Cognitive function test: Is preanesthesia checkup complete without this?

Sir,

Majority of patients undergoing total arthroplasty are in the geriatric age group and routinely undergo preanesthesia checkup. Laboratory investigations and exercise tolerance are usually checked before such major surgeries as per institutional protocol. This protocol rarely involves documentation of baseline cognitive function prior surgery despite literature having found a high incidence of postoperative delirium after total arthroplasties.[1-3]

We would like to share a case of a 66-year-old, well-educated female, who came to anesthesia outpatient department for a preanaesthesia check-up for total knee arthroplasty. She was wheelchair bound due to severe and painful bilateral knee osteoarthritis. She had a history of fall 4 days back due to imbalance with no history of associated external injury, head injury, syncope, loss of consciousness, or ENT bleed. She was a known case of hypertension, diabetes mellitus for which she was taking tablet amlodipine 5 mg and tablet glimepiride 2 mg once daily, respectively. She had undergone surgery for the left carcinoma breast 3 years back and had also completed 12 cycles of chemotherapy. She reported reduced memory and recall since 1 year, which had worsened during the last 7 days and also change in handwriting since 7 days.

Her routine preoperative investigations such as complete hemogram, liver functions, renal functions, urine routine, X-ray chest, and electrocardiogram were normal. Neurological examination revealed no significant abnormality. However, her baseline cognitive function assessment by Mini-Cog revealed grossly abnormal clock drawing and poor recall of three words.[3] Hence, cognitive impairment was suspected. In view of recent fall and acute onset dementia, it was decided to do a computed tomography (CT) scan brain followed by psychiatry reference. CT scan brain with intravenous contrast revealed a heterogeneously enhancing lesion 25 mm × 28 mm × 26 mm in the left frontotemporal lobe, parafalcine region with marked perilesional edema [Figure 1]. Further positive emission tomography scan confirmed the diagnosis of metastatic brain tumor. Her surgery was postponed, and the patient was started on radiotherapy and palliative care.

Ours is a community hospital, and we routinely screen patients above 50 years of age, to rule out underlying cognitive impairment or dementia at preanesthetic check-up, especially prior to major and supra major surgeries. Mini-Cog is a cognitive diagnostic test that is brief, widely available, and easy to administer.[4] It takes approximately 3 min to administer. It has minimal language content, which reduces cultural and educational bias. The Mini-Cog combines a 3-item recall component with a clock drawing test. Abnormal scores are significantly associated with 6 months postoperative morbidity and mortality.[5] Patients that screen positive for cognitive impairment on the Mini-Cog may further be investigated for the severity of dementia using additional cognitive tests.
like mini mental state examination. Pharmacological or nonpharmacological therapeutics may be initiated prior elective surgery if significant impairment is detected.

Some of the factors that cause or worsen existing dementia are diabetes, hypertension, atherosclerosis, thyroid disorders, severe vitamin deficiency, stroke, chronic infection, metabolic disorders, and drug intoxication. Benign tumors of the frontal lobe of the brain such as meningiomas are known to produce a progressive change of personality and intellect even before causing definite neurological deficits.\(^6\) Our patient was a controlled diabetic and hypertensive with acute onset of significant dementia. Abnormal Mini-Cog was the only sign of the underlying brain pathology despite a normal neurological examination. Incorporating Mini-Cog in the preanesthesia checkup protocol lead us to the timely diagnosis. Hence, we recommend a quick check on patient’s preoperative cognitive function during preanesthesia visit.

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Conflicts of interest
There are no conflicts of interest.

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