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Irradiation and Bevacizumab in High-Grade Glioma Retreatment Settings.

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Abstract

PURPOSE: Reirradiation is a treatment option for recurrent high-grade glioma with proven but limited effectiveness. Therapies directed against vascular endothelial growth factor have been shown to exert certain efficacy in combination with chemotherapy and have been safely tested in combination with radiotherapy in a small cohort of patients. To study the feasibility of reirradiation combined with bevacizumab treatment, the toxicity and treatment outcomes of this approach were analyzed retrospectively.

PATIENTS AND METHODS: After previous treatment with standard radiotherapy (with or without temozolomide) patients with recurrent malignant glioma received bevacizumab (10 mg/kg intravenous) on Day 1 and Day 15 during radiotherapy. Maintenance therapy was selected based on individual considerations, and mainly bevacizumab-containing regimens were chosen. Patients received 36 Gy in 18 fractions.

RESULTS: The data of the medical charts of the 30 patients were analyzed retrospectively. All were irradiated in a single institution and received either bevacizumab (n = 20), no additional substance (n = 7), or temozolomide (n = 3). Reirradiation was tolerated well, regardless of the added drug. In 1 patient treated with bevacizumab, a wound dehiscence occurred. Overall survival was significantly better in patients receiving bevacizumab (p = 0.03, log-rank test). In a multivariate proportional hazards Cox model, bevacizumab, Karnovsky performance status, and World Health Organization grade at relapse turned out to be the most important predictors for overall survival.

CONCLUSION: Reirradiation with bevacizumab is a feasible and effective treatment for patients with recurrent high-grade gliomas. A randomized trial is warranted to finally answer the question whether bevacizumab adds substantial benefit to a radiotherapeutic retreatment setting.

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