

Acute Myeloid Leukemia (AML)

Fact Sheet

Leukemia is a cancer that begins in the bone marrow (the soft inner part of some bones), but in most cases, moves into the blood. It can then spread to other parts of the body, such as organs and tissues.¹

Acute Myeloid Leukemia (AML) is a fast growing form of leukemia that if left untreated can be fatal. AML begins in bone marrow cells and spreads into the blood system,¹ most often occurring in immature white blood cells.² AML is often referred to as acute myelocytic leukemia, acute myelogenous leukemia, acute granulocytic leukemia and acute non-lymphocytic leukemia.¹

Facts and Figures

- AML is one of the most common types of leukemia in adults, yet continues to have the lowest survival rate of all leukemias.³
- AML accounts for 25 percent of all leukemias of adults in the Western world, with the highest incidence rates occurring in the United States, Australia and Europe.³
- In the United States, the median age of diagnosis is 67 years of age.²
- The estimated five-year survival rate of patients diagnosed with AML between 1999 and 2006 was approximately 24 percent in the United States.²
- It is estimated that more than 13,000 new cases of AML occur in the United States each year.
- There is no standard staging system of AML. The disease is described as untreated, in remission or recurrent.⁴

AML Classification

Most AML subtypes are based on the maturity of cancer cells at the time of diagnosis, and how different the cells are from normal cells.⁴

Two systems are used when classifying leukemia:

- French, American and British leukemia experts created a system dividing AML into subtypes, M0 through M7, based on the type of cell from which the leukemia developed and how mature the cells are.⁵
 - 5-10 percent of AML patients are classified within the worst subtypes, M0, M6 and M7.⁵
- The World Health Organization (WHO) classifies cases of AML based on a patient's outlook such as AML with certain genetic abnormalities.⁵
 - Abnormalities include translocations between chromosomes 8 and 21, inversion in chromosome 16 and changes in chromosome 11, AML with multilineage dysplasia, more than one abnormal myeloid cell type and AML related to previous chemotherapy or radiation.⁵

Diagnosis and Risk Factors

A diagnosis of AML is usually made with information from a physical exam and blood/bone marrow tests, including complete blood count, blood chemistry study, subtype and a peripheral blood smear. A cytogenetic analysis and immunophenotyping are also used to evaluate cells for AML traits.⁴ Once AML has been diagnosed, tests are often done to find out whether the cancer has spread to other parts of the body.⁴

Critical prognostic factors include:⁵

- Cytogenetic test results showing chromosome or gene changes
- Age (older than 60 years of age)
- White blood cell count
- Pre-existing blood disorders such as a myelodysplastic syndrome
- History of treatment with chemotherapy and/or radiation
- Chromosome abnormalities
 - Unfavorable abnormalities include deletion of part of chromosome 5 or 7 and complex changes in several chromosomes

In addition, many early symptoms of AML may be like those caused by the flu or other common diseases and should be discussed with a physician. These include fever, shortness of breath, easy bruising or bleeding,

weakness and fatigue, weight loss or loss of appetite and petechiae (flat, pinpoint spots under the skin caused by bleeding).⁴

Treatment⁴

Standard treatments for AML include chemotherapy, radiation therapy, and stem cell transplant. Targeted therapies, such as monoclonal antibodies, are also being evaluated in clinical trials for the treatment of AML.

Treatment of AML is typically completed in two phases:

- **Remission Induction Therapy** is used to put the leukemia into remission by killing the leukemia cells in the blood and bone marrow
- **Post-remission Therapy** is the second phase of the treatment, and begins after the leukemia is in remission to kill any remaining leukemia cells that may not be active but could recur

¹ American Cancer Society. What is Chronic Myeloid Leukemia? 2009. Available at: http://www.cancer.org/docroot/CRI/content/CRI_2_2_1x_What_Is_Chronic_Myeloid_Leukemia.asp?rnav=cri. Accessed February 4, 2010.

² National Cancer Institute. SEER Stat Fact Sheets: Acute Myeloid Leukemia. Available at: <http://seer.cancer.gov/statfacts/html/amyl.html>. Accessed June 14, 2010.

³ Deschler B et al. Acute Myeloid Leukemia: Epidemiology and Etiology. *Cancer*. 2006. 2009-2107.

⁴ National Cancer Institute. General Information About Adult Acute Myeloid Leukemia. Available at: <http://www.cancer.gov/cancertopics/pdq/treatment/adultAML>. Accessed June 14, 2010.

⁵ American Cancer Society. How is Acute Myeloid Leukemia (AML) Classified? 2010. Available at: http://www.cancer.org/docroot/CRI/content/CRI_2_4_3x_How_Is_Acute_Myeloid_Leukemia_AML_Classified.asp?rnav=cri. Accessed June 14, 2010.