

Blood Cancer

Despite the significant advancements in medical science and the availability of effective treatments for cancer, the news of a cancer diagnosis can be frightening for many, evoking feelings of hopelessness and fear of the unknown. However, when it comes to blood cancer, there is reason to remain hopeful, as current treatments offer possibilities for cure and remission.

It's essential to recognize that blood cancer is not a single disease; it encompasses several different types, each with varying behavior, severity, and treatment approaches. Broadly, blood cancers are classified into two categories: acute and chronic. Acute blood cancers progress rapidly and, if left untreated, can be life-threatening within a short period, typically a few days or weeks. The two types of acute blood cancer are Acute Lymphoblastic Leukemia (ALL) and Acute Myeloid Leukemia (AML).

On the other hand, chronic leukemia is characterized by a slower development, and its impact becomes evident over the years. The two types of chronic leukemia are Chronic Lymphocytic Leukemia (CLL) and Chronic Myeloid Leukemia (CML).

Additionally, other common blood cancers include lymphoma, multiple myeloma, and polycythemia vera.

Fortunately, now treatment options are available for each type of blood cancer. The complete cure rate may vary among different blood cancers. For example, acute lymphoblastic leukemia in young children has a complete cure rate of 70 to 80 percent with appropriate treatment, where as acute myeloid leukemia in adults has an average cure rates of only 35 percent. While some blood cancers may not be completely curable, they can be effectively controlled through treatment, enabling patients to lead normal lives despite the diagnosis.

When someone receives a blood cancer diagnosis, the natural question that arises is, "Why did this happen? What caused this cancer?" Despite extensive medical research, the precise causes of blood cancer are not fully understood. It involves genetic changes (mutations) in the blood cells, leading them to acquire the ability to rapidly divide and transform into cancer cells. Normally, our immune system identifies and eliminates such mutated cells. However, in some cases, due to weakened immunity or the cancer cell's ability to evade detection, these cells multiply uncontrollably and give rise to full-fledged cancer.

Blood is composed of three main types of particles, each serving critical functions in the body:

- Red Blood Cells (RBCs): These cells contain Hemoglobin, a protein responsible for delivering oxygen to various body tissues. RBCs play a

crucial role in maintaining the body's oxygen balance.

- White Blood Cells (WBCs): WBCs are integral to the immune system, safeguarding the body against infections. They help identify and combat foreign invaders such as bacteria and viruses.
- Platelets: Platelets are essential for blood clotting, preventing excessive bleeding when injuries occur. They form clots at the site of injury to seal wounds.

All three types of blood particles are produced in the bone marrow, from where they later enter the bloodstream.

When blood cancer develops, cancerous cells accumulate in the bone marrow, occupying space that would otherwise be filled with healthy cells. As a result, the production of healthy blood cells is compromised, similar to how weeds overtake a field, leading to the destruction of crops.

Anemia occurs due to a deficiency of RBCs, resulting in symptoms like fatigue, shortness of breath, and lethargy. A lack of

WBCs weakens the immune system, making the body susceptible to infections that can spread rapidly and cause septic shock. Insufficient platelets can lead to bleeding issues, such as blood in the stool or urine, nosebleeds, and bleeding gums. Severe platelet deficiency may even lead to bleeding in the brain, posing a life-threatening situation.

Early detection of blood cancer is crucial. Diagnosis typically involves a bone marrow test and specialized tests. Prompt treatment is essential to stabilize the patient's condition. Chemotherapy, which targets both cancerous and healthy cells, is commonly used. Afterward, healthy cells in the bone marrow regenerate, normalizing the levels of different blood cells. Additional chemotherapy cycles may be necessary to address any potential cancer cell regrowth. In some cases, a bone marrow transplant may be required to restore a normal immune system.

With accurate diagnosis and appropriate treatment, many patients with blood cancer can lead healthy lives and overcome blood cancer's challenges.

Dr. Girish Kamat MD, DNB (Hematology)

Professor,
Department of Hematology,
SDM College of Medical Sciences and Hospital,
Sri Dharmasthala Manjunatheshwara University,
Dharwad- 580008

Disclaimer: *This medical article has been prepared solely for educational purposes and is intended to provide general information about certain medical conditions, treatments, and practices. The content presented herein is not intended to replace professional medical advice, diagnosis, or treatment. The information provided in this article should not be used as a substitute for consultation with qualified healthcare professionals. It is crucial to emphasize that the final decision regarding any medical treatment or course of*

Supported by:

action should be made in consultation with a licensed and qualified healthcare provider. Every individual's medical condition is unique, and only a healthcare professional can assess and provide personalized advice and treatment based on a comprehensive evaluation of your specific health situation. The author and publisher of this article are not responsible for any adverse effects, complications, or untoward consequences that may result from applying the information contained herein. Medical knowledge and practices are continually evolving, and there is a possibility of errors or inaccuracies in the content presented. The information provided in this article does not establish a doctor-patient relationship, and the author and publisher disclaim any liability for the use or misuse of the information contained herein. Always seek the advice of your healthcare provider or qualified medical practitioner before making any changes to your medical treatment or embarking on a new medical regimen. Remember, each person's health is unique, and what may be suitable for one individual may not be appropriate for another. Take responsibility for your health and well-being by seeking professional medical advice and adhering to the guidance of your treating physician.