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Clinical trial suggests combination therapy is best for low-grade brain tumors

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New clinical-trial findings provide further evidence that combining chemotherapy with radiation therapy is the best treatment for people with a low-grade form of brain cancer. The findings come from a phase II study co-led by a researcher at Ohio State University Comprehensive Cancer Center - Arthur G. James Cancer Hospital and Richard J. Solove Research Institute (OSUCCC - James) and researchers at the University of Maryland and at London Regional Cancer Program in Ontario, Canada.

The study shows that patients with low-grade gliomas and at high risk for tumor recurrence have an overall survival of 73 percent after three years when treated with radiation plus temozolomide, a chemotherapy drug. This is compared with a three-year survival of 54 percent for historical controls treated with radiation alone.

The findings are published in the *International Journal of Radiation Oncology, Biology, Physics*.

"The most effective treatment for these rare tumors is currently controversial at best," says Arnab Chakravarti, MD, chair and professor of Radiation Oncology and co-director of the Brain Tumor Program at the OSUCCC - James. Chakravarti is the trial's translational research national study chair.

"Many of these high-risk low-grade gliomas progress to grade III and IV tumors over time, so identifying the best treatment strategy is critical to

ensure that patients have the best outcomes," says Chakravarti, who is also the Max Morehouse Chair in Cancer Research at Ohio State.

"Our study reports that combining radiation with temozolomide-based chemotherapy appears to improve clinical outcome compared to historical controls treated by radiation alone. This may prove critical in killing enough tumor cells to prevent progression to stage IV disease, or glioblastoma multiforme, over time."

Low-grade gliomas represent less than one percent of all human tumors in the United States. The average survival times vary depending on the tumor's structural, molecular and genetic features. (One form of high-risk low-grade glioma has an average overall survival of about 5 years.)

The study's key technical findings include:

- The three-year progression-free survival rate was 59 percent.
- Grade 3 adverse events occurred in 43 percent of patients; grade 4 events occurred in 10 percent of patients.

Chakravarti and his lab are currently conducting molecular studies to more specifically identify which low-grade glioma patients benefit from temozolomide.

More information: *International Journal of Radiation Oncology, Biology, Physics*, www.sciencedirect.com/science/ … ii/S0360301614043867

Provided by Ohio State University Medical Center