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## Original Article

### Efficacy of stereotactic radiosurgery as a salvage treatment for recurrent malignant gliomas

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**KEYWORDS**  
 malignant glioma • recurrence • radiosurgery • survival

**ABSTRACT**

**BACKGROUND**  
 The objective of this prospective cohort study was to determine the efficacy of stereotactic radiosurgery (SRS) as a salvage treatment in patients with recurrent malignant gliomas.

**METHODS**  
 Between January 2000 and December 2006, 114 consecutive patients were treated with SRS as a salvage treatment for recurrent malignant gliomas at a single institution. Clinical outcome and its prognostic factors were analyzed and compared with the historical control group who were treated at the same institution between 1995 and 1999.

**RESULTS**  
 The median overall survival from the time of diagnosis was 37.5 months (95% confidence interval [95% CI], 11.7-63.2 months) for patients with grade 3 gliomas (according to World Health Organization criteria) and was 23 months (95% CI, 16.2-29.3 months) for patients with glioblastomas. The median progression-free survival after SRS was 8.6 months (95% CI, 1.1-16.2 months) for patients with grade 3 gliomas and 4.6 months for patients with glioblastomas (95% CI, 4.0-5.2 months). With regard to treatment-related complications, radiation-induced necrosis was observed in 22 of 114 patients (24.4%). Compared with this historic control group, SRS significantly prolonged survival as a salvage treatment in patients with recurrent glioblastomas (23 months vs 12 months;  $P < .0001$ ), but it was not found to provide a significant surgical benefit in patients with recurrent grade 3 gliomas (37.5 months vs 26 months;  $P = .789$ ). On univariate analysis of prognostic factors, tumor volume ( $<10$  mL) and low histologic grade were found to significantly influence better survival ( $P = .009$  and  $P = .041$ , respectively).

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**CONCLUSIONS**

SRS is a safe and effective modality in selected patients with recurrent small-sized glioblastomas. However, the efficacy of SRS for recurrent grade 3 gliomas needs to be further evaluated in well-designed clinical studies. Cancer 2008. © 2008 American Cancer Society.

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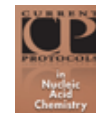
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