Preface

Malignant gliomas remain one of the most difficult types of tumors to treat, with a relatively poor prognosis with current standard of care. Thus, treatment paradigms rely on a multidisciplinary clinical effort that encompasses the expertise of dedicated neurosurgeons, neuro-oncologists, radiation oncologists, neuropathologists, and radiologists. This combined clinical focus from a number of specialties reflects the importance of the combined effort from each of these disciplines for providing patients with the latest advances in care.

More recent observations from translational research have underscored the difficulty with treatment of these tumors due to their profound heterogeneity at the biological level and have identified specific genomic and pathological characteristics that correlate with responses to treatment. These findings are not only changing the way tumors are classified, but also ultimately treated, both on initial care and at the time of recurrence. While malignant gliomas remain a therapeutic challenge, the importance of these research findings in shaping treatment options has changed the way clinicians are addressing patients' options.

The aims and scope of this study is to address all the aspects of patient evaluation and care. This includes new findings in imaging that provide a better understanding of the extent of the lesion as well as its relationship with critical neuroanatomic function. The evolution of intraoperative imaging, functional brain mapping, and technology to identify tumor from brain has significantly improved the ability of surgeons for safer and more aggressive tumor removal. More importantly, a better understanding of tumor biology and genomics has created an opportunity to significantly revise tumor classification and better select optimal therapy for individual patients. These more recent findings have directed changes in patient management and have stimulated novel and innovative treatment options including immunotherapy, tumor vaccines, antiangiogenic agents, and personalized cancer treatment. In addition, novel agent delivery techniques offer the potential for increasing the effectiveness of treatment by delivering active agents directly where they are needed most. Radiation therapy has been a standard of care for malignant brain tumors, and recent attempts to improve the efficacy of this modality are helping to reduce morbidity while improving outcomes.

Therefore, a comprehensive overview of the state-of-the-art treatment for malignant gliomas, organized by subspecialized discipline, will prove useful by updating physicians on new therapeutic paradigms and what is on the horizon for the near future. This study will be informative for surgeons, oncologists, neurologists, residents, and students who treat these patients and those who are training for a career in managing patients with these challenging tumors.

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