

Chronic Myeloid Leukemia

Chronic Myeloid Leukemia (CML) is a type of blood cancer that starts in the bone marrow. Blood cancers, including CML, can be a source of fear for many people due to their perception of the treatment and cure rates associated with some blood cancers. However, it is essential to note that advancements in medical science and treatments have significantly improved the prognosis for CML patients. With appropriate and timely treatment, approximately 80% of CML patients can lead a normal life.

This disease is caused by a chromosomal abnormality in the bone marrow cells. Specifically, a part of chromosome 22 detaches and joins chromosome 9, known as t(9:22). This results in the formation of a new fusion gene called BCR-ABL, which produces a unique protein called P210. This protein acts like an enzyme called tyrosine kinase, promoting the rapid division of cells. As a result, an excessive number of cells are produced, leading to cancer. Over time, these cancer cells replace healthy cells, and they tend to accumulate in the spleen, causing it to enlarge significantly.

In the initial stage, known as the "chronic phase," CML does not cause significant issues other than the enlargement of the spleen. This phase can last for about two to seven years even without any treatment. CML may progress to acute leukemia if left untreated, leading to the blast crisis stage, characterized by

excessive fatigue, fever, bleeding, and other symptoms. Without treatment, patients in this stage typically have a life expectancy of only one to two months. Detecting and starting proper treatment for CML at the early chronic phase is crucial to prevent it from advancing to the blast crisis stage.

A routine blood test may reveal an elevated white blood cell count in individuals with CML. Further tests, such as bone marrow examination, cytogenetics, and PCR tests to detect the BCR-ABL gene, are conducted to confirm the diagnosis of CML. Once the diagnosis is confirmed, treatment with Imatinib tablets is prescribed. Imatinib inhibits protein tyrosine kinase, specifically targeting and killing cancer cells without affecting other cells. Unlike other types of cancers, CML does not usually require traditional chemotherapy.

After initiating imatinib treatment, the patient undergoes regular follow-up examinations initially every two weeks and then every three months. These check-ups monitor any side effects that may have occurred due to the drug and make necessary adjustments to the treatment. They also assess whether the CML disease is decreasing to the desired extent and whether any signs of recurrence are present. Complete blood count is conducted at each visit, and BCR-ABL test is done every six months. If the CML disease does not decrease as expected in these tests or if disease reappears, a test called Imatinib Resistance Mutation Analysis (IRMA) is

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conducted. Based on the mutation found in this test, drugs like Dasatinib, Nilotinib, or Bosutinib may be prescribed as alternative treatments.

While drugs like Imatinib have revolutionized the treatment of Chronic Myeloid Leukemia (CML) and significantly improved the prognosis for patients, it is essential to understand that CML is not completely cured with these medications. Taking drugs like Imatinib is a lifelong treatment to keep the disease under control. Discontinuing Imatinib or similar drugs can lead to CML relapse, and in some cases, it may progress to a more aggressive stage known as blast crisis.

Managing blast crisis requires more intensive and expensive treatments, such as chemotherapy, and the outcome is uncertain. A bone marrow transplant is necessary for patients in blast crisis, if the cancer is controlled by chemotherapy treatments.

It is crucial for CML patients to understand the importance of adhering to their treatment plan and taking Imatinib or other prescribed drugs consistently for life. These drugs are generally safe, with occasional side effects such as low white blood cell count and facial swelling. Just like medications for conditions like

hypertension and diabetes, taking Imatinib regularly is vital to effectively manage CML and maintain a good quality of life.

There are no food restrictions for patients undergoing treatment for CML. For individuals who are of childbearing age or planning to become pregnant, it is crucial to use appropriate contraceptive measures while taking these drugs, as they can have adverse effects on the developing fetus.

CML is not an inherited disease, and it is not contagious, meaning it cannot spread from one person to another. People with CML should be treated like any other normal person and should not face discrimination or stigma because of their condition.

While current treatments like Imatinib have been successful in managing CML, ongoing research is continuously exploring better and more effective treatments for the disease.

If CML patients have any doubts or encounter problems during their treatment, it is essential to consult their team of treating doctors. The medical team can provide accurate information, answer questions, and address any concerns to ensure the best possible care and management of CML.

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