

leukemia. Other sites that may become invaded with leukemic cells include the kidneys, testes, prostate, ovaries, gastrointestinal tract, and lungs.

Onset

The onset of leukemia varies from acute to insidious. In most instances, the child displays remarkably few symptoms. For example, leukemia may be diagnosed when a minor infection, such as a cold, fails to completely disappear. The child is pale, listless, irritable, febrile, and anorexic. Parents often suspect some underlying problem when they observe the weight loss, petechiae, bruising without cause, and continued complaints of bone and joint pain.

At other times leukemia is diagnosed after an extended history of signs and symptoms mimicking such conditions as rheumatoid arthritis or mononucleosis. In some cases, the diagnosis of leukemia accompanies some totally unrelated event, such as a routine physical examination or injury.

The history not only yields valuable medical information regarding the subsequent course of the illness but also bears heavily on the parents' emotional reaction to the diagnosis. In most instances, the diagnosis is an unexpected revelation of catastrophic proportion.

Prognostic Factors

The most important prognostic factors in determining long-term survival for children with ALL are the initial white blood cell count, the patient's age at diagnosis, cytogenetics, the immunologic subtype, and the child's sex. Favorable indicators include a white blood cell count $<50,000/\text{mm}^3$, 2 to 10 years of age, hyperdiploid cytogenetics, early pre-B cell immunologic subtype, and female sex. For children with AML, prognostic factors associated with a poorer prognosis include certain chromosome abnormalities (monosomy 5 or 7), chromosomal rearrangements, and a poor initial response to therapy ([Arceci and Meshinchi, 2016](#)).

Diagnostic Evaluation

Leukemia is usually suspected from the history, physical