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Stereotactic Radiosurgery for Patients With Brain Metastases From Small Cell Lung Cancer.

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Abstract

BACKGROUND: Patients with small-cell lung cancer have a high likelihood of developing brain metastases. Many of these patients will have prophylactic cranial irradiation (PCI) or eventually undergo whole brain radiation therapy (WBRT). Despite