

Photons vs. protons for treatment of spinal cord gliomas

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A study comparing the long-term outcomes of patients with spinal-cord tumors following radiation therapy suggests that certain subsets of patients have better long-term survival. It also suggests that photon-based radiation therapy may result in better survival than proton-beam therapy, even in patients with more favorable characteristics.

This is the first study to report the long-term outcomes of spinal-cord tumor patients treated by modern radiotherapy techniques, the researchers say. Gliomas, which represent most spinal cord tumors, develop in about 17,000 Americans annually, and 13,000 die from them.

"Our findings need to be verified in a larger number of patients, but they suggest that individuals younger than age 54, those with ependymomas and those treated with photon-based therapy versus proton-beam treatment have better overall survival," says principal investigator Dr. Arnab Chakravarti, chair and professor of [Radiation Oncology](#) and co-director of the Brain Tumor Program at The Ohio State Comprehensive Cancer Center – Arthur G. James Cancer Hospital and Richard J. Solove Research Institute.

"Perhaps most surprising is that the subset of spinal-cord tumor patients treated by protons appears to do worse, even though they have more favorable pretreatment demographics," Chakravarti says. "This certainly warrants validation in a larger subset of patients."

Surgery is the standard therapy for spinal-cord tumors, and it is often

followed by radiotherapy. But whether all patients or only certain patients should receive [radiation therapy](#) is controversial, Chakravarti says.

The research is published in a recent issue of the *International Journal of Radiation Oncology, Biology, Physics*.

The retrospective study examined the long-term outcomes of 32 patients with primary [spinal-cord gliomas](#). Twenty-two of the patients were treated with photon-beam radiation therapy (such as 3-D conformal radiation and intensity-modulated radiotherapy), and 10 were treated with proton-beam therapy.

The five-year overall survival rate was 65 percent and the progression free survival was 61 percent for the group. The study also showed poorer overall survival for the following patients:

- Those age 55 and older.
- Those with astrocytomas versus ependymomas.
- Those who had a biopsy versus those whose tumor was surgically removed.

Provided by Ohio State University Medical Center

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