Does radiosurgery have a role in the management of oligodendrogliomas?


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OBJECT: In this study the authors evaluated the role of stereotactic radiosurgery (SRS) in the management of progressive or newly diagnosed small-volume oligodendrogliomas. Tumor control, survival, and complications were assessed in patients with oligodendroglioma who underwent Gamma Knife radiosurgery as a primary or adjuvant procedure. METHODS: The authors retrospectively reviewed 30 patients with oligodendroglioma (12 Grade II and 18 Grade III) who underwent SRS between 1992 and June 2006 at the University of Pittsburgh. The median patient age was 43.2 years (range 10.8-75.4 years). Twenty-four patients had previously undergone resection of the tumor, whereas tumors in 6 were diagnosed based on biopsy findings. The SRS was performed in 25 patients who had imaging-defined tumor progression despite prior fractionated radiation (22 patients) and/or chemotherapy (20 patients). The median target volume was 15.4 cm(3) (range 0.07-48.7 cm(3)) and the median margin dose was 14.5 Gy (range 11-20 Gy). RESULTS: At an average of 39.2 months of follow-up (range 12-133 months), 17 patients were dead and 13 were living. The overall survival rates from diagnosis to 5 and 10 years were 90.9 and 68.2%, respectively, for Grade II and 52.1% at 5 years and 26.1% at 10 years for Grade III. Factors associated with an improved progression-free survival included lower tumor grade and smaller tumor volume. In 13 patients who had loss of heterozygosity testing, patients with 1p19q loss of heterozygosity had a significantly improved survival after diagnosis (p = 0.04). CONCLUSIONS: The SRS modality is a minimally invasive additional option for patients with residual or recurrent oligodendrogliomas. It may also be considered as an alternative to initial resection in small-volume tumors located in the cortical brain region.