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## Review Article

# Blood Cancer — World Fights Back - ②

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## ABSTRACT

Blood Cancer is well known disease all over the world. Nearly 20 percent people suffering from blood cancer are able to survive. This is because of the lack of proper medical facilities and high costs. It is estimated that after every 4 minutes one person in the US is diagnosed with a leukemia. An estimated total of 171,560 people in the US are expected to be diagnosed with myeloma, leukemia or lymphoma in 2016. This article will tell you what are the steps one must take to get protected from blood cancer.

## INTRODUCTION

Blood Cancer is also known as Leukemia which means cancer in the blood cells. Blood cancer occurs in bone marrow of the human beings. Generally, it is the cancer in the white blood cells and it leads to the abnormal growth of the white blood cells [1]. In the last stage of blood cancer one has to do bone marrow transplant. Bone marrow transplant is a procedure of replacing damaged bone marrow with new bone marrow [2]. A stem cell transplant is a procedure that replaces unhealthy blood-forming cells with healthy ones.

Nowadays India has become a prime destination for blood cancer treatment in the world. Blood cancer **treatment cost in India varies between \$6,000 to \$9,000, which is much lower than any other country in the world. The cost of blood cancer treatment in India is around \$12500. On the other hand, the same costs above \$200,000 in US and UK.** Patients from all over the world come to India for blood cancer treatment. Some of the Best cancer hospital in India are Adyar Cancer Hospital, Tata Memorial Hospital, Apollo Cancer Institute etc. **Types Of Blood Cancer**

There are mainly three types of blood cancer. They are as follows:-

**Leukemia: It occurs when cell multiplicity happens in the bone marrow or the blood cell.**

**Lymphoma:** It occurs when cell multiplicity occurs in the lymphocytes or white blood cell.

**Myeloma:** It occurs when cancer affects the plasma of the blood cell.

### Symptoms of Blood Cancer

**Symptoms of Leukemia:** When Leukemia occurs people faces problems like drastic change in the count of red blood cell which ultimately lead to anemia. People will feel less energetic and they will sweat profusely. They will have the problem of shortness of breath [3].

**Symptoms of lymphoma:** When lymphoma occurs it happens with the swollen nodes. Generally, there is no pain when swelling occurs. Lymphoma occurs with loss in weight, fever, loss of appetite. There are certain variety of leukemia which involves coughing, fatigue, fullness of abdomen and extreme fatigue. Itching, nausea and food aversion may also occur.

**Symptoms of myeloma:** In the initial stages of myeloma there is no symptoms as such. But with gradual progress of disease there are generic feel of fatigue, painful back, susceptibility to infection, bouts of numbness and that of chest pain, breath shortness (Figure 1). There are Kidney problems which likely to develop on account of myeloma. Blood tests which are taken likely to indicate abnormal clusters of plasma cells.

### Different Stages of blood cancer

Metastasis is the primary criteria for determining the different stages of blood cancer. There are different scales to determine different stages, according to the symptoms and rate of metastasis.

Mainly the stages of the cancer have been divided into four parts:

#### Stage 1

In the 1st stage of blood cancer there is enlargement of the lymph nodes. This happens when there is sudden increase in the number of the lymphocytes. There is risk at this stage which is very low as there is less spreading of cancer.

#### Stage 2

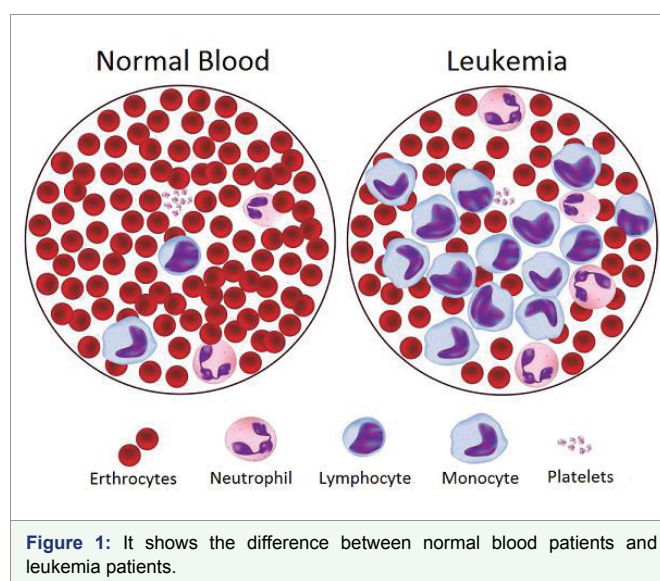
In the 2nd stage of blood cancer liver, spleen, and lymph nodes get enlarged. It is not compulsory that all of these organs will get affected at the same time; however, this stage makes sure that any one of these organs will get affected. The growth of the lymphocytes is very high in this stage.

#### Stage 3

In the 3rd stage of blood cancer, anemia develops and above mentioned organs are still found enlarged. It is for sure that two or more than two organs get affected in this stage.

