Leukemia

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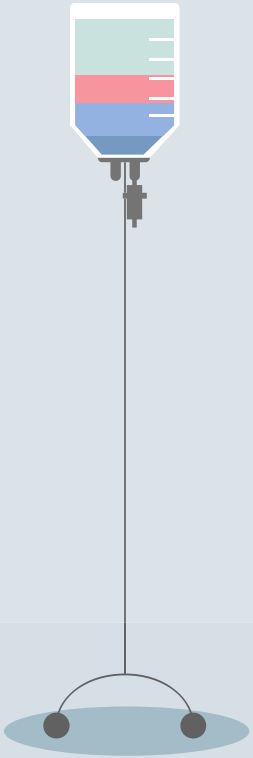


Leukemia

It is a blood cancer caused by a rise number of white blood cells in your body. Those white blood cells crowd out the red blood cells and platelets that your body needs to be healthy.

Types of Leukemia

Acute lymphocytic leukemia

Acute Myeloid Leukemia

Chronic Lymphocytic Leukemia

Chronic Lymphocytic Leukemia

Acute Lymphocytic Leukemia

Acute lymphocytic leukemia

- a type of cancer of the blood and bone marrow — the spongy tissue inside bones where blood cells are made.
- The word "acute" in acute lymphocytic leukemia comes from the fact that the disease progresses rapidly and creates immature blood cells, rather than mature ones. The word "lymphocytic" in acute lymphocytic leukemia refers to the white blood cells called lymphocytes, which ALL affects. Acute lymphocytic leukemia is also known as acute lymphoblastic leukemia.
- Acute lymphocytic leukemia is the most common type of cancer in children, and treatments result in a good chance for a cure. Acute lymphocytic leukemia can also occur in adults, though the chance of a cure is greatly reduced.

Acute Myeloid Leukemia

- **Acute myeloid leukemia (AML)** starts in the bone marrow (the soft inner part of certain bones, where new blood cells are made), but most often it quickly moves into the blood, as well. It can sometimes spread to other parts of the body including the lymph nodes, liver, spleen, central nervous system (brain and spinal cord), and testicles.

- Most often, AML develops from cells that would turn into white blood cells (other than lymphocytes), but sometimes AML develops in other types of blood-forming cells.

Chronic Lymphocytic Leukemia

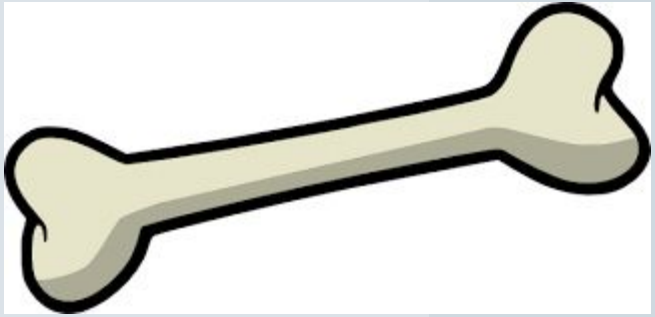
- Chronic lymphocytic leukemia (CLL) is the most common leukemia in adults. It's a type of cancer that starts in cells that become certain white blood cells (called **lymphocytes**) in the bone marrow. The cancer (leukemia) cells start in the bone marrow but then go into the blood.
- In CLL, the leukemia cells often build up slowly. Many people don't have any symptoms for at least a few years. But over time, the cells grow and spread to other parts of the body, including the lymph nodes, liver, and spleen.

Chronic Myeloid Leukemia

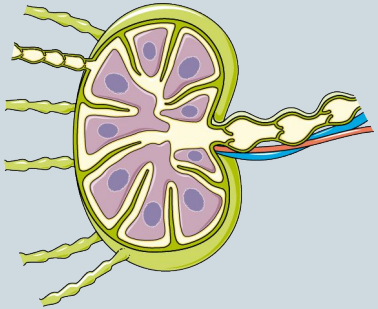
- Chronic myeloid leukemia (CML) is also known as chronic **myelogenous** leukemia. It's a type of cancer that starts in certain blood-forming cells of the bone marrow.

- In CML, a genetic change takes place in an early (immature) version of myeloid cells -- the cells that make red blood cells, platelets, and most types of white blood cells (except lymphocytes). This change forms an abnormal gene called *BCR-ABL*, which turns the cell into a CML cell. The leukemia cells grow and divide, building up in the bone marrow and spilling over into the blood. In time, the cells can also settle in other parts of the body, including the spleen. CML is a fairly slow growing leukemia, but it can change into a fast-growing acute leukemia that's hard to treat.

