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Temporal changes in treatment and late mortality and morbidity in adult survivors of childhood glioma: a report from the Childhood Cancer Survivor Study

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Abstract

Pediatric glioma therapy has evolved to delay or eliminate radiation for low-grade tumors. This study examined these temporal changes in therapy with long-term outcomes in adult survivors of childhood glioma. Among 2,501 5-year survivors of glioma in the Childhood Cancer Survivor Study diagnosed 1970-1999, exposure to radiation decreased over time. Survivors from more recent eras were at lower risk of late mortality (≥ 5 years from diagnosis), severe/disabling/life-threatening chronic health conditions (CHCs) and subsequent neoplasms (SNs). Adjusting for treatment exposure (surgery only, chemotherapy, or any cranial radiation) attenuated this risk (for example, CHCs (1990s versus 1970s), relative risk (95% confidence interval), 0.63 (0.49-0.80) without adjustment versus 0.93 (0.72-1.20) with adjustment). Compared to surgery alone, radiation was associated with greater than four times the risk of late mortality, CHCs and SNs. Evolving therapy, particularly avoidance of cranial radiation, has improved late outcomes for childhood glioma survivors without increased risk for late recurrence.

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