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Salvage reirradiation for recurrent glioblastoma: a retrospective case series analysis

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Abstract

Purpose: To assess the clinical outcome of patients with recurrent glioblastoma treated with salvage reirradiation.

Methods: Between 2005 and 2022, data from adult patients with glioblastoma treated with surgery and radio-chemotherapy Stupp regimen who developed a local in-field relapse and received stereotactic radiotherapy (SRT) were retrospectively reviewed.

Results: The study population included 44 patients with recurrent glioblastoma (median of 9.5 months after the first radiotherapy). Reirradiation alone was given to 47.7% of patients. The median maximum diameter of the recurrence was 13.5 mm. The most common SRT regimen (52.3%) was 35 Gy in 10 fractions. Acute toxicity was mild, with transient worsening of previous neurological symptoms in only 15% of patients. After a median follow-up of 15 months, 40% presented radiological response, but a remarkable number of early distant progressions were recorded (32.5%). The median time to progression was 4.8 months, being the dose, the scheme, the size of the recurrence or the strategy (exclusive RT vs. combined) unrelated factors. The median overall survival (OS) was 14.9 months. Karnofsky index < 70 and the size of the recurrence (maximum diameter < 25 mm) were significant factors associated with OS. Radiological changes after reirradiation were commonly seen (> 50% of patients) hindering the response assessment.

Conclusions: Reirradiation is a feasible and safe therapeutic option to treat localized glioblastoma recurrences, able to control the disease for a few months in selected patients, especially those with good functional status and small lesions. Hypofractionated schemes provided a suitable toxicity profile. Radiological changes were common.

Keywords: Outcome; Recurrent glioblastoma; Salvage reirradiation; Stereotactic radiotherapy.

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