

Reducing treatment-related mortality in childhood cancers

Regimens that decrease therapeutic exposure for patients with childhood cancer are now reducing late treatment-related mortality, which once occurred in 18% of survivors within 30 years of their diagnosis in the 1970s and 1980s.

Anticancer treatment for childhood malignancies has progressed during the last 50 years to improve efficacy while limiting anthracycline exposure and lowering rates of radiotherapy (the latter in acute lymphoblastic leukaemia, Wilms' tumour, and Hodgkin's lymphoma). The effect of reduced therapeutic exposure on late mortality in survivors of childhood cancer was investigated in the retrospective Childhood Cancer Survivor Study (CCSS) by collaborative researchers from 31 US and Canadian institutions. Patients in the study with a cancer diagnosis before the age of 21 years who had received treatment between 1970 and 1999, and who had survived

a minimum of 5 years after diagnosis (n=34 033), were followed up for a median of 21 years (range 5–38).

CCSS investigators noted that 15-year mortality from any cause was halved in childhood cancer survivors who were diagnosed in the early 1990s compared with those diagnosed in the early 1970s (6.0% vs 12.4%, respectively; $p<0.001$). This reduction in mortality was due to a decrease in both treatment-induced health problems and recurrence or progression. 15-year mortality from any health-related cause was 2.1% in survivors diagnosed in the early 1990s compared with 3.5% in those diagnosed in the early 1970s ($p<0.001$); this improvement was associated in part with fewer deaths from treatment-induced effects such as secondary malignancies ($p<0.001$), heart conditions ($p=0.001$), and lung problems ($p=0.04$).

Lead author Gregory Armstrong (St Jude Children's Research Hospital, Memphis, TN, USA) said that this study "validates a change in practice that occurred over the past 20–30 years. We have found that you can reduce therapy in low-risk patients and, while maintaining excellent 5-year survival, extend their lifespan by reducing deaths attributable to late effects".

Jill Ginsberg (The Children's Hospital of Philadelphia Cancer Survivorship Program, Philadelphia, PA, USA) said that "the field of pediatric oncology has made great strides in curing children with cancer. 83% of patients with childhood cancer in the US become 5-year survivors. CCSS provides invaluable data on the health of survivors. It will be critical to continue studies such as these as we use more and more tailored therapy such as proton therapy and immunotherapy".

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