Re-irradiation as salvage treatment in recurrent glioblastoma: A comprehensive literature review to provide practical answers to frequently asked questions.


The primary aim of this review is to provide practical recommendations in terms of fractionation, dose, constraints and selection criteria to be used in the daily clinical routine. Based on the analysis of the literature reviewed, in order to keep the risk of severe side effects ≤3.5%, patients should be stratified according to the target volume. Thus, patients should be treated with different fractionation and total EQD2 (<12.5 ml: EQD2 < 65 Gy with radiosurgery; >12.5 ml and <35 ml: EQD2 < 50 Gy with hypofractionated stereotactic radiotherapy; >35 ml and <50 ml: EQD2 < 36 Gy with conventionally fractionated radiotherapy). Concurrent approaches with temozolomide or bevacizumab do not seem to improve the outcomes of reirradiation and may lead to a higher risk of toxicity but these findings need to be confirmed in prospective series.

KEYWORDS: Dose-constraints; Radiosurgery; Recurrent glioblastoma; Reirradiation; Salvage treatment; Second radiotherapy; Stereotactic radiotherapy

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