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ID (Ref. number): 791 Full name: Sabino Luzzi **City:** Pavia **Country:** Italy Email: sabino.luzzi@unipv.it,

Dear Dr. Sabino Luzzi,

Thank you for submitting your abstract for the XVII World Congress of Neurosurgery (WFNS 2022), which will be held March 13-18, 2022, in the Convention Center Ágora Bogotá (Colombia),



Title

Paper Number Paper Status **Presentation Type** Theme **Abstract Body**

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We acknowledge receipt of the following information.

Supratentorial High-Grade Gliomas: Maximal Safe Anatomical Resection Guided by Augmented Reality High-Definition Fiber Tractography and Fluorescein
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Objective: The theoretical advantages of augmented reality (AR) with diffusion tensor imaging (DTI)–based high- definition fiber tractography (HDFT) and sodium fluorescein (F) in high-grade glioma (HGG) surgery have not been investigated in detail. In this study, the authors aimed to evaluate the safety and efficacy profiles of HDFT-F microscope-based AR cytoreductive surgery for newly diagnosed supratentorial HGGs. Methods: Data of patients with newly diagnosed supratentorial HGGs who underwent surgery using the AR HDFT- F technique were reviewed and compared with those of a cohort of patients who underwent conventional white-light surgery assisted by infrared neuronavigation. The safety and efficacy of the techniques were reported based on the postoperative Neurological Assessment in Neuro-Oncology (NANO) scores, the extent of resection (EOR), and Kaplan-Mei- er curves, respectively. The chi-square test was conducted for categorical variables. A p-value < 0.05 was considered statistically significant. Results: A total of 54 patients underwent surgery using the AR HDFT-F technique, and 63 underwent conventional white-light surgery assisted by infrared neuronavigation. The mean postoperative NANO scores were 3.8 ± 2 and 5.2 ± 4 in the AR HDFT-F group and control group, respectively (p < 0.05). The EOR was higher in the AR HDFT-F group (p < 0.05) than in the control group. With a mean follow-up of 12.2 months, the rate of progression-free survival (PFS) was longer in the study group (log-rank test, p = 0.006) than in the control group. Moreover, the complication rates were 9.2% and 9.5% in the study and control groups, respectively. Conclusions: Overall, AR HDFT-F-assisted surgery is safe and effective in maximizing the EOR and PFS rate for patients with newly diagnosed supratentorial HGGs, and in optimizing patient functional outcomes.

Dr. Sabino Luzzi

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