Treatment of recurrent high-grade gliomas with GliaSite brachytherapy: a prospective mono-institutional Italian experience

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ABSTRACT

Aims and background. The present study evaluated toxicity, local control, and survival in patients with relapsed high-grade glioma after surgery and external beam radiation therapy and treated with re-operation and GliaSite brachytherapy.

Methods. Between 2006 and 2008, 15 patients with recurrent high-grade glioma underwent re-operation and GliaSite brachytherapy. Ten patients were males and 5 females. Median age was 40 years (range, 20-71). Karnofsky performance status was \textgeq70. All patients but one received GliaSite irradiation of the surgical cavity wall at the dose of 4500 cGy at a depth of 1 cm.

Results. No severe acute side effects were observed during GliaSite brachytherapy. Pathologically documented, symptomatic late radiation necrosis was observed in 3 patients (20%); 2 subsequently died of further complications. Two patients were alive at a median follow-up 13 months (range, 1-30). Median overall survival after GliaSite brachytherapy was 13 months.

Conclusions. Patients with recurrent high-grade glioma can be treated with additional surgery and GliaSite brachytherapy, delivering 4500 cGy at 1 cm depth without significant acute side effects but with a significant rate (20%) of late radiation necrosis, resulting in 13% of treatment-related deaths. Compared with the literature, survival results in our study appear to be satisfactory, but they may be related to patient selection criteria. Re-intervention followed by GliaSite brachytherapy should not be offered as a standard treatment for recurrent high-grade glioma, because of the high rate of late complications, treatment-related deaths, and high treatment costs.

Key words: brachytherapy, GliaSite, high-grade glioma, local recurrence.

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