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Extended field stereotactic radiosurgery for recurrent glioblastoma.

Koga T, Maruyama K, Tanaka M, Ino Y, Saito N, Nakagawa K, Shibahara J, Todo T.

Department of Neurosurgery, University of Tokyo Hospital, Tokyo, Japan.

Abstract

BACKGROUND: Stereotactic radiosurgery (SRS) is among the few therapeutic options for glioblastoma that recurs after standard radiation and chemotherapy, but its efficacy has been limited.

METHODS: Since November 2007, the authors have modified the clinical target volume by adding a 0.5- to 1-cm margin to the gadolinium-enhanced area (extended field SRS), in contrast to conventional SRS using no margin to set the clinical target volume. A total of 35 recurred glioblastoma lesions in 9 patients were treated with conventional SRS between December 1990 and January 2007, and 14 lesions in 9 patients were treated with extended field SRS.

RESULTS: The median follow-up periods were 7 months (range, 3-29 months) and 8 months (range, 6-27 months), respectively. The local control rate was 47% for conventional SRS and 93% for extended field SRS ($P = .0035$), and the numbers of radiation necrosis observed in SRS-treated lesions were 2 and 4, respectively. The median overall survival from the diagnosis was 24 months (range, 14-57 months) for conventional SRS and 21 months (range, 15-51 months) for extended field SRS (statistically not significant). Seven patients treated with conventional SRS died during follow-up, 6 from progression of the SRS-treated tumor, whereas 7 patients treated with extended field SRS died during follow-up, 6 from remote intracerebral dissemination.

CONCLUSIONS: Extended field SRS was superior to conventional SRS in the local control of small recurrent lesions of glioblastoma, although a further device to suppress remote dissemination may be necessary to increase survival. Cancer 2012;. © 2011 American Cancer Society.

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