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Estimated long-term outcomes in children newly diagnosed with standard risk acute lymphoblastic leukemia (ALL) based on similarly treated members of the Childhood Cancer Survivor Study (CCSS) cohort

Background: Therapy for ALL has evolved such that the risk for late effects in children treated in early eras is likely different from those that will occur in children treated today. In order to estimate future risks for late effects in newly diagnosed children with standard risk ALL, we examined the long-term outcomes in a cohort of patients enrolled in the CCSS who were treated in a manner analogous to contemporary ALL therapies.

Methods: We assessed outcomes that occurred ≥ 5 years from diagnosis in survivors of ALL enrolled in the CCSS who were aged 1-9.9 years at diagnosis, treated with 0-120 mg/m² of anthracyclines and 0-1000 mg/m² of alkylating agents, and no radiotherapy. We compared their risks for death, second malignant neoplasms (SMN), chronic physical health conditions and decreased health status with the general population (death and SMN) and the CCSS sibling cohort (remaining outcomes).

Results: 556 survivors were eligible. At last assessment, they were a median of 27.8 years old (range 9.1 to 45.7) and 23.4 years (range 5.0-38.0) from diagnosis. 29/556 (5.2%) died (standardized mortality ratio 3.6, 95% CI 2.4-5.2); 12 of these deaths were due to ALL recurrence. Compared to siblings, the rate ratio for ≥ 1 chronic condition was 1.4 (95% CI 1.3-1.6), and for a severe/life threatening chronic condition was 1.7 (95% CI 1.3-2.3). Four survivors (0.7%) developed a SMN (standardized incidence ratio 1.7, 95% CI 0.5-4.5), 114 were obese (odds ratio (OR) 1.2, 95% CI 1.0-1.5), and 2 (0.4%) reported a stroke. No survivors reported symptomatic congestive heart failure. The OR for reporting adverse general health was 1.2 (95% CI 0.8-1.8), poor mental health 1.3 (95% CI 1.0-1.8), decreased functional status 2.1 (95% CI 1.4-3.0), and activity limitations 1.4 (95% CI 1.1-1.8).

Conclusions: Children treated for standard risk ALL on contemporary protocols are at increased risk for future chronic health conditions and decreased health status. Despite excellent survival after leukemia therapy, such survivors will likely benefit from life-long medical care focused on the long-term risks stemming from their therapy.

1982 Do not exceed 2,000 characters (approximately 300 to 350 words) for the total of your abstract title, body, and table. The character count does NOT include spaces or author names or institutions.