ABSTRACT

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Phase I/II Dose-Escalation Trial of 3-Fraction Stereotactic Radiosurgery for Resection Cavities From Large Brain Metastases: Health-related Quality of Life Outcomes.

Rahimy E(1), Dudley SA(2), von Eyben R(1), Pollom EL(1), Seiger K(3), Modlin L(4), Wynne J(5), Fujimoto D(6), Jacobs LR(7), Chang SD(8), Gibbs IC(1), Hancock SL(1), Adler JR(8), Li G(8), Choi CYH(9), Soltys SG(1).

Author information:
(1)Departments of Radiation Oncology.
(2)Department of Radiation Oncology, Johns Hopkins University, Baltimore, MD.
(3)Department of Dermatology, University of California, San Francisco.
(4)Department of Radiation Oncology, Memorial Sloan Kettering Cancer Center, NY.
(5)Department of Radiation Oncology, Emory University, Atlanta, GA.
(6)University of California, Irvine, School of Medicine, Irvine.
(7)Department of Pediatrics, University of California, Los Angeles.
(8)Neurosurgery, Stanford University, Stanford.
(9)Department of Radiation Oncology, Santa Clara Valley Medical Center, San Jose, CA.

OBJECTIVES: We investigated differences in quality of life (QoL) in patients enrolled on a phase I/II dose-escalation study of 3-fraction resection cavity stereotactic radiosurgery (SRS) for large brain metastases.

METHODS: Eligible patients had 1 to 4 brain metastases, one of which was a resection cavity 4.2 to 33.5 cm3. European Organization for Research and Treatment of Cancer (EORTC) quality of life questionnaires core-30 (QLQ-30) and brain cancer specific module (QLQ-BN20) were obtained before SRS and at each follow-up. Nine scales were analyzed (global health status; physical, social, and emotional functioning; motor dysfunction, communication deficit, fatigue, insomnia, and future uncertainty). QoL was assessed with mixed effects models. Differences ≥10 points with q-value (adjusted P-value to account for multiplicity of testing) <0.10 were considered significant.

RESULTS: Between 2009 and 2014, 50 enrolled patients completed 277 QoL questionnaires. Median questionnaire follow-up was 11.8 months. After SRS, insomnia demonstrated significant improvement (q=0.032, -17.7 points at 15 mo post-SRS), and future uncertainty demonstrated significant worsening (q=0.018, +9.9 points at 15 mo post-SRS). Following intracranial progression and salvage SRS, there were no significant QoL changes. The impact of salvage whole brain radiotherapy could not be assessed because of limited data (n=4 patients). In the 28% of patients that had adverse radiation effect, QoL had significant worsening in 3 metrics (physical functioning, q=0.024, emotional functioning q=0.001, and future uncertainty, q=0.004).

CONCLUSIONS: For patients treated with 3-fraction SRS for large brain metastasis cavities, 8 of 9 QoL metrics were unchanged or improved after initial SRS. Intracranial tumor progression and salvage SRS did not impact QoL. Adverse radiation effect may be associated with at least short-term QoL impairments, but requires further investigation.

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