

Mayo Clinic identifies best treatments for long-term survival in brain tumor patients

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A new Mayo Clinic study found that patients with low-grade gliomas survived longest when they underwent aggressive surgeries to successfully remove the entire tumor. If safely removing the entire tumor was not possible, patients survived significantly longer when surgery was followed by radiation therapy. This study is available online as an advance publication in *Neuro-Oncology*.

Gliomas are a type of brain tumor that form in the brain or spinal cord tissue and can spread within the nervous system. Low-grade gliomas are malignant and slow growing; overall, patients' average survival is five to seven years after diagnosis, even with treatment. Annually, about 17,000 Americans are diagnosed with a glioma. Of that total, 3,000 to 4,000 are categorized as low-grade. Mayo Clinic physicians treat more than 4,000 adults and children who have gliomas and other brain and nervous system tumors each year.

"Mayo Clinic has a long history of expertise in treating patients with brain tumors," says Nadia Laack, M.D., a Mayo Clinic radiation oncologist and lead author of this study. "This makes our study unique in terms of the large volumes of patients seen here and the extensive length of follow-up."

Dr. Laack and a team of Mayo Clinic researchers studied the records of 314 adult patients with low-grade gliomas who were diagnosed between 1960 and 1992 and had an average of 13 years of follow-up. Nearly half of the patients who underwent aggressive surgeries (gross total resection or radical subtotal resection) were free of tumor recurrence 15 years after diagnosis.

When performing aggressive surgery was not a safe option, postoperative radiation therapy nearly doubled average survival. The average survival time was three years in patients who did not receive radiation therapy, while those who had radiation therapy survived an average of six years.

"This study is exciting because it shows how well glioma patients can do after surgery," says Dr. Laack. "An average of 15 years tumor-free is better than any previously published results. It is also exciting to discover that patients can benefit from radiation therapy. It not only lengthens the time before the tumor comes back, it actually improves the length of time people live. This builds on previous Mayo Clinic data that suggested similar results from a small study published nearly 20 years ago."

According to Dr. Laack, these findings may be controversial due to common concerns about possible long-term side effects of radiation therapy. At Mayo Clinic, these potential side effects are minimized by tightly focusing radiation therapy on the tumor, she says.

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