J Neurooncol. 2026 Jul 23;179(1):13. doi: 10.1007/s11060-026-05717-x.

Salvage therapies for recurrent grade 4 IDH-wildtype glioma: a BRAIN Registry analysis of real-world treatment patterns

Emma Sanderson [1 2], Katharine Drummond [3 4], Anthony Dowling [5 6], Iwan Bennett [7], Ronnie Freilich [8], Claire Phillips [9], Elizabeth Ahern [10], David Campbell [11], Robert Campbell [12], Rosemary Harrup [13 14], Simone Reeves [15], Ian Collins [16], Ross Jennens [17 18], Sachin Joshi [19], Hui Gan [20], Michael Fay [21 22], James Lynam [23], Lisi Elizabeth Lim [24], Mark Rosenthal [25], Megan Dumas [26], Peter Gibbs [26 27 6], Lucy Gately [26 28]

PMID: 42493681 DOI: 10.1007/s11060-026-05717-x

Abstract

Purpose: The prognosis for patients with glioblastoma after failure of first-line therapy is poor. Despite this, the standard of care for patients with recurrent disease is not well-defined. Here we report on the use of salvage therapies in glioblastoma using real-world data.

Methods: Data were extracted from the BRAIN Registry for patients diagnosed with glioblastoma (Grade 4, IDH wild-type) between 09/2019 and 01/2024. Only patients who received salvage therapies following a documented date of recurrence/progression were included. Relevant descriptive and intergroup statistics were used, with survival calculated using Kaplan-Meier and Cox regression used for multivariate analyses.

Results: 275 patients were identified. Median age was 61 (range:23-88) years, with 56% being ECOG 0-1 at recurrence. Median time to progression was 7.6 months with 65% recurring/progressing during first-line therapy. Systemic therapy (85%) was most utilised with 67% receiving single-agent bevacizumab. Outcomes in this subgroup were similar to clinical trial data. 29% patients underwent re-resection with 58% of these then receiving systemic treatment. Compared with no surgery, patients who underwent re-resection were younger ($p = 0.02$), of better performance status ($p = 0.006$) and more likely to have recurred post completing first-line therapy ($p = 0.001$). Few patients ($n = 9$) received re-irradiation with median of 15 months between radiation events. Median post-progression survival (PPS) was 9.5 months. After adjustment for confounders, there was no difference in PPS for patients who underwent re-resection versus systemic therapy alone ($p = 0.242$). The survival differences observed between treatment modalities likely reflect patient factors influencing treatment selection and were impacted by small subgroup sizes.

Conclusion: Systemic therapy is most utilised in the salvage setting, predominantly bevacizumab. Certain patient characteristics were associated with re-resection. Re-irradiation was rarely used.

Clinical trial number: ACTRN12618001959268.

Keywords: Glioblastoma; Radiotherapy; Recurrence; Surgery; Systemic therapy; Treatment patterns.