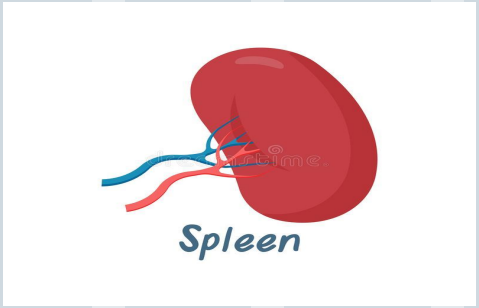
Organs Affected by the Leukemia



Bones



Lymph Nodes



Spleen

How Are Organs Affected

- It Affects the Bones by Pain and Tenderness.
- Swollen Lymph Nodes especially on the neck and armpits.
- Enlarged Liver or Spleen.

Symptoms:

- Bleeding from the gums
- Bone pain
- Fever
- Frequent infections
- Frequent or severe nosebleeds
- Lumps caused by swollen lymph nodes in and around the neck, underarm, abdomen or groin
- Pale skin
- Shortness of breath
- Weakness, fatigue or a general decrease in energy

Detection

Doctors check for **signs of Leukemia** in Our **blood or Bone Marrow**. And they also test like:

- **Blood tests.** A complete blood count (CBC) looks at the number and maturity of different types of blood cells. A blood smear looks for unusual or immature cells.
- **Bone Marrow biopsy** This test involves marrow taken from your pelvic bone with a long needle. It can tell your doctor what kind of leukemia you have and how severe it is.
- **Spinal tap.** This involves fluid from your spinal cord. It can tell your doctor whether the leukemia has spread.
- **Imaging Tests.** Things like CT, MRI, and PET scans can spot signs of leukemia.

Causes of Leukemia

There's no **exact cause of Leukemia.** People who have it have certain unusual chromosomes, but they do not look like leukemia.

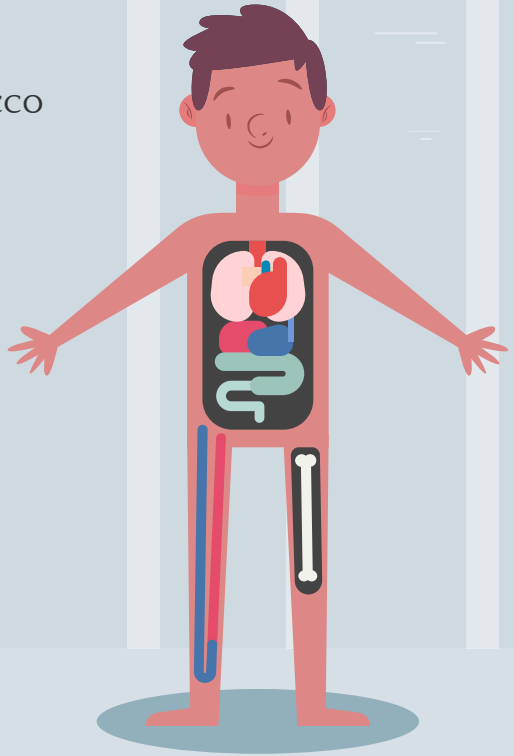
We **can't prevent Leukemia.** but there are some thing that might trigger it. You might have a **higher risk** if you:

- **Smoke**
- Always Exposed to **Radiation**
- Have a **Family History** of Leukemia.
- Have a **Genetic Disorder** like down syndrome

Prevention

There is **no known way to prevent leukemia**, but avoiding tobacco and exposure to pesticides and industrial chemicals might help. You can prevent it by:

- **Don't Smoke**
- **Don't Expose** yourself to much on **Radiation.**
- **Don't Expose** yourself on **Chemicals**.



Treated & Cured

For Treatment, There are options depending of what type of leukemia that the person has, age, overall state of health.

The primary treatment for leukemia is Chemotherapy. If treatment starts early, the chance of a person achieving remission is higher.

Chemotherapy: A doctor administers medications intravenously (IV), using either a drip or a needle. These target and kill cancer cells. However, they can also damage noncancerous cells and cause severe side effects, including hair loss, weight loss, and nausea.

Types of Treatment

Targeted therapy: This type of treatment uses tyrosine kinase inhibitors that target cancer cells without affecting other cells, reducing the risk of side effects. Examples include imatinib, dasatinib, and nilotinib.

Radiation therapy: In people with certain types of leukemia, such as ALL, doctors recommend radiation therapy to destroy bone marrow tissue before a transplant.

Stem cell transplantation: In this procedure, a cancer care team destroys the existing bone marrow with chemotherapy, radiation therapy, or both. Then, they infuse new stem cells into the bone marrow to create non-cancerous blood cells.

REFERENCES

- https://www.medicalnewstoday.com/articles/142595#symptoms
- https://www.webmd.com/cancer/lymphoma/understanding-leukemia-basics#3
- https://www.mayoclinic.org
- https://www.cancer.org