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Letter to the Editor

Using a single neuropsychological task as a red flag creates false security

Glioblastoma (GBM), known as the most common and malignant primary brain tumor, is not only fatal but also a serious threat to the quality of life, predominantly due to the adverse effects on patients' performance status. Therefore, treatment selection is a hideous decision-making process. In their contribution to *Neuro-Oncology Practice*, Liouta and colleagues[1] report that "pre-operative neurocognitive status is an independent prognostic factor for overall survival in wild-type GBM patients, adding another prognostic tool to assist physicians in selecting the best treatment plan."

In an editorial, Grant[2] underlines the importance of preoperative cognitive status as a prognostic factor. In addition, he states that it can also help in evaluating patient's capacity to consent for brain surgery. In the context of the scarcity of neuropsychologists, he recommends the use of a single cognitive task (verbal fluency test, VFT). To enhance the implementation of this test in the daily routine of doctors, he proposes to use one cutoff to evaluate a patient's performance, instead of using normative data to correct for age and years of education.

Although initially, this sounds like a plausible and pragmatic solution, using just 1 cognitive task strongly hampers both the validity and reliability of the measurement. In agreement with Grant, we think that verbal fluency is a highly sensitive task for cognitive impairment and, as such, can be seen as a "red flag." But this sensitivity comes with the price of poor specificity and a high rate of false alarms. The latter is also because of noncognitive, psychological factors like stress and anxiety frequently encountered in these patients confronted with their diagnosis, which can influence cognitive performance. We embrace Grant's suggestion to refer in such cases to comprehensive neuropsychological evaluation.

However, a more serious problem emerges, if the score on the VFT appears unimpaired because this reflects by no means always unimpaired cognitive functioning. Functions such as language comprehension and memory can be independently impaired and are essential in the capacity to consent for brain surgery. Moreover, the *one-cut-off-serves-all* principle induces another risk. Within the field of Alzheimer's disease, single neuropsychological test scores have shown to be of prognostic value[3,4]; however, this disease has a much more uniform cognitive profile and a more homogenous population with respect to age compared to GBM patients. Age and years of education are both related to different aspects of VFTs,[5] so leaving out a correction for those factors will increase the risk of missing cognitive impairments, especially in younger and/or higher-educated patients. Finally, Liouta and colleagues[1] based their results on patients with a GBM selectively in the left hemisphere. We hypothesize that the prognostic value of the VFT is lower in patients with a GBM in the right hemisphere.

Taken together, the use of a single VFT as a red flag, as Grant suggests, is not a reliable measure of cognitive functioning and cannot serve as a prognostic factor for overall survival nor can it guide decision-making in treatment planning or reflect patient's capacity to consent for brain surgery. So, to the question "Should simple bedside neurocognitive data now be routinely gathered prior to brain tumor surgery?," our answer is *no*: not if based on 1 or just some single neuropsychological tasks because that will create false security with even larger risks for adverse treatment selection than leaving out neurocognitive functioning completely. We propose the use of a clinical interview and a tailored cognitive test battery by a neuropsychologist who can assess both patient's cognitive functioning and insight, essential to give consent for brain surgery. Additional time spent on a neuropsychological assessment is more profitable than an unreliable shortcut and false security.

Conflict of interest statement.

None declared.

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