#### Stage 4

In the 4th stage of blood cancer there is highest risk ratio. The rate of fall in blood platelets is very high. The cancerous cells start affecting the lungs including the other organs which already started getting affected in the earlier stages.



**Figure 1:** It shows the difference between normal blood patients and leukemia patients.



## CAUSES OF BLOOD CANCER

White blood cells help to prevent and fight infection by destroying bacteria, viruses, germs and other foreign cells. White blood cells have the ability to defend cancer also. But in those affected with leukemia, the bone marrow produces abnormal white blood cells. The abnormal cells are referred to as leukemia cells. Abnormal white cells can have two effects. Firstly, over a period of time white cells which are abnormal can damage the immune system. Secondly, there might be excess white cells which can overcrowd red blood cells and platelets and deteriorate their functions. The exact reason for the cause of abnormal white blood cells in some individuals is unknown. However, the risk factors which are associated with the blood cancer or leukemia have been identified (Figure 2). The risk factors are:

### Radiation Exposure

The people who are exposed to X rays of high intensity and ultraviolet light, accidents in nuclear power plant and atomic bomb explosions (during world war II in Japan) are more prone than others to develop leukemia.

### Chemical Contact

Those who are exposed to cancer-causing chemicals such as benzene and other carbon products, as they can cause damage to cells and substances within them. Exposure to formaldehyde increases the risk of developing leukemia.

### Viruses

Human T-cell leukemia virus, which is a rare virus, causes a specific type of leukemia.

### Myelodysplastic syndrome

This is a disease related to blood and those with myelodysplastic syndrome are more likely to develop acute myeloid leukemia.

### Chemotherapy

Cancer patients who have received chemotherapy are likely to be diagnosed with leukemia later in life.

### Genetics

Those who have family members affected with leukemia are more prone to develop leukemia.

## Other blood disorders

Those afflicted with blood disorders like aplastic anemia are prone to blood cancer. Here, the bone marrow fails to produce blood cells correctly.

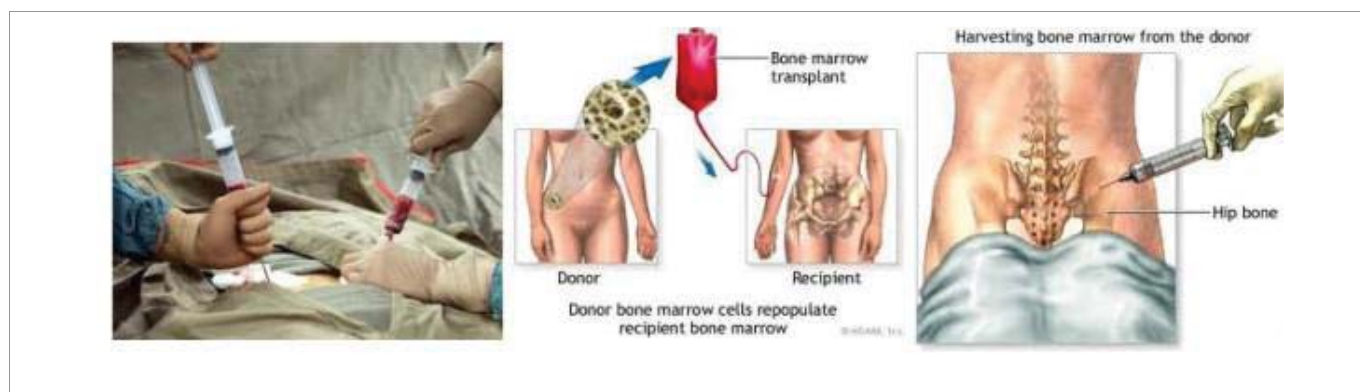
## COPING TECHNIQUES WITH BLOOD CANCER

The reaction to diagnosis of blood cancer varies from person to person. It is normal for the affected individual and family members to express anger, frustration and disappointment. This is the time leukemia patients require emotional support. Here are some tips of coping with that can help ease the situation.

- When the doctor has done diagnosis, share experience with people with whom you are comfortable with. At these you need much-needed support.
- You should be free to interact and share your problems with the doctor.
- You should update yourself with a lot of information and read books on blood cancer. Improving your knowledge about leukemia can be of self-help.
- Keep records of your treatment and track it.
- Be part of a social group in Facebook or Twitter which will provide you support when you are diagnosed with blood cancer. You may be benefited by learning how other cancer patients cope up with their situation.
- You should not change your day-to-day activities like participating in sports, social activities, religious activities etc.
- You should maintain a healthy diet. Avoid foods not recommended by your doctor.
- You should ask for help when required as you may lack stamina to do all that you want to.
- You should go for enjoyable vacation and feel relaxed.
- You should not be controlled by emotions rather try to overcome it.

## RESULTS

With the advancement in technologies and medical health curing



**Figure 1:** This figure tells you the process of bone marrow transplant, which is the last stage of blood cancer.



of blood cancer has become very easy. The only reason for higher increase in rate of death by blood cancer is higher treatment cost. This is the reason why International patients are coming to India for Cancer treatment.

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