Acute Myeloid Leukemia (AML)

Acute Myeloid Leukemia (AML) is among the various types of blood cancers and is further categorized into several subtypes. Except for AML-M3 (Acute Promyelocytic Leukemia), which has high cure rates, all other AML subtypes are equally bad and have similar method of treatment. This disease affects around 15 out of every one lakh adults on average. Typically, AML is diagnosed in individuals in their seventh decade of life. The exact cause of AML is yet to be fully understood, but it is associated with mutations in the genes of bone marrow stem cells, leading to their transformation into cancer cells. These abnormal cells rapidly multiply, causing the destruction of healthy cells in the bone marrow, resulting in anemia due to a reduced number of red blood cells and a weakened immune system due to a lack of healthy white blood cells. As infections take hold, they may spread rapidly throughout the body, potentially leading to sepsis and organ failure. Additionally, a shortage of platelets can cause bleeding, including in critical organs like the brain or chest, potentially resulting in fatal consequences. AML can also manifest with various symptoms, such as bone pain, swollen lymph nodes and enlarged spleen, and swollen gums.

When regular blood tests are done patients with AML may show reduced blood cell counts. Cancer cells may be visualized when blood is being examined under the microscope. Confirmation of diagnosis is made by conducting bone marrow examination and flow cytometry test.

Untreated cases of AML typically have an average survival period of 6-8 weeks. Even with proper treatment, only approximately 30 to 35% of patients achieve complete cure. It is crucial to acknowledge that the cost of AML treatment is considerably high, making it feasible mainly for financially strong individuals, and decisions regarding treatment should be made with caution, as success is not guaranteed in every case.

In the case of healthy, fit, young patients diagnosed with AML, the initial treatment involves intensive chemotherapy known as 7+3 Induction. After carefully evaluating various blood tests which are sent prior to starting treatment (such as cytogenetics and mutation panel) and the response to the 7+3 induction treatment, the next course of action is determined. Next course of action is referred to as Consolidation. One option for consolidation is administering three cycles of HIDAC chemotherapy, which generally has fewer side effects and a lower risk of mortality. However, patients who undergo HIDAC chemotherapy have a higher likelihood of AML relapse.

Another form of consolidation is bone marrow transplantation, which carries a lower risk of disease recurrence. Nevertheless, bone marrow transplantations come with numerous side effects, some of which can be severe and may even result in the patient's death. Graft Vs Host Disease (GVHD) is a potential long-term complication associated with this treatment.

In elderly individuals or cases where intensive chemotherapy is not feasible for various reasons, a milder approach using drugs like Decitabine or Azacytidine is adopted to manage AML. These medications will not lead to a complete cure, but they can control the disease for a certain period, extending the patient's life. Typically, Decitabine and Azacytidine are administered in 28-day cycles, with at least six cycles given before assessing their effectiveness. If there is a positive response, treatment is continued until disease relapse occurs, usually providing about two to three years of disease-free survival. Fortunately, side effects associated with Decitabine and Azacytidine are minimal.

In cases where the standard drugs fail or financial constraints are a concern, low dose cytarabine therapy may be considered. However, it is essential to note that the success rate of this treatment is generally quite low.

Chemotherapy treatment can weaken the patient's immune system, making them more susceptible to infections, which can become severe if left unattended. Therefore, it is crucial for patients undergoing chemotherapy to be vigilant about any signs of infection, such as fever, chills, vomiting, stomach pain, diarrhea, sore throat, headache, and pain at the PICC line site. If any symptoms of infection arise, patients should seek immediate medical attention and receive appropriate antibiotic injections.

During treatment, it is advisable for patients to avoid crowded places and stay away from individuals with coughs, colds, or fevers. Additionally, taking precautions while consuming food, such as eating well-cooked hot meals and drinking boiled water, can prevent the entry of harmful organisms into the body. Maintaining good hygiene practices, such as daily bathing, brushing teeth, and washing hands before meals, is essential.

Patients should avoid any infections near the anus by taking a "sitz bath" once a day and strive to avoid constipation during the treatment phase. If needed, a laxative like Lactulose can be used. Timely administration of chemotherapy is crucial, and unnecessary delays should be avoided.

It is essential to be aware that the drugs used in chemotherapy can have severe adverse effects on a developing fetus. Thus, patients should take measures to avoid pregnancy during treatment. No special diet is typically required during chemotherapy. AML is not an inherited disease and cannot be spread from one person to another.

Research efforts worldwide are ongoing to find a cure for AML. Some research is still at the laboratory stage, while others are conducted on patients in what is known as clinical trials. If patients have the opportunity to participate in these trials, they should consider taking advantage of it.

For any additional information about AML disease beyond what is provided here, patients can reach out to their treating physician team for guidance and support.

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