

# Cancer of White Blood Cells: Blood Cancer

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## COMMENTARY

Blood in the body consists of four parts: Plasma is the liquid part transports nutrients, waste products, and proteins and molecules which regulates body temperature and fluid balance. Red blood cells transport oxygen to lungs and tissues and all parts of body. White blood cells provide protection against infections and fights with foreign substance if entered in the body. Platelets forms blood clots to prevent loss of blood through minor or major cut in the body.

Blood Cancer also known as Hematologic Cancers and is originated from bone marrow because blood is produced in the Bone Marrow. This Cancer occurs when White Blood Cells present in blood is produced in large amount in bone marrow. Normally White Blood Cells function is to fight with the infection and replace the old cells but when Cancer occurs blood cells grows out of control and interferes with the functioning of the blood cells. Abnormal blood cells or Cancerous blood cells stop blood from performing primary functions like preventing blood loss, fighting against infections, etc.

### Causes

Includes Ageing, Weak immune system and infections. Smoking, radiation exposure, and exposure to chemicals such as benzene increases risk of blood cancers.

### Types of Blood Cancer

Blood cancers affects blood cells and bone marrow (spongy tissue inside bones where blood cells are made). There are three major types of blood cancer:

Leukemia: White Blood Cells are produced in huge amount which can't fight infections. Leukemia is sub divided into four types based on the kind of white blood cell it affects [1-5].

- Acute Lymphocytic Leukemia (ALL): Originates with White Blood Cells called Lymphocytes in bone marrow. A lot of Lymphocytes are produced which covers all healthy white blood cells. It is caused mostly in children of 3 to 5 age. Occurs if exposed to radiation and have Down's Syndrome
- Acute Myeloid Leukemia (AML): Originates in Myeloid cells and lowers the number of healthy blood cells in all blood cells. Caused mostly in older people and occurs if exposed to radiation, had smoking history or have blood disorder like myelodysplasia
- Chronic Lymphocytic Leukemia (CLL): Leukemia in adults. Originates from Lymphocytes in bone marrow and grows slowly. Occurs if have family history of blood cancer or is exposed to chemicals

- Chronic Myeloid Leukemia (CML): Originates in Myeloid Cells and grows slowly

Symptoms of Leukemia: Anemia (Less Red Blood Cells), Feeling tired and weak, Shortness of breath, Dizziness, Pale skin, Poor clotting, Unusual bruising, Bleeding gums, Bowel movements, Swelling in lymph nodes and spleen.

Lymphoma: It is cancer of the Lymph System. Includes lymph nodes, spleen, and thymus gland which stores and carry white blood cells for fighting the infections. Originates in white blood cells called Lymphocytes. Two types of lymphoma:

- Hodgkin's Lymphoma: Originates in immune cells called B Lymphocytes and makes proteins called antibodies that fight off germs
- Non-Hodgkin's lymphoma: Starts in T cell

Symptoms of Lymphoma: Lymphoma causes body to make lymphocytes that grow out of control and make it harder to fight infection. Swollen lymph nodes, lump in neck, shortness of breath, pain in your chest, big spleen, Fever, night sweats, tiredness and itchy skin.

Myeloma: It is cancer of the plasma cells in bone marrow. Plasma cells makes antibodies. Myeloma cells spreads throughout the bone marrow damages bones and makes antibodies that are of no use.

Symptoms: Causes bone marrow to make abnormal uncontrolled plasma cells and releases chemicals into blood which hurts organs and tissues. bone pain, damages spine bone, pain or weakness in legs, loss of bladder control, Hypercalcemia, Nausea and stomach pain, Excessive thirst and urination, Constipation, Weakness and bleeding.

### Diagnosis

- Leukemia: Complete blood count (CBC) test to identify abnormal levels of white blood cells relative to red blood cells and platelets
- Lymphoma: Performing biopsy
- Myeloma: CBC, blood or urine tests, X-ray, MRI, PET, and CT Scans

### Treatments for blood cancer

Treatment depends on the type of blood cancer, age and on the spreading speed.

- Chemotherapy: Anticancer drugs are introduced to the body to kill and halt the production of cancer cells
- Radiation therapy: Using high-energy rays to kill cancer cells

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- Cancer Surgery: Removing affected lymph nodes to treat some lymphomas

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