

## **Risk of Stroke Among > 5 Year Survivors of Childhood Leukemia and Brain Tumors; a Report from the Childhood Cancer Survivor Study.**

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**Background:** Leukemia and brain tumors are the two most common cancers of childhood. This report examines the frequency of and risk factors for stroke that occur > 5 years following diagnosis among survivors of childhood leukemia and brain tumors.

**Methods:** The CCSS is a multi-institutional cohort study of > 5 years survivors diagnosed between 1970 – 1986. The rate of first occurrence of self-reported strokes was determined for leukemia survivors (n = 4828), brain tumor survivors (n = 1871), and a random sample of siblings (n = 3846). Multivariate analyses were used to determine the relative risks (RR) and 95% confidence intervals (CI) for strokes occurring > 5 years after diagnosis by demographic features and treatment exposures.

**Results:** The mean age at diagnosis and interview of the leukemia survivors was 5.9 years and 24.3 years, respectively. The mean age at diagnosis and interview of the brain tumor survivors was 7.7 years and 25.8 years, respectively. The mean age at interview of the sibling comparison group was 28.8 years. 97 leukemia survivors and 117 brain tumor survivors reported a stroke at a mean age of 11.5 and 15.9 years, respectively. The relative risk for stroke among > 5 year survivors of childhood leukemia was 7.41 (95% CI, 3.3 – 16.5; p< 0.0001) and of brain tumors was 33.23 (95% CI, 15.2 – 72.7; p< 0.0001), adjusted for age, gender, and race. The relative risk for stroke among > 5 year survivors of childhood leukemia with cranial radiation therapy (CRT) was 6.75 (95% CI, 2.9 – 15.9; p< 0.0001) and of brain tumors with CRT was 42.64 (95% CI, 19.2 – 94.7; p< 0.0001).

**Conclusions:** Survivors of childhood leukemia and brain tumors and especially those with brain tumors treated with cranial radiation therapy are at an increased risk of stroke. More work is necessary to understand the etiology of and prevention of stroke in cancer survivors.