



Cognitive assessment during awake brain tumor surgery

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Dear Editor,

We read with great interest the article by de Sain et al. regarding testing of cognitive functioning in glioma patients who underwent awake brain tumor surgery [1]. The authors assessed cognitive functions in their patients' undergoing excision of glioma during the preoperative, early post-operative, and late post-operative periods. The authors found that patients needed more time on the inhibition task directly after surgery and it improved in the following months. We congratulate the authors for this commendable task. We fully agree that this is an important concern and this study contributes to our understanding of what to expect after awake brain tumor surgery.

The anesthetic and surgical advancements have made awake craniotomy safer and feasible. The main indication of awake craniotomy still remains excision of space occupying lesion near an eloquent area or localization of epileptic foci. This study includes patients with gliomas in both right and left hemispheres (frontal, parietal, temporal, and occipital). It would have been helpful if the authors had described the eloquent area involved in these patients and its influence on the slowing of the inhibition task postoperatively. The excision around the motor area may not affect this task; however, proximity to speech areas can result in delay in response to these tests. Moreover, the authors noted the difference in time (14.5 vs 16.5 s) in inhibition task, which was statistically significant, but may possibly have less clinical relevance. This needs to be considered while interpretation of these results. Additional information about patient developing neurodeficit in the postoperative period and its association with the cognitive tests could have been more meaningful.

The authors have assessed cognition in few patients at time point B, that is, during surgery. We agree with the authors that

these values cannot be reliably interpreted. It must be noted that the anesthetic agents such as remifentanyl and propofol, used intraoperatively, in different doses can also affect cognition which needs to be considered in such studies. Systematic neuropsychological assessment has been suggested before, during, and after mapping-guided surgery, regardless of the tumor location, to preserve the functional connectome intraoperatively [2] and is important for preserving quality of life. At the same time, anxiety during awake craniotomy remains a concern which can affect the results of cognition assessment [3]. The increase in surgical and mapping time may lead to setting in of fatigue, anxiety, and decreased cooperative capability of patients. Thus, intraoperative cognitive assessment requires individualization and careful selection of appropriate battery of neuropsychological tests.

We would like thank the authors once again for carrying out this study, giving useful insight in cognitive functioning of patients undergoing awake craniotomy for excision of brain tumors.

Declarations

Conflict of interest The authors declare no competing interests.

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