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# The Challenges of Long-Term Treatment Outcomes in Adults With Malignant Gliomas

Sandra Remer, RN, BS, OCN®, CCRP, and Mary E. Murphy, RN, MS, AOCN®, CHPN

The term brain tumor or intracranial neoplasms refers to a collection of tumors, of which gliomas are one category. Glial tumors are of two types: astrocytic and oligodendroglial, both of which can be high or low grade (DeAngelis, 2001). Malignant astrocytomas, including glioblastoma multiforme, are the most common glial tumors and the focus of this article.

## Background

Malignant gliomas are the most common type of brain tumor, representing about 60% of all primary brain tumors (Armstrong et al., 2002; Levin, Leibel, & Gutin, 2001; Segal, 2003). The most aggressive of these tumors is glioblastoma multiforme (grade IV), which accounts for about 40%–50% of the malignant gliomas; astrocytoma (grade III), which represents 30%–35% (see Table 1) of malignant gliomas, is the second most aggressive type (Levin et al.; Segal, 2003). The American Cancer Society estimated that 18,400 people would be diagnosed with a brain tumor in 2004. This represents about 1.34% of the new cases of all cancers that will be diagnosed in 2004 (Jemal et al., 2003). According to the American Brain Tumor Association, this number comes from databases counting only malignant brain tumors

Malignant gliomas are among the most devastating tumors, with survival only one to three years after diagnosis even with the best of treatments. For this reason, long-term follow-up has not been established. Patients who do survive have significant disabilities, which compromise patient and family quality of life (QOL). Side effects from a brain tumor are dependent on the location of the tumor in the brain and can cause significant cognitive, emotional, and social effects on patients and families. Surgical treatment options also are dependent on the location of the tumor in the brain, and some sites remain inoperable (e.g., brain stem, motor strip). Radiation therapy continues to remain the mainstay of treatment for this patient population. The advent of newer technologies in radiation and chemotherapy and the development of novel treatments have increased survival. As survival increases, QOL issues become more important to patients and families. Impairment, disability, and handicap are measurements of QOL used by healthcare professionals. A multitude of studies has produced evidence regarding the impact of tumor location and size on QOL, whereas other studies have demonstrated the effects that various treatment modalities have on QOL. Few studies actually have provided insight into the everyday consequences that tumors pose on patients. Understanding the significance and causes of these impairments, disabilities, and handicaps will assist oncology nurses in caring for this special population.

**Key Words:** brain neoplasms, quality of life, radiation-induced abnormalities

with malignant gliomas among the most devastating tumors (Jemal et al.). Malignant gliomas are reported as the leading cause of cancer-related death in men aged 20–39 and the fifth-leading cause of death in women aged 20–39 (Jemal et al.; Segal, 2004). The reported five-year survival rate for patients diagnosed with malignant gliomas from 1974–1976 was 22%. For patients diagnosed with malignant gliomas from 1992–1997, the five-year survival rate is reported to have increased to 32%. This is a significant statistical increase in survival over the past 20 years (Segal, 2004). However, the future for patients diagnosed with malignant gliomas still remains uncertain.

The natural course of events for a malignant glioma is that of progressive neurologic deficits, repetitive treatment, further neurologic decline, and eventual death. Long-term follow-up for patients with malignant glioma is not well established because

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mors (Segal, 2004). About 12,690 patients will die from their malignant brain tumors,

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