

International pooled analysis of patients who received intraoperative radiotherapy during surgical resection of glioblastoma

A brief overview – created by Gustavo R. Sarria, MD, Department of Radiation Oncology, University Medical Center Mannheim, Medical Faculty Mannheim, Heidelberg University, Mannheim on behalf of ZEISS, March 2020.

Please note: Reading this brief overview does not substitute the reading of the original study, but is just giving an abridged insight and is not necessarily reflecting the opinion of notified bodies and/or regulatory authorities, such as the DQS or FDA.

Original title: Intraoperative radiotherapy for glioblastoma: an international pooled analysis
Authors: Gustavo R. Sarria, Elena Sperk, Xiaodi Han, Gustavo J. Sarria, Frederik Wenz, Stefanie Brehmer, Bing Fu, Siming Min, Hongjun Zhang, Shusen Qin, Xiaoguang Qiu, Daniel Hänggi, Yasser Abo-Madyan, David Martinez, Carla Cabrera, Frank A. Giordano.
Source: G. R. Sarria, E. Sperk, X. Han et al., Intraoperative radiotherapy for glioblastoma: an international pooled analysis, *Radiotherapy and Oncology*, <https://doi.org/10.1016/j.radonc.2019.09.023>

- In oncology patients, **Glioblastoma** is the **most frequent primary malignancy** of the **brain** in adults.¹
- **Local tumor re-growth after surgery** is the mostly observed reason for Glioblastoma **treatment failures**.
- Giving a **high intraoperative radiotherapy (IORT) dose during surgery** may lead to a **prolonged local control** rate and survival.
- For this **retrospective study**, **51 Glioblastoma patients with a median age of 55** were included from five different centers in Peru, China and Germany. Following surgical resection, all **patients received IORT with a dose range of 10-40 Gy** followed by standard adjuvant radio-chemotherapy and standard chemotherapy.
- With over 50 patients, this pooled analysis has the biggest patient cohort within the field of IORT and conventional radiotherapy treatments for Glioblastoma.
- ▶ With a **median follow-up of 18.0 months**, the results show a **very low overall radiation necrosis rate**, **no treatment-related deaths** and **very good rates of local and distant control**, with only 35.3% first local recurrence compared to the ~80% worldwide² reported.
- ▶ These **findings**, compared to historical data, **suggest superior local control and survival without major side effects** when adding IORT to conventional therapy in glioblastoma.

Please find further details regarding study design and study results in the **original article**.

The publication is based on the author's own professional opinion or their study results. It does not necessarily reflect the opinions of ZEISS and may not be in line with the clinical evaluation or intended purpose of our medical devices. Therefore, suitability of clinical application for each recommendation should be carefully assessed by the concerned physician.

1 Ostrom, Q. T., Gittleman, H., Farah, P., et al. (2013). CBTRUS statistical report: Primary brain and central nervous system tumors diagnosed in the United States in 2006-2010. *Neuro-oncology*, 15 Suppl 2(Suppl 2), ii1–ii56. <https://doi.org/10.1093/neuonc/not1512>
2 Petrecca K., Guiot M-C., Panet-Raymond V., Souhami L. (2012). Failure pattern following complete resection plus radiotherapy and temozolomide is at the resection margin in patients with glioblastoma. *Journal of neuro-oncology*. <https://doi.org/10.1007/s11060-012-0983-4>.