

Smaller radiation fields can spare brain when treating tumors

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New research from Wake Forest Baptist Medical Center shows that patients suffering from aggressive brain tumors can be effectively treated with smaller radiation fields to spare the rest of the brain and preserve cognition.

"For patients with glioblastoma, we now know we can safely and effectively treat them with smaller radiation fields to spare the rest of their normal brain," said lead investigator Michael D. Chan, M.D., assistant professor of [radiation oncology](#) at Wake Forest Baptist. "That's important because it lessens the symptoms from radiation toxicity like [tiredness](#) and nausea."

Chan said that a patient's cognition is related to how much normal brain is irradiated so focusing radiation on smaller areas of the brain may help preserve cognition and does not seem to lead to an increase in the likelihood of the tumor recurring. Overall, while long-term [survival rates](#) for [glioblastoma](#) multiforme patients have not improved by much with treatment advances, the ability to treat with smaller radiation fields preserves cognition and provides the possibility of better quality of life.

Recent research findings from Chan and colleagues appeared online last month ahead of print in the *American [Journal of Clinical Oncology](#)*. While there have been other similar studies, this one is the largest to compare smaller radiation margins to larger ones to document differences in patterns of failure for patients, Chan said. For this [retrospective study](#), records for 161 patients treated at Wake Forest

Baptist over the last 10 years were reviewed.

"We decided a few years ago that it would be worthwhile to look at whether using these tighter margins would affect the tumors coming back outside of the radiation field, or tell us if we are barely missing," Chan said. "We are the first to show definitively that people with smaller margins don't do any worse than those with larger margins."

Chan said that in the 1990s, Wake Forest Baptist's Edward G. Shaw, M.D., professor of radiation oncology, was part of a group that pioneered using smaller margins because it was less toxic. Smaller radiation margins around the tumor do not seem to lead to an increase in the tumor returning just outside of the radiation field, Chan said. A smaller radiation field, combined with modern treatment techniques, like newer chemotherapy agents and radiation technologies, provides physicians with more options.

"Treatments have gotten better over time and people with GBM may live longer than they had in the past. Our study found that the margins did not affect where the GBM came back or how long it took it to come back and it did not affect the overall survival," Chan said. "This could potentially be practice changing."

Provided by Wake Forest University Baptist Medical Center

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