



LEUKEMIA: Understanding cancer of the blood

Leukemia is cancer of the blood and bone marrow. In a person with leukemia, the bone marrow produces abnormal white blood cells that are called leukemia cells and leukemic blast cells. The abnormal cells can't produce normal white blood cells, and the abnormal cells divide to produce copies of themselves. The copies divide again and again, producing more and more leukemia cells. Unlike normal blood cells, leukemia cells don't die when they become old or damaged and because they don't die, leukemia cells can build up and crowd

out normal blood cells. The low level of normal blood cells can make it harder for the body to get oxygen to the tissues, control bleeding or fight infections.

There are four main types of leukemia:

1. Acute myeloid (or myelogenous) leukemia (AML)
2. Chronic myeloid (or myelogenous) leukemia (CML)
3. Acute lymphocytic (or lymphoblastic) leukemia (ALL)
4. Chronic lymphocytic leukemia (CLL)

RISK FACTORS:

Not all risk factors apply to all types of leukemia.

- Being exposed to high levels of radiation
- Exposure to certain chemotherapy drugs and certain chemicals, including benzene
- Inherited syndromes including: Down syndrome, Klinefelter syndrome, Fanconi anemia, Bloom syndrome, Ataxia-telangiectasia, Neurofibromatosis, Blackfan-Diamond syndrome, Schwachman syndrome, Li-Fraumeni syndrome
- Smoking

Men are more likely to be diagnosed with leukemia than women.



Acute leukemia vs. chronic leukemia

Acute leukemia: With acute leukemia, the bone marrow cells cannot mature properly, so immature leukemia cells continue to reproduce and build up. Most people with acute leukemia would live only a few months without treatment. Some types of acute leukemia respond well to treatment, and many patients can be cured. Other types of acute leukemia have a less favorable outlook.

Chronic leukemia: With chronic leukemia, the cells can mature partly but not completely. These cells generally do not fight infection as well as normal white blood cells do and thus tend to live longer, build up, and crowd out normal cells. People with chronic can live for many years as their disease progresses slowly, but chronic leukemias are generally harder to cure than acute leukemias.

Myeloid leukemia vs. lymphocytic leukemia

Myeloid leukemia: Leukemias that start in early forms of myeloid cells – the cells that make white blood cells, red blood cells or platelet-making cells – are myeloid leukemias.

Lymphocytic leukemia: Leukemias that start in immature forms of lymphocytes in the bone marrow are called lymphocytic leukemias (also known as lymphoid or lymphoblastic leukemias).

Acute Lymphocytic Leukemia (ALL)

This fast-growing cancer forms in white blood cells called lymphocytes in bone marrow. This form of leukemia can progress very quickly to other organs including the liver, spleen and brain if not treated quickly and aggressively. The survival rate for ALL is 70%, but over 91% for children.

The risk for developing ALL is highest in children younger than 5 years of age. (60% of ALL cases are in kids)

Acute myeloid leukemia (AML)

This is another fast-growing cancer that starts in myeloid cells in the bone marrow. The five-year survival rate for AML is 25.4% overall, 66.3% for children.

Chronic lymphocytic leukemia (CLL)

CLL is a cancer of lymphocytes, the cells that become white blood cells. It is a slow-growing cancer that may take years to cause symptoms. The five-year survival rate for CLL is 83.5%.

The average age at the time CLL is found is around 71 years.

Chronic myeloid leukemia (CML)

CML is a slow-growing cancer that starts in the bone marrow. It's a type of leukemia that affects the myeloid cells – cells that form blood cells, such as red blood cells, platelets and many types of white blood cells. The five-year survival rate for CML is 59.9%.

SYMPTOMS

The following symptoms may indicate leukemia. However, many symptoms occur when there is no cancer present.

- Feeling tired and weak
- Feeling dizzy or lightheaded
- Shortness of breath
- Fever
- Infections that don't go away or keep coming back
- Bruising easily
- Bleeding, such as frequent or severe nosebleeds and bleeding gums
- Loss of appetite and weight loss
- Night sweats
- Swelling in the abdomen
- Enlarged lymph nodes
- Slurred speech, confusion
- Bone or joint pain

DIAGNOSING

Leukemia is typically diagnosed by testing samples of blood and bone marrow.

TREATMENT

While chemo is the most consistently used treatment protocol for all forms of leukemia, there are other therapies that are used depending on the type of leukemia.

- Chemotherapy – IV drug infusion
- Targeted therapy – certain drugs are effective for some cases of ALL
- Stem cell transplant – this enables doctors to use a higher-than-typical dose of chemo
- Surgery and radiation in certain cases
- Interferon – substances naturally made by some immune system cells
- Monoclonal antibodies – man-made versions of immune system protein

Sources: <http://www.cancer.org>
<http://www.lls.org/>

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