

Chronic Myelogenous Leukemia (CML): Cancer of Bone Marrow

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COMMENTARY

Tumour is uncontrollable growth of abnormal cells which leads to damage of self cells. Tumour in the body leads to formation of cancer and different types of cancer are named on the basis of body part the tumour cells target or originate from, like brain cancer mostly affects brain. Similarly, chronic myelogenous leukemia is also a type of cancer that occurs in bone marrow of the body. Bone marrow is present inside bones and it is spongy tissue which forms blood cells. Chronic Myelogenous Leukemia (CML) affects blood cells and bone marrow. In this condition body forms a lot of White Blood Cells (WBCs) and it takes form of Leukemia as myeloid cells present in bone marrow increases abnormally and rapidly and later on all these cells gets accumulated in the blood [1-3]. This condition usually occurs in elderly or older people and occurs due to mutations in genes of blood cells. Function of normal bone marrow is to produce red blood cells (which carries oxygen to other part of the body) and white blood cells (to fight against foreign matter) and platelets (to prevent clotting) but when CML occurs, bone marrow produces lot of white blood cells than other cells and later on these cells leads to formation of myeloblasts which gets accumulated in the bloodstream. Excessive growth of these myeloblasts leads to lackage of red blood cells and in result Anemia occurs.

Causes- 23 pair of chromosomes is present in Human body and these chromosomes contain DNA which contains genes and genes are responsible for controlling all the cells in the body. In chronic myelogenous leukemia, the chromosomes in the blood cells swap each other and leads to production of abnormal new chromosome. A part of Chromosome 9 switches places with a part of Chromosome 22 and creates abnormal extra short Chromosome 22 (Philadelphia Chromosome) and abnormal extra long Chromosome 9. The abnormal chromosome is responsible for producing gene (BCR-ABL) which commands abnormal cell to produce too much of a protein called tyrosine kinase and tyrosine kinase is responsible for promoting cancer by producing lot of abnormal white blood cells called leukemia cells. These cells are produced in large amount which consequently leads to less number of healthy blood cells in bloodstream [4-6].

Symptoms

CML has three phases:

- Chronic (Easy to Treat)
- Accelerated (Abnormal blood cells increases) and Indicators includes: Tiredness, Fever, Bruises, Breathing Problem, Weight Loss, Swelling and pain
- Blastic phase (Leukemia cells multiplies rapidly) and Indicators includes: Infections, Bleeding, Skin changes including bumps, tumors, Swollen glands, Bone pain

Diagnosis

Several tests are performed to diagnose Chronic Myelogenous Leukemia (CML). List of diagnosing tests are as follows:

- Blood count test: Blood test to check number of white blood cells, red blood cells, and platelets
- Bone marrow test: Sample is taken from hip bone
- FISH Test (Fluorescence In Situ Hybridization): Test of genes
- Ultrasound or CT Scans: To check the size of spleen and to take pictures inside your body
- Polymerase Chain Reaction Test: Test to check for BCR-ABL gene as this lead to formation of abnormal leukemia

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Received: March 24, 2021; **Accepted:** April 06, 2021; **Published:** April 13, 2021

Citation: Pandey P (2021). Chronic Myelogenous Leukemia (CML): Cancer of Bone Marrow. *J Tum Res Reports*, 6:137.

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