

ABSTRACT

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Impact of extent of resection on survival on Glioblastoma, IDH-wildtype, WHO grade 4 (WHO 2021). Systematic review and meta-analysis.

Jusue-Torres I(1), Lee J(2), Germanwala AV(3), Burns TC(4), Parney IF(4).

Author information:

(1)Department of Neurological Surgery, Mayo Clinic, Rochester, MN, USA.
Electronic address: jusuetorres.ignacio@mayo.edu.

(2)Department of Neurological Surgery, Loyola University Stritch School of Medicine, Maywood, IL, USA.

(3)Department of Neurological Surgery, Loyola University Stritch School of Medicine, Maywood, IL, USA; Department of Otolaryngology, Loyola University Stritch School of Medicine, Maywood, IL, USA.

(4)Department of Neurological Surgery, Mayo Clinic, Rochester, MN, USA.

INTRODUCTION: In light of the recently updated WHO 2021 CNS tumor classifications, the aim of this study is to establish the impact of extent of resection in overall survival (OS) and progression free survival (PFS) in patients meeting current diagnostic criteria for glioblastoma, IDH-wildtype (WT), WHO grade 4.

MATERIAL AND METHODS: A systematic literature search was performed using the following databases: PubMed, Web of Science, Cochrane Central Register of Controlled Trials, Cochrane Database of Systematic Reviews and ClinicalTrials.gov to identify studies comparing OS and PFS after gross total resection (GTR) vs subtotal resection (STR) or biopsy for glioblastoma IDH-WT.

RESULTS: We identified 1439 publications. Nine studies met inclusion/exclusion criteria. 788 patients underwent GTR out of 2023. The meta-analysis showed a significant increase in OS and PFS duration when undergoing GTR for glioblastoma IDH-WT with a median OS of 20 months 95% CI (17-25) compared to 12 months 95% CI (9-15) for STR ($p < 0.0001$) and a median PFS of 11 months 95% CI (9-12) for GTR compared to 7 months 95% CI (5-7) for STR ($p < 0.0001$). GTR was associated with a 51% reduction of mortality risk HR = 0.49 95%CI (0.36-0.65) and 42% reduction of progression risk HR = 0.58 95%CI (0.39-0.88) compared to STR.

CONCLUSIONS: This systematic review suggests that GTR is associated with improved OS and PFS compared to STR for Glioblastoma, IDH-WT, WHO grade 4 (WHO 2021). However, this is limited by variable study design and significant clinical and methodological heterogeneity among studies.

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