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a.      What is Acute Myeloid Leukemia?

Acute myeloid leukemia (AML) is a cancer of the bone marrow and the blood. It’s a fast-growing type of leukemia and is the most common type of acute [leukemia](safari-reader://utswmed.org/conditions-treatments/leukemia/) affecting adults. In AML, abnormal white blood cells build up in the bone marrow and interfere with the production of normal blood cells.

Without treatment, AML progresses rapidly. However, for some patients, AML is curable.

b.      What causes it?

A number of risk factors for developing AML have been identified, including: other blood disorders, chemical exposures, ionizing radiation, and genetics.

AML is neither contagious nor inherited. However, people who suffer from certain genetic disorders, such as Fanconi anemia, Klinefelter syndrome, Patau syndrome, Bloom syndrome, and Down syndrome, are at greater risk of developing AML than the general population. A child with Down syndrome is roughly 14 times as likely as the average child to develop leukemia.

Any person who has been exposed to radiation at high doses is at heightened risk of developing AML, as are people exposed to benzene, a chemical used in the manufacture of plastics, rubber, medicines, and certain other chemicals including petrochemicals. Another group of people at increased risk for developing AML are those who have been treated for cancer previously. The number of treatment-related cases of AML is increasing particularly in survivors of childhood and adolescent cancers such as Hodgkin’s disease, lymphoma, sarcoma, testicular cancer and breast cancer.

 Cancers (including AML) can be caused by mutations (changes) that turn on oncogenes or turn off tumor suppressor genes. For instance, changes in certain genes such as *FLT3*, *c-KIT*, and *RAS*are common in AML cells. These types of changes can stop bone marrow cells from maturing the way they normally would, or help the cells grow out of control.

Mutations in many different genes can be found in AML, but larger changes in one or more chromosomes are also common. Even though these changes involve larger pieces of DNA, their effects are still likely to be due to changes in just one or a few genes that are on that part of the chromosome.

Some changes seem to have more of an effect on a person’s prognosis (outlook) than others. For instance, some changes might affect how quickly the leukemia cells grow, or how likely they are to respond to treatment.

c.       What are the symptoms & consequences of AML?

Some AML symptoms include [fever](https://en.wikipedia.org/wiki/Fever), [fatigue](https://en.wikipedia.org/wiki/Fatigue_(physical)), [weight loss](https://en.wikipedia.org/wiki/Weight_loss) or [loss of appetite](https://en.wikipedia.org/wiki/Loss_of_appetite), [shortness of breath](https://en.wikipedia.org/wiki/Dyspnea), anemia, easy bruising or bleeding, [petechiae](https://en.wikipedia.org/wiki/Petechia) (flat, pin-head sized spots under the skin caused by bleeding), bone and joint pain, and persistent or frequent [infections](https://en.wikipedia.org/wiki/Infections).

[Enlargement of the spleen](https://en.wikipedia.org/wiki/Splenomegaly) may occur in AML, but it is typically mild and [asymptomatic](https://en.wikipedia.org/wiki/Asymptomatic). [Lymph node swelling](https://en.wikipedia.org/wiki/Lymphadenopathy) is rare in AML, in contrast to [acute lymphoblastic leukemia](https://en.wikipedia.org/wiki/Acute_lymphoblastic_leukemia). The skin is involved about 10% of the time in the form of [leukemia cutis](https://en.wikipedia.org/wiki/Leukemia_cutis).

d.      What treatments are available?

First-line treatment of AML consists primarily of [chemotherapy](https://en.wikipedia.org/wiki/Chemotherapy), and is divided into two phases: induction and postremission (or consolidation) therapy. The goal of induction therapy is to achieve a complete remission by reducing the number of leukemic cells to an undetectable level; the goal of consolidation therapy is to eliminate any residual undetectable disease and achieve a cure. Hematopoietic stem cell transplantation is usually considered if induction chemotherapy fails or after a person relapses, although transplantation is also sometimes used as front-line therapy for people with high-risk disease. Efforts to use [tyrosine kinase inhibitors](https://en.wikipedia.org/wiki/Tyrosine-kinase_inhibitor) in AML continue.

## e. What are the demographics?

According to the American Cancer Society, approximately 13,290 people were diagnosed with AML in the Unites States in 2008. An estimated 8,820 people died of the disease during that same time period. Older persons are considerably more likely to develop AML. As the general population continues to age, it is anticipated that the number of cases of AML will continue to rise as well.

AML sometimes affects children. About 500 children develop AML in the United States every year. Approximately one in five of all children who develop leukemia develop AML. The disease affects boys and girls in roughly equal numbers. Children in all ethnic groups may develop the disease. If one of two identical twins develop AML, the chances are considerable that the other twin will develop the disease as well.

e.      Anything else your group finds interesting or of note about the disorder.

MLA CITATIONS

"Acute Myelocytic Leukemia." *The Gale Encyclopedia of Cancer*, edited by Jacqueline L. Longe, 3rd ed., vol. 1, Gale, 2010, pp. 20-25. *Gale Virtual Reference Library*, http://link.galegroup.com.southseattle.idm.oclc.org/apps/doc/CX2468300018/GVRL?u=seat89073&sid=GVRL&xid=7e2d6b9c. Accessed 21 June 2019.

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