ABSTRACT

J Neurooncol. 2022 Jun 29. doi: 10.1007/s11060-022-04057-w. Online ahead of print.

Primary versus secondary gliosarcoma: a systematic review and meta-analysis.

Vuong HG(1), Dunn IF(2).

Author information:
(1)Department of Neurosurgery, Oklahoma University Health Sciences Center, Oklahoma City, OK, 73104, USA.
(2)Department of Neurosurgery, Oklahoma University Health Sciences Center, Oklahoma City, OK, 73104, USA. Ian-Dunn@ouhsc.edu.

INTRODUCTION: Gliosarcomas are extremely rare malignant brain tumors, which can be classified as primary gliosarcoma (PGS) if the tumors arise de novo or secondary gliosarcoma (SGS) in patients who had previously been treated for glioblastoma. Given their rarity, it is unclear if PGS is clinically and genetically different from SGS. This meta-analysis aimed to investigate the clinicopathological features, prognostic survivals, and molecular profiles of these rare tumors.

METHODS: We searched PubMed and Web of Science for relevant studies. Odds ratio (OR), hazard ratio (HR), and their 95% confidence intervals (CI) were pooled using the random-effect model.

RESULTS: We included eight studies with 239 PGS and 79 SGS for meta-analyses. Compared to PGS, SGS occurred at a younger age and had lower rates of gross total resection and radiation therapy. Bevacizumab was more commonly administered in SGS. SGS patients had a significantly worse PFS (HR 0.60; 95% CI 0.40-0.89) and OS (HR 0.46; 95% CI 0.31-0.68) in comparison to PGS. The incidences of EGFR mutation, IDH mutation, and MGMT methylation were not statistically different between PGS and SGS.

CONCLUSION: Our results demonstrated that PGS and SGS had distinct clinicopathological profiles and prognoses but shared similar genetic profiles. This study facilitates our understanding of how these two malignant brain tumors behave clinically, but future studies will be required to elucidate the genetic pathways of PGS and SGS.

DOI: 10.1007/s11060-022-04057-w
PMID: 35768633