MedicalXpress

Pediatric study finds alternatives for radiation of low-grade brain tumors

October 6 2008

A multi-institutional study led by researchers at The University of Texas M. D. Anderson Cancer Center has found that using chemotherapy alone and delaying or avoiding cranial radiation altogether can be effective in treating pediatric patients with unresectable or progressive low-grade glioma. The study was presented Sunday at the 40th annual International Society of Pediatric Oncology Meeting in Berlin, Germany.

Low-grade glioma is the most common brain tumor in children. If eligible for surgery, overall survival rate for these children is 95 percent. However, for patients with tumors in locations that prevent surgical removal or whose tumor is progressive after surgery, prognosis is worse.

A majority of pediatric oncologists use cranial radiation to treat patients with unresectable or progressive brain tumors. Although radiation is often effective, the long-term effects such as mental impairment, hormonal deficiencies and increased rate of stroke late in life can be detrimental to young patients - causing some physicians and families to decide against treatment.

"This is the first large, multi-institutional study to investigate using chemotherapy as an alternative to cranial radiation," says Joann Ater, M.D., professor of pediatrics at the Children's Cancer Hospital at M. D. Anderson. "The results have confirmed the ability of chemotherapy to control the disease."

Ater is principal investigator for the Children's Oncology Group (COG)

study and developed the Phase III trial, which compared two different chemotherapy regimens across three different patient groups. Smaller pilot studies have shown a carboplatin and vincristine (CV) regimen to be effective against low-grade glioma. However, the COG trial with 401 patients enrolled, showed that a thioguanine, procarbazine, lomustine and vincristine (TPCV) regimen was more effective than the CV regimen and resulted in a five-year event-free survival rate of nearly 50 percent.

Patients under 5 years old averaged 2.2 years before the disease progressed on the CV regimen, while patients between 5 to 10 years old, averaged 5.3 years before disease progression. Patients on the TPCV regimen fared better, with those 5 to 10 years old averaging more than eight years without disease progression. The trial also studied chemotherapy for neurofibromatosis patients who had low-grade gliomas. This patient population had the best response to chemotherapy among the three groups.

"If we can delay radiation, then we allow more time for our youngest patients to develop physically, which could decrease some of the long-term effects from treatment," Ater says. "This trial at least gives parents more information and alternative options when making decisions about their child's treatment."

Source: University of Texas M. D. Anderson Cancer Center