

## Brain Tumors: Biopsychosocial Factors

### What We Know

- › A brain tumor is a potentially life-threatening condition that can have severe physical, cognitive, and psychosocial effects. Malignant brain tumors grow rapidly; benign brain tumors are eventually life-threatening when their growth puts pressure on vital brain structures.<sup>(2,4,7,9,11,15)</sup> According to the National Brain Tumor Society an estimated 700,000 people in the United States are living with a brain tumor.<sup>(12)</sup> (For general information on brain tumors, see *Quick Lesson About ... Brain Tumors in Adults* and *Quick Lesson About ... Brain Tumors in Children*)
  - Primary brain tumors originate in the brain and are classified according to the type of cells from which they originate; secondary brain tumors are the result of metastasis from a cancer originating in another part of the body<sup>(11)</sup>
  - The prognosis for a patient with a brain tumor depends on the type and size of the tumor and the patient's age<sup>(2,4,7,9,11)</sup>
    - Low-grade (I–II) tumors are benign, have a slow growth rate, and have distinct boundaries. High-grade (III–IV) tumors are malignant and have a high risk of recurrence after treatment<sup>(11)</sup>
    - Low-grade tumors that are completely resectable have the most favorable prognosis<sup>(9)</sup>
    - The highest incidence of primary brain tumors in adults is at 50–70 years of age and is slightly more common in men than in women<sup>(11)</sup>
    - Malignant brain tumors account for 25% of childhood cancers, are the second most common childhood cancer, and are the most common cause of cancer death in children<sup>(3,6)</sup>
    - The five-year survival rate for adult patients who have a primary malignant brain tumor varies greatly from 5–89% depending on tumor type, grade, and age of the patient<sup>(1)</sup>
  - › Biopsychosocial factors that affect QOL and psychosocial adjustment in patients with a brain tumor include the affected person's characteristics before illness, whether the tumor is malignant or benign, the location and size of the tumor, treatment modalities that are used, associated neurologic impairment, patient reactions to the diagnosis and treatment, and the availability of support from family and friends<sup>(8,15,17,21)</sup>
    - Patients with a brain tumor commonly develop depression, dementia, anxiety, aggression, and deficits in memory and attention<sup>(15)</sup>
    - Patients with a brain tumor and their family members report that cognitive impairment (e.g., personality changes and decreased reasoning ability) causes the most psychological distress and has the greatest negative impact on QOL<sup>(8,21)</sup>
      - Patients with a brain tumor report having more cognitive and communication deficits, fatigue, and activity limitations than patients with other types of cancer<sup>(19)</sup>
    - Patients with a brain tumor can experience many stressors, including physical and cognitive impairment, disease progression, treatment side effects, potential for recurrence of the brain tumor after treatment, and death<sup>(8,17,21)</sup>

