Childhood Acute Lymphoblastic Leukemia: Current Perspectives

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Purpose/Objectives: To provide an overview of childhood acute lymphoblastic leukemia (ALL), including epidemiology, clinical presentation, diagnostic classification, prognostic factors, current treatment, long-term sequelae, and nursing management.

Data Sources: Journal articles, books, and clinical experience.

Data Synthesis: Childhood ALL is a heterogeneous disorder, and current treatment is tailored to risk factors (e.g., initial white blood count, cytogenetic properties of the leukemic blasts). Risk-directed therapy ensures that children with a higher risk of relapse receive more intensive treatment, whereas those with lower risk disease receive less toxic therapy with decreased potential for treatment-related morbidity. Quality of life in long-term survivors is a significant issue. Late sequelae of treatment can include neurocognitive difficulties, endocrine dysfunction, secondary malignancies, and cardiomyopathy.

Conclusions: With risk-directed therapy, cure rates for childhood ALL continue to improve. At least 80% of children diagnosed with ALL today are expected to survive their disease.

Implications for Nursing Practice: Nurses caring for children with ALL can have a significant impact on the children's overall health, from diagnosis through long-term follow-up. Nursing interventions encompass the domains of physical and psychosocial care, as well as patient and family education. Assisting the child and family to maintain normalcy in the face of chronic illness, as well as fostering the family's hope for the future and their belief in the child's potential for survival, are key nursing strategies that promote the child's growth, development, and psychological health.

Key Points . . .

➤ More than 80% of children diagnosed with acute lymphoblastic leukemia (ALL) now are being cured of their disease.

➤ Important prognostic factors include age at diagnosis, initial white blood cell count, rapidity of response to therapy, and genetic features of leukemic blasts.

➤ Reduction in adverse late effects is an important goal of current ALL treatment protocols.

➤ Nurses can positively affect quality of life in children with ALL by providing a positive, future-oriented outlook coupled with a realistic expectation of survival.

Objectives for CE Enrollees

On completion of this CE, the participant will be able to
1. Describe the epidemiology of childhood acute lymphoblastic leukemia (ALL).
2. Describe treatment regimens available for the treatment of ALL.
3. Describe nursing implications for management of patients with ALL and their families.

Just over 50 years ago, childhood acute lymphoblastic leukemia (ALL) was a universally fatal disease, with half of affected children succumbing within four months of diagnosis. The first treatment for childhood ALL was introduced in the late 1940s, but the disease was still considered incurable until the 1960s when combination chemotherapy and prophylactic central nervous system (CNS) therapy were introduced, resulting in survival of five years or more in some children. In the 1970s, intensified therapy further improved survival rates. In the 1980s, therapy was refined to provide more intense therapy for those at higher risk of relapse and less toxic therapy for those at lower risk. In the 1990s, the focus shifted to the study of molecular characteristics of the disease and refinement of treatment regimens based on genetic abnormalities of leukemic clones. Today, children diagnosed with ALL have an overall cure rate of at least 80%, with some low-risk subgroups approaching a 90% chance of cure (Pui & Evans, 1998; Rubnitz & Crist, 1997). The advances made in the treatment of ALL over the past 50 years, achieved both through collaboration of multidisciplinary teams of specialists in cooperative groups

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