

## FEATURE ARTICLE

# Cognitive Impairment in Patients With Brain Tumors: Assessment and Intervention in the Clinic Setting

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Cognitive impairment is the most common neurologic problem associated with brain tumors and is present in many people with brain tumors from the time of diagnosis. Treatment of primary brain tumors with surgery, radiation, chemotherapy, and adjunctive medications such as corticosteroids results in further adverse effects on cognitive function. To plan the best care for patients with brain tumors, healthcare providers must initiate systematic and accurate assessment of cognitive functioning at the first clinic visit and extend assessment throughout the course of illness. This article outlines the range of cognitive dysfunction that may be seen in patients with primary brain tumors and offers information for clinicians seeking to develop their skills and implement a systematic approach to cognitive screening. The use of cognitive screening to guide timely intervention, such as referral to a neuropsychologist and the provision of anticipatory guidance to people with brain tumors and their families, is discussed.

**C**ognitive impairment is the most common neurologic problem associated with brain tumors (Boake & Meyers, 1993). Cognitive dysfunction results from the neoplastic process, secondarily from shift or compression of intracranial structures, and associated cerebral edema. It is evident at the time of diagnosis in 50%–80% of patients (Tucha, Smely, Preier, Lange, & Klaus, 2000). Cognitive changes reported during and after radiation and chemotherapy include memory loss, diminished information processing, reduced attention, and personality and mood changes (Weitzner, 1999). The adjunctive medications that are ubiquitous among patients with brain tumors, specifically glucocorticosteroids, anticonvulsants, and psychoactive medications, also can produce adverse effects on cognitive function (Klein et al., 2001). In addition, medical complications that frequently are encountered in patients with primary brain tumors, including endocrine dysfunction, seizures, infection, anemia, and sleep disorder, all can contribute to neurobehavioral changes.

Cognitive dysfunction negatively affects physical, psychological, social, and vocational functioning. Many patients with primary brain tumors develop behavioral, emotional, and intellectual difficulties that compromise their ability to perform their usual work and other activities and limit independent living (Meyers, Weitzner, Valentine, & Levin, 1998). Patients may be saddened and frustrated by cognitive losses, and the changes diminish the quality of individual and family life. Patients with brain tumors may have inadequate insight and self-appraisal, and they may overrate their ability to manage independently. Furthermore, problems with memory or the inability to initi-

### At a Glance

- ◆ Cognitive impairment is common in patients with brain tumors and interferes with work, family relationships, and quality of life.
- ◆ Planning the best care for patients with brain tumors includes systematic assessment of cognitive functioning from the first clinic visit throughout the course of illness.
- ◆ Two scales have an evidence base sufficient to support their use as cognitive screening instruments in the clinic setting, specifically the Mini-Mental State Examination and the Neurobehavioral Cognitive State Examination.

ate activity can negatively impact adherence to treatment regimens. Cognitive dysfunction also can limit patients' ability to make independent treatment decisions or give informed

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