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# Health-related quality of life and neurocognitive functioning in patients with recurrent glioblastoma treated with intracerebral immune checkpoint inhibition

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## Abstract

**Purpose:** After glioblastoma (GB) recurrence, prognosis is very cumbersome. Therefore, health-related quality of life (HRQoL) and neurocognitive functioning (NCF) have become important endpoints in clinical trials when evaluating novel treatments. We aimed to evaluate the HRQoL and NCF in patients with recurrent glioblastoma (rGB) treated with a combination of surgical intervention (reoperation or biopsy) and intracerebral immune checkpoint inhibition.

**Methods:** Patients who participated in the trial (N = 23), at a single-center university hospital were included. Data were collected using 3 patient-reported outcome measures (EORTC-QLQ-C30, EORTC-QLQ-BN20, and HADS) and computerized NCF testing. In the responder group, baseline values were compared to results at a 6-month follow-up. Additionally, exploratory analyses compared baseline HRQoL and NCF between responders and non-responders.

**Results:** There were five responders and 18 non-responders. When comparing the mean and individual baseline with follow-up results for the responders, we observed overall a stable to slight clinically relevant improvement of HRQoL in multiple subsets of the questionnaires while maintaining a stable NCF. One patient deteriorated on anxiety and depression symptoms from baseline to follow-up.

**Conclusions:** In patients that responded to intracerebral immunotherapy in our institutional trial, HRQoL and NCF remained stable over time, suggesting that no detrimental effect on cognitive function or quality of life may be expected with this treatment approach. Furthermore, there seems to be an overall tendency for responders to score better on HRQoL and NCF than non-responders at baseline.

**Keywords:** Health-related quality of life; Immune checkpoint inhibitors; Immunotherapy; Neurocognitive functioning; Recurrent glioblastoma.

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