

# Acute Promyelocytic Leukemia

*Acute* Promyelocytic Leukemia, also known as AML-M3, is a type of blood cancer originating from promyelocytes, which are a stage of white blood cell development in the bone marrow. The disease is caused by a genetic exchange between chromosome 15 and 17, resulting in the formation of a new gene called PML-RARA, responsible for APML.

APML is classified based on the number of white blood cells in the blood. When the count is below 10,000, it is categorized as Low Risk, and when it exceeds 10,000, it is considered High Risk. Malignant promyelocytes invade the bone marrow and hinder platelet production, leading to bleeding symptoms in different parts of the body. In severe cases, there can be bleeding in the brain, which can be fatal. As this cancer progresses rapidly, death may occur within days. Timely diagnosis and immediate treatment are crucial in managing APML effectively.

Interestingly, patients with APML not only experience bleeding symptoms but also have a higher risk of clotting of blood within blood vessels. Hence, initial treatment must carefully balance addressing both bleeding and clotting risks. Large quantities of platelets, plasma, and red blood cells may need to be transfused during this phase. During the first 15 to 20 days of treatment, the patient's life is at risk. However, with appropriate and prompt treatment, the cure rate can exceed 80 percent.

Before commencing treatment, several tests should be conducted, including bone marrow examination, flow cytometry, cytogenetics, and PCR to detect the PML-RARA gene. Additionally, ECG and 2D-ECHO tests are necessary to assess the patient's fitness for the treatment.

In the treatment of APML, drugs like Arsenic Trioxide and ATRA (All-Trans Retinoic Acid) play a significant role. High risk patients may receive a small amount of chemotherapy in combination with these drugs. Throughout the treatment, daily blood tests are conducted to monitor the effects of the drugs. Based on these blood test reports, blood transfusions or other treatments may be necessary. In the initial days of treatment, there can be a sudden increase in number of white blood cells, leading to breathing difficulties, which is known as "Differentiation Syndrome." This issue can be managed using drugs like hydroxyurea and steroids. Additionally, ATRA may cause headaches, and there could be problems such as swelling within eyes. In some cases, the levels of different blood cells may drop significantly, which need a reduction in the medicine dosage.

The treatment starts with the Induction phase, followed by a bone marrow examination to confirm disease remission. If the report suggests good response to treatment, the Consolidation phase begins. Regular PCR tests for PML-RARA are conducted every three months after consolidation. High risk patients may require maintenance treatment. The total duration of treatment varies from one year to two and a half years, depending on the

Supported by:

[www.howitreat.in](http://www.howitreat.in)

treatment protocol. Both Arsenic Trioxide and ATRA are not traditional chemotherapy treatments; hence there is a lower chance of side effects.

Patients undergoing treatment for APML should be cautious not to become pregnant, as the drugs used can have severe effects on the developing fetus. While there are no specific dietary requirements, it is advisable to consume mostly cooked food items. During treatment, a PICC line is placed near the elbow to administer drugs and collect blood for tests. The dressing of line should be changed weekly. Patients should maintain good hygiene practices,

such as brushing teeth twice a day and taking a daily bath, to reduce the risk of infections.

APML is not an inherited disease and cannot be transmitted from one person to another. Ongoing research in APML treatment involves testing new approaches through clinical trials. Patients are encouraged to consider participating in these trials to contribute to advancements in the field. For any additional information about APML beyond what is provided here, patients should consult their treating physician.

**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 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.*