

ABSTRACT

J Neurooncol. 2021 Oct;155(1):1-11. doi: 10.1007/s11060-021-03859-8. Epub 2021 Oct 1.

Immune checkpoint inhibitors in GBM.

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PURPOSE: The purpose of this review is to summarize recent updates regarding immune checkpoint inhibitor therapy in GBM patients including updates in brain immunology, clinical trials, mechanisms of resistance, and biomarkers of response.

METHODS: PubMed was searched to identify recent relevant articles on immune checkpoint inhibitor therapy as it pertains to GBM. Clinicaltrials.gov was also searched to identify relevant clinical trials.

RESULTS: The reported randomized phase 2 and 3 clinical trials of immune checkpoint inhibitors (alone or in combination with standard therapy) have not demonstrated a survival benefit to date in either newly diagnosed or recurrent GBM. A small randomized surgical study of neoadjuvant and adjuvant pembrolizumab suggested an increase in PFS and OS compared to adjuvant pembrolizumab only; further studies are needed to validate this finding.

CONCLUSIONS: Despite the positive impact of immune checkpoint inhibitors in many cancers, only a small subset of GBM patients respond to these agents. Further research is needed to identify biomarkers of response and therapies to rationally combine with immune checkpoint inhibitors.

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DOI: 10.1007/s11060-021-03859-8

PMID: 34599480