

# AB047. Searching for factors relating to long-term survivors of glioblastoma

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**Background:** There remains controversy in the observed survival of gliomas worldwide, especially for glioblastoma (GBM). The 5-year survival rate ranged wildly, but comparable higher in several Asian countries, such as China showed almost 18% from CONCORD-3 data. Are there any special factors relating to long-term survivors (LTSs)?

**Methods:** We reviewed our single center real-world data for the last 20 years, of 536 GBM [World Health Organization (WHO) grade 4] patients revealed 5-year overall survival (OS) of 19.1%. We analyzed our GBM patients and searched for possible factors relating to LTSs. We collected tumor samples of 13 LTSs (OS >60 months) and 19 short-term survivors (OS <24 months), and performed whole exome sequencing and transcriptome sequencing.

**Results:** From treatment setting, besides surgical resection, post-operational adjuvant treatment (radiotherapy plus chemotherapy) are the most important factor contributing to long-term survival. Whole exome sequencing analysis revealed a higher proportion of mutation signature 19 was associated with LTSs. Analysis of copy number variation (CNV) showed that the LTSs had higher copy number variants at the chromosomal level (P=0.049). At the arm level, the proportion of 19p amplification in the LTS was significantly higher than in the short-term survivors (P=0.001). And in The Cancer Genome Atlas (TCGA) GBM dataset, GBM patients with 19p amplification also had a better prognosis (log-rank P=0.04). Based on RNA sequencing (RNAseq) and differential expression analysis, the differentially expressed genes were enriched in hypoxia-related processes, apoptosis, and immune-related processes.

**Conclusions:** From our single-institution data, the factors relating to GBM LTSs should be both clinical management and genomic alternation which could be potential novel targets be applied to future clinical practice.

**Keywords:** Glioblastoma (GBM); long-term survivors (LTSs); short-term survivors

## Acknowledgments

We thank our patients and their families for their willingness to participate in this study.

**Funding:** This study has been supported by the National Natural Science Foundation of China (Nos. 81372685, 81872059, 81872299, and 8207100212), the National Basic Research Program of China (No. 2015CB755505), the Guangzhou Science Technology and Innovation Project (No. 201508020125), and the Guangdong Science and Technology Planning Project (No. 2016A020213004).

## Footnote

**Conflicts of Interest:** All authors have completed the ICMJE uniform disclosure form (available at <https://cco.amegroups.com/article/view/10.21037/cco-24-ab047/coif>). The authors have no conflicts of interest to declare.

**Ethical Statement:** The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. The study was conducted in accordance with the Declaration of Helsinki (as revised in 2013) and approved by the Ethics Committee of Sun Yat-sen University Cancer Center (IRB No. 2020-314-01). Because of the retrospective nature of the research, the requirement for informed consent was waived.

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**Cite this abstract as:** Li D, Xu P, Yang Q, Guo C, Xi S, Sai K, Chen Z. AB047. Searching for factors relating to long-term survivors of glioblastoma. *Chin Clin Oncol* 2024;13(Suppl 1):AB047. doi: 10.21037/cco-24-ab047