

Abstract Pediatric SNO (total of 300 words)

Title: Impact of stroke and stroke recurrence on late mortality as well as psychological and socioeconomic outcomes in Childhood Cancer Survivors.

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Background: Survivors of childhood cancer treated with cranial radiation therapy (CRT) are at high risk for stroke and stroke recurrence. However, the impact of stroke on psychological and socioeconomic outcomes and late mortality is not known.

Methods: Using the Childhood Cancer Survivor Study cohort, mortality rates (IR) per 100 person-years and 95% confidence intervals (CI) were calculated across three time periods: (1) prior to stroke (stroke free); (2) after first stroke but before recurrent stroke (post stroke); and (3) post recurrent stroke. Associations between stroke and psychological (neurocognitive function, emotional distress, health-related quality of life) and socioeconomic outcomes (education, income, employment, marital status, and independent living) were assessed using multivariable logistic regression adjusted for sex, age at diagnosis, and maximum CRT dose to calculate odds ratios (OR).

Results: Among 14,311 5+ year survivors (median age at survey 34.2 years, range 5.6-58.0; median time from diagnosis 26.2 years, range 5.0-38.0) 222 had a stroke \geq 5 years from diagnosis (single n=169; recurrent n=53). Based on 2,021 deaths, the all-cause late mortality rate increased from 0.67 (CI 0.64-0.70) in the stroke-free time period to 3.5 (CI 2.1-6.0) post recurrent stroke. Among 7,205 survivors with longitudinal follow-up, those with history of stroke were: more likely to live with a caregiver (single stroke OR 2.2 (CI 1.4-3.7); recurrent stroke OR 5.1 (CI 1.6-16.0)); have limited physical function (single stroke OR 3.0 (CI 1.8-5.1); recurrent stroke OR 10.4 (CI 3.6-30.4)); and increased body pain (single stroke OR 2.0 (CI 1.2-3.4); recurrent stroke OR 3.1, CI 1.1-8.8)). Risk was increased for memory impairment, OR 3.4 (CI 1.1-10.2) and depression OR 4.8 (CI 1.7-13.7) only after recurrent stroke.

Conclusions: Stroke and stroke recurrence contribute to late mortality and negatively impacts longterm outcome in pediatric cancer survivors. A better understanding of the pathogenesis of post-CRT stroke is needed to improve stroke prevention strategies.