ICD-9  
239.6

ICD-10  
D49.6

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September 28, 2018

- Patients with gliomas frequently develop depression as part of the behavioral changes caused by the tumor itself and by the emotional burden associated with the disease<sup>(16)</sup>
- Depression, fatigue, and anxiety about the future are the most consistent predictors of diminished QOL<sup>(21)</sup>
- The diagnosis of a brain tumor and subsequent treatment cause immediate family role changes (e.g., inability to carry out work and home responsibilities)<sup>(8,21)</sup>
- Patients with a brain tumor frequently fail to receive adequate information about the diagnosis or fail to receive information and support to decrease anxiety about the future
  - Patients with a brain tumor report having various barriers to communicating with nurses, including nurses’ lack of time with patients, their focus on meeting physical needs of patients, and their apparent avoidance or discomfort in assessing and responding to patients’ emotional needs<sup>(13,20,21)</sup>
  - Patients with a brain tumor require support to help them adapt to changes (e.g., changes in behavior, mood, and self-esteem) and losses (e.g., loss of relationships, loss of employment) that affect their lives<sup>(10)</sup>
- › Family members provide most of the in-home care for patients with a brain tumor. The psychosocial needs of these caregivers can be significant<sup>(8,15,21)</sup>
  - In a study of 72 patient-caregiver dyads, researchers found that caregivers of patients with a brain tumor developed more signs and symptoms of depression and anxiety than the patients developed; the psychological well-being of the caregivers did not correlate with the clinical or emotional characteristics of the patients<sup>(15)</sup>
  - Effective social support is necessary for family members who provide care to patients with a brain tumor to mitigate the burden caused by the functional and cognitive changes associated with brain tumors and the need for support with ADL in patients with poor functional status<sup>(20,21)</sup>
- › Improved survival rates in children with a brain tumor increases the risk of late multi-organ effects related to treatment that can have a negative impact on cognition, physical growth, body image, social and sexual functioning, and QOL. In addition, children with a brain tumor are at increased risk for developing secondary cancers<sup>(5,6,19)</sup>
  - Many childhood brain tumor survivors develop personality changes and cognitive difficulties—including deficits in verbal working memory and processing speed—that can lead to academic failure and behavioral and social problems<sup>(5,6,9,14,19)</sup>
    - Many children who survive a brain tumor have special educational needs; aggressive behavior, emotional abnormalities, low self-esteem, and poor social skills are common<sup>(5)</sup>
      - These chronic effects can lead to significant stress on the parents of children with a brain tumor. Higher stress levels are reported in parents who employ emotion-focused coping, denial, and avoidance compared with parents who seek social support and use a problem-solving approach to cope with their child’s condition<sup>(5)</sup>
    - Researchers in a pilot study were the first to report improvement in social skills performance after survivors of a brain tumor during childhood participated in a social skills intervention program. Further study is needed to focus on problem solving as there was no change in this area after program participation. Researchers theorize that survivors can possess the knowledge that is required for involvement in social situations but they might continue to have difficulty enacting certain social behaviors<sup>(18)</sup>
    - Researchers in a study examining the effects of continued psychological care on the emotions of patients with brain tumor(s) and their family members, which included 162 patients randomized, found that those who received psychological care demonstrated significantly lower depression and anxiety scores—measured by self-rating anxiety and depression scales at the 14-day, 28-day and 3-month visits—compared to the control group and concluded that continued psychological care can effectively reduce depression and anxiety in patients with brain tumor and their families<sup>(22)</sup>

## What We Can Do

- › Become knowledgeable about biopsychosocial factors in patients with a brain tumor so you can accurately assess your patients’ personal characteristics and health education needs; share this information with your colleagues
- › Ask the patient and family members to discuss their concerns about the brain tumor diagnosis, treatment, prognosis, effects of the disease on QOL, and family role changes; provide uninterrupted time to listen, provide emotional support, and respond
  - Encourage family participation in making decisions about the plan of care<sup>(8)</sup>
  - Assess your patients for unmet psychosocial needs and request referral, if appropriate, to a mental health clinician for assistance in coping with anxiety, depression, and psychological adaptation

- Assess your patients' spiritual and cultural backgrounds and request referral to chaplain services and/or a clergyperson of choice, if appropriate, for support with grief
- If appropriate, encourage patient/family members to learn more about hospice care, and request referral to a social worker for identification of local hospice resources<sup>(4,11)</sup>
- Request referral to a social worker, if appropriate, to identify resources for academic evaluation, social evaluation, and specialized education for school-aged children<sup>(19)</sup>
- Emphasize the importance of lifelong medical surveillance to maintain health and QOL for a child or adult who has had a brain tumor<sup>(19)</sup>
- Encourage patients and their families to obtain information and resources from organizations such as the National Brain Tumor Society (<http://braintumor.org/>) and American Brain Tumor Association (<https://www.abta.org/>)

## Coding Matrix

References are rated using the following codes, listed in order of strength:

<b>M</b> Published meta-analysis	<b>RV</b> Published review of the literature	<b>PP</b> Policies, procedures, protocols
<b>SR</b> Published systematic or integrative literature review	<b>RU</b> Published research utilization report	<b>X</b> Practice exemplars, stories, opinions
<b>RCT</b> Published research (randomized controlled trial)	<b>QI</b> Published quality improvement report	<b>GI</b> General or background information/texts/reports
<b>R</b> Published research (not randomized controlled trial)	<b>L</b> Legislation	<b>U</b> Unpublished research, reviews, poster presentations or other such materials
<b>C</b> Case histories, case studies	<b>PGR</b> Published government report	<b>CP</b> Conference proceedings, abstracts, presentation
<b>G</b> Published guidelines	<b>PFR</b> Published funded report	

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