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Nivolumab for newly and recurrent glioblastoma multiforme treatment: A systematic review and meta-analysis

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Abstract

Objective: We conducted a systematic review and meta-analysis aiming to assess the efficacy and safety of Nivolumab treatment in patients with newly diagnosed and recurrent glioblastoma multiforme (GBM).

Data sources: Our study followed the guidelines outlined in the preferred reporting items for systematic reviews and meta-analyses (PRISMA) recommendations. The protocol for this review can be found in the International Prospective Register of Systematic Reviews Database (CRD42022340071). We performed searches on the Medline, PubMed, Embase, Scopus, and Web of Science databases.

Data summary: A total of 545 studies were identified through our comprehensive search across the five databases (PubMed: 78, Embase: 82, Medline: 173, Scopus: 138, Web of Science: 74). After conducting a thorough analysis, our meta-analysis indicated that treatment with Nivolumab led to improved overall survival (OS) outcomes in newly diagnosed glioblastoma patients, as evidenced by a prolonged median OS based on trial data. However, there was no significant beneficial effect observed in terms of median progression-free survival (PFS), as well as OS at 6, 12, and 24 months. Furthermore, our results demonstrated no efficacy of Nivolumab in the treatment of recurrent GBM patients.

Conclusions: In conclusion, Nivolumab demonstrated promising results that warrant further investigation for its use in newly diagnosed glioblastoma patients. However, its effectiveness was not observed in the context of recurrent GBM.

Keywords: Glioblastoma; Nivolumab; cancer; inhibitors checkpoints.