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Prognostic parameters and outcome after re-irradiation for progressive glioblastoma.

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Abstract

OBJECTIVES: In progressive glioblastoma, salvage treatment remains unstandardized, response is highly variable, and detailed analysis of individual approaches is mandatory. Re-irradiation is an established option in the therapy of progressive glioblastoma. Thus, we analysed outcome and prognostic parameters of patients with re-irradiated glioblastoma treated at our institution since 1998.

MATERIALS AND METHODS: In a total of 51 patients, clinical and treatment parameters were collected and analysed retrospectively. Re-irradiation protocols included radiosurgery, hypofractionated radiotherapy or normofractionated radiotherapy. Outcome was analysed regarding prognostic factors in this highly selected cohort.

RESULTS: Median overall survival after primary diagnosis was 28.8 months. Patients re-irradiated with single-dose stereotactic radiosurgery or hypofractionated regimes showed a superior overall survival after primary diagnosis compared to normofractionated treatment. Positive prognostic factors included a smaller gross tumour volume and younger age. A methylated MGMT promoter approached statistical significance as a positive factor regarding overall survival after re-irradiation. Further well-known prognostic factors as extension of the initial resection and the concomitance of temozolomide with the initial radiation treatment only appeared relevant in a subgroup of four long-term survivors.

CONCLUSIONS: The favourable results regarding overall survival are probably due to patient selection for re-irradiation. If technically feasible, stereotactic radiosurgery or hypofractionated regimes should be preferred. In this highly selected re-irradiation cohort, only some of the well-known prognostic factors of the primary tumour setting were found to influence overall survival significantly. In contrast, also some patients presenting with unfavourable predictive parameters showed an encouraging course of disease and thus should not be excluded from re-irradiation.

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KEYWORDS: MGMT ; glioblastoma; long-term survivor; prognostic factors; re-irradiation

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