white blood cells.

Bone marrow aspiration and biopsy [4]**.** These two procedures are similar and often done at the same time to examine the bone marrow. Bone marrow has both a solid and a liquid part. A bone marrow aspiration removes a sample of fluid with a needle. A bone marrow biopsy is the removal of a small amount of solid tissue using a needle. The sample(s) are then analyzed by a pathologist to determine the number and type of abnormal cells. A pathologist is a doctor who specializes in interpreting laboratory tests and evaluating cells, tissues, and organs to diagnose disease. A common site for the bone marrow aspiration and biopsy is the pelvic bone, which is located in the lower back by the hip. The skin in that area is usually numbed with medication

beforehand, and other types of anesthesia (medication to block the awareness of pain) may be used.

Molecular testing. Your doctor may recommend running laboratory tests on a bone marrow sample to identify specific genes, proteins, and other factors unique to the leukemia. Immunophenotyping is the examination of antigens, a specific type of protein, on the surface of the leukemia cells. Immunophenotyping allows the doctor to confirm the exact type of leukemia. Cytogenetics is the examination of the leukemia cells for abnormalities in the long strands of genes called chromosomes. It helps the doctor confirm the diagnosis and may help to determine the person?s chance of recovery. Results of these tests will also help decide whether your treatment options include a type of treatment called targeted therapy (see Treatment Options [5]).

Computed tomography (CT or CAT) scan [6]**.** A CT scan creates a three-dimensional picture of the inside of the body with an x-ray machine. A computer then combines these images into a detailed, cross-sectional view that shows any abnormalities or tumors. A CT scan also shows enlarged lymph nodes or a swollen spleen and can be used to measure the size of a swollen lymph node. Sometimes, a special dye called a contrast medium is given before the scan to provide better detail on the image. This dye can be injected into a patient?s vein or given as a pill to swallow.

After diagnostic tests are done, your doctor will review all of the results with you. If the diagnosis is HCL or PLL, these results also help the doctor describe the leukemia.

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