Revised glioblastoma classification should improve patient care

May 16 2012

Radiation oncology researchers have revised the system used by doctors since the 1990s to determine the prognosis of people with glioblastoma, which is the most devastating of malignant brain tumors.

The outdated system was devised for glioblastoma and related brain tumors that were treated by radiation therapy only, and it relied on clinical signs and symptoms. It divided patients into six prognostic groups. The new system accommodates advances in treatment – particularly the use of radiation therapy plus the chemotherapy drug temozolomide – and it incorporates molecular biomarkers as well as clinical variables.

"The new model is more relevant and contemporary and should do a better job of identifying patients that require the most aggressive therapy," says the study's chair for Translational Research Dr. Arnab Chakravarti, professor of Radiation Oncology and co-director of the brain tumor program at the Ohio State University Comprehensive Cancer Center – Arthur G. James Comprehensive Cancer Center and Richard J. Solove Research Institute (OSUCCC – James).

Chakravarti will present the findings at the 2012 annual meeting of the American Society of Clinical Oncology (ASCO) in Chicago.

To devise the new system, Chakravarti and his colleagues compared tumor and healthy tissue from 162 glioblastoma patients who were treated under the Radiation Oncology Group clinical trial 0525 (RTOG

0525). The investigators profiled protein, messenger RNA and epigenetic changes in patients' tumor cells looking for alterations in key signaling molecules.

They showed that high expression of the proteins called pAKT, c-met, and MGMT was associated with poor prognosis, while methylation of the MGMT gene, which codes for a DNA repair protein, was associated with a better prognosis.

"We hope to begin further studies to validate out classification system soon," Chakravarti says.

Provided by Ohio State University Medical Center