

manifestations, and a peripheral blood smear that contains immature forms of leukocytes, frequently in combination with low blood counts. Definitive diagnosis is based on bone marrow aspiration or biopsy. Typically the bone marrow shows a monotonous infiltrate of blast cells. Once the diagnosis is confirmed, an LP is performed to determine whether there is any CNS involvement. Although only a small number of children have CNS involvement, they are usually asymptomatic.

## **Therapeutic Management**

Treatment of leukemia involves the use of IV and intrathecal chemotherapeutic agents. Radiation is sometimes used for resistant CNS disease or testicular relapse. Typically leukemia treatment is divided into phases: (1) induction, which achieves a complete remission or clinical disappearance of leukemic cells; (2) intensification, or consolidation, therapy, which further decreases the total tumor burden; and (3) maintenance, which consists of further chemotherapy to ensure the disease stays in remission. Although the combination of drugs and possibility of irradiation may vary according to the institution, the patient's prognostic or risk characteristics, and the type of leukemia being treated, the following general principles for each phase are consistently employed.

### **Remission Induction**

Almost immediately after confirmation of the diagnosis, induction therapy is begun and lasts for 4 to 5 weeks. A complete remission is determined by the absence of clinical signs or symptoms of the disease and the presence of less than 5% blast cells in the bone marrow ([Rabin, Gramatges, Margolin, et al, 2016](#)).

Because many of the chemotherapy drugs also cause myelosuppression of normal blood elements, the period immediately after a remission can be critical. The body is defenseless against invading organisms (especially normal bacterial flora) and susceptible to spontaneous hemorrhage. Consequently, supportive therapy during this time is essential.

### **Intensification, or Consolidation, Therapy**