Acute Lymphoblastic Leukemia

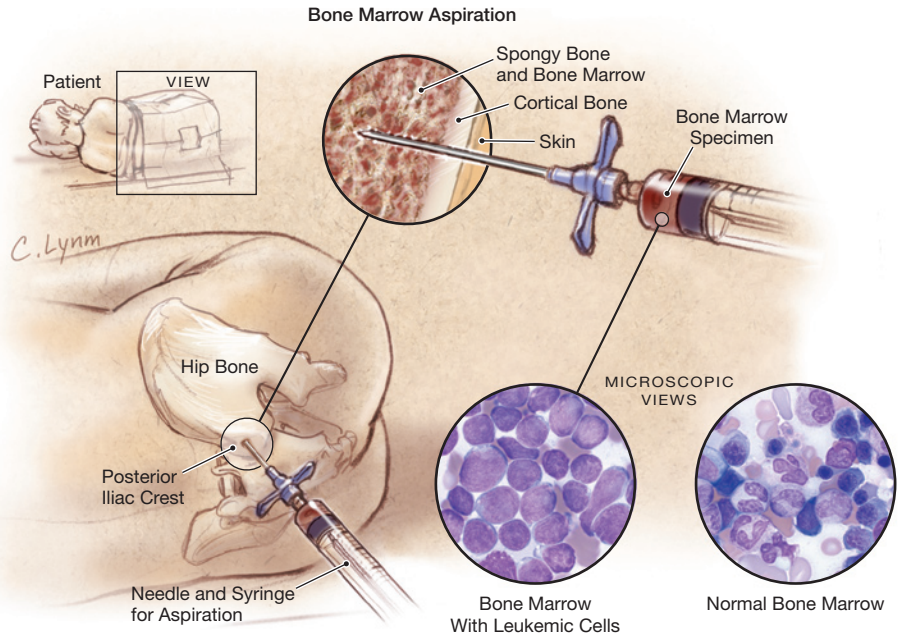
Acute lymphoblastic leukemia (**ALL**) is the most common cancer in children and represents about one quarter of all cancers among persons younger than 15 years. Acute lymphoblastic leukemia is a cancer of the blood and **bone marrow** (spongy tissue in the center of bone). In ALL, too many marrow stem cells develop into a type of white blood cell called lymphocytes. These abnormal lymphocytes are not able to fight infection very well. Also, as the number of these lymphocytes increases, there is less room for healthy white blood cells, red blood cells, and platelets. This may lead to infection, fatigue, and easy bleeding. The March 21, 2007, issue of *JAMA* includes an article about the number of secondary cancers increasing over 30 years after successful treatment for ALL. The results suggest that lifelong follow-up of ALL survivors is needed.

LEUKEMIA SYMPTOMS

- Fatigue
- Fever
- Easy bruising
- Bone pain

DIAGNOSTIC TESTS

- **Complete blood count** (**CBC**)—a blood test that checks the number of red blood cells, white blood cells, and platelets.
- **Bone marrow aspiration**—a needle is placed into the hip bone or breastbone and a sample of bone marrow is taken and examined for signs of cancer.
- **Cytogenetic analysis**—lymphocytic cells taken from blood or bone marrow are examined to see if there are any changes in their chromosomes (genetic material).
- **Immunophenotyping**—a test to see if cancer lymphocytes originated from B lymphocytes or T lymphocytes. This information is helpful in treating ALL.



PROGNOSIS AND TREATMENT

Prognosis (chance of recovery) from childhood ALL is usually very good; however, both prognosis and treatment depend on

- Age and white blood cell count at diagnosis
- Response to initial treatment
- Origin of leukemia cells (from B or T lymphocytes)
- Certain changes in the chromosomes of the lymphocytes
- Involvement of the brain and spinal cord

Different types of treatment programs are available. Some programs are standard (currently used) and some are being tested in clinical trials (experimental). Most use **chemotherapy** (drug therapy). In addition, some patients may also need **radiation therapy** (use of high-energy x-rays) or bone marrow transplantation.

FOR MORE INFORMATION

- Children's Oncology Group/National Childhood Cancer Foundation
  www.curesearch.org
- American Academy of Pediatrics
  www.aap.org

INFORM YOURSELF

To find this and previous JAMA Patient Pages, go to the Patient Page link on *JAMA*'s Web site at www.jama.com. Many are available in English and Spanish. A previous Patient Page on childhood leukemia was published in the January 28, 2004, issue.

Sources: American Cancer Society, American Academy of Pediatrics
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