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Radiochemotherapy with temozolomide as re-irradiation using high precision fractionated stereotactic radiotherapy (FSRT) in patients with recurrent gliomas.

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Abstract

PURPOSE: To evaluate outcome after fractionated stereotactic radiotherapy (FSRT) and concomitant daily temozolomide (TMZ) in patients with recurrent gliomas.

MATERIALS AND METHODS: Twenty-five patients with recurrent or progressive gliomas were treated with FSRT in combination with TMZ at the Department of Radiation Oncology, University of Heidelberg. Histologic classification at primary diagnosis included low-grade astrocytoma in 7 patients (28%), grade III gliomas in 10 patients (40%) and glioblastoma in 8 patients (32%). All patients had undergone at least one neurosurgical resection, which was complete in 5 patients (20%), subtotal in 13 patients (52%) and a biopsy only in 7 patients (28%). Nineteen patients (76%) had undergone neurosurgical resection for tumor recurrence. All patients had received radiation therapy with a median dose of 60 Gy. The median time interval between primary RT and re-irradiation was 36 months. Using FSRT, we applied a median total dose of 36 Gy in a median fractionation of 5 x 2 Gy/week. Chemotherapy with TMZ was applied in a median dose of 50 mg/m(2).

RESULTS: Median overall survival was 59 months. Median survival from re-irradiation was 8 months. Actuarial survival rates at 6 and 12 months were 81% and 25%. Median PFS was 5 months; actuarial PFS rates at 6 and 12 months were 48% and 16%. Treatment could be completed in all patients as scheduled without interruptions >3 days. No severe treatment-related side effects could be observed.

CONCLUSION: Re-irradiation and TMZ is safe and effective in a subgroup of patients with recurrent gliomas. Further evaluation of radiochemotherapy regimens for recurrent or progressive gliomas is warranted.

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