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## Cancer Advances: Childhood Leukemia and Brain Tumor Survivors at Increased Risk of Stroke Later in Life

A new study shows that long-term survivors of childhood leukemia and brain tumors are at increased risk of stroke well after their cancer treatment has ended, and that this risk is higher among those who were treated with a particular type of radiation therapy. The research, conducted as part of the Childhood Cancer Survivor Study (CCSS), will be published online November 6 in the *Journal of Clinical Oncology* (JCO).

Leukemia and brain tumors together account for 53% of all cancers diagnosed in children younger than 15. Current five-year survival rates are nearly 80% for leukemia and 74% for brain tumors, making the long-term side effects of treatment for these cancers an important area of study. Treatment for both diseases involves therapy that targets the central nervous system; treatment sometimes includes moderate or high-dose radiation therapy to the brain (known as cranial radiotherapy).

The researchers surveyed 4,828 leukemia survivors and 1,871 brain tumor survivors participating in CCSS, as well as a control group of 3,846 of their siblings who had not had cancer, about their history of stroke. Among leukemia survivors, the occurrence of stroke was 0.8% (one in every 125 survivors), compared with 0.2% (one in every 500 survivors) for the control group. The average time from leukemia diagnosis to stroke was 10 years. For brain tumor survivors, the occurrence of stroke was 3.4% (one in 30 survivors), and as high as 6.5% (one in every 15 survivors) for patients who had been treated with both cranial radiotherapy and chemotherapy. Among brain tumor survivors, the average time from cancer diagnosis to stroke following treatment was 14 years.

### What Does This Mean for Patients?




It is important for survivors and their doctors to know that the long-term effects of childhood cancer and its treatment can be reduced through careful planning of follow-up screening and care. Survivors of childhood leukemia or brain tumors should also be aware of their small but increased risk of stroke, and should seek immediate medical attention for any symptoms of stroke (such as temporary weakness on one side of the body). For pediatric patients currently being treated for these cancers, studies are underway to evaluate whether the dose for radiation treatment can be reduced safely.

### Helpful Links

- [www.plwc.org/childhood](http://www.plwc.org/childhood)
- [www.plwc.org/survivorship](http://www.plwc.org/survivorship)

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