

## ABSTRACT

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Recurrent Low-Grade Gliomas: Does Reoperation Affect Neurocognitive Functioning?

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**BACKGROUND:** Reoperations in patients with recurrent low-grade gliomas (RLGG) were proposed to control tumor residual and delay the risk of malignant transformation over time.

**OBJECTIVE:** To investigate neurocognitive outcomes in patients with RLGG who underwent a second surgery with awake monitoring.

**METHODS:** In this retrospective study, patients who underwent a second awake surgery for RLGG were included. Patients had presurgical and 3-mo postsurgical neuropsychological assessments. Data were converted into Z-scores and combined by the cognitive domain. Number of patients with cognitive deficits (Z-score <-1.65), variations of Z-scores, and extent of resection (EOR) were analyzed.

**RESULTS:** Sixty-two patients were included (mean age: 41.2 ± 10.0 yr). None had permanent neurological deficits postoperatively. Eight patients (12.9%) had a cognitive deficit preoperatively. Four additional patients (6.5%) had a cognitive deficit 3 mo after reoperation. Among other patients, 13 (21.0%) had a mild decline without cognitive deficits while 29 (46.8%) had no change of their performances and 8 (12.9%) improved. Overall, 94.2% of the patients returned to work. There were no correlations between EOR and Z-scores. Total/subtotal resections were achieved in 91.9% of the patients (mean residual: 3.1 cm<sup>3</sup>). Fifty-eight patients (93.5%) were still alive after an overall follow-up of 8.3 yr.

**CONCLUSION:** Reoperation with awake monitoring in patients with RLGG was compatible with an early recovery of neuropsychological abilities. Four patients (6.5%) presented a new cognitive deficit at 3 mo postoperatively. Total/subtotal resections were achieved in most patients. Based on these favorable outcomes, reoperation should be considered in a more systematic way.

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