Medical Xpress

Lower-dose fractionated stereotactic radiotherapy results in better hearing preservation

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Researchers at Thomas Jefferson University have found that a lower dose of fractionated stereotactic radiotherapy for acoustic neuromas results in better hearing preservation and has the same tumor local control rate as a higher dose of therapy. The study appeared online in the *International Journal of Radiation Oncology*Biology*Physics*.

"We previously had not determined the optimal dose of fractionated stereotactic radiotherapy for acoustic neuromas," said David W. Andrews, M.D., professor and vice-chairman of the Department of Neurological Surgery at Jefferson Medical College of Thomas Jefferson University, and the lead author. "This study was designed to compare the hearing preservation between the two doses. The lower-dose treatment resulted in a 100 percent tumor control rate, with the advantage of better hearing preservation."

Between 1994 and 2007, 101 patients with serviceable hearing were treated at Jefferson with fractionated stereotactic radiotherapy (FSR). Dr. Andrews and colleagues analyzed 89 patients within that cohort who had complete audiometric data available. Forty-three patients had received the high-dose of 50.4 Gruyere (Gy). Forty-six patients received the low-dose of 46.8 Gy.

The tumor local control rates were 100% for both the lower-dose cohort and the higher-dose cohort. The pure tone average was 33 decibels (dB)

in the lower-dose cohort, which was significantly better than the 40 dB pure tone average in the high-dose cohort. The actuarial hearing preservation rate was also longer in the lower-dose cohort: 165 weeks vs. 79 weeks.

"This is a potentially practice-changing finding," Dr. Andrews said. "We are now working to design a study to directly compare FSR with other treatment options, including stereotactic single fraction radiosurgery."

According to Dr. Andrews, the tumor control rates for FSR are comparable to those of stereotactic single fraction radiosurgery, another treatment option for acoustic neuromas. But Dr. Andrews and colleagues found in a previous study that FSR preserves hearing better, and does not cause trigeminal or facial neuropathies.

Source: Thomas Jefferson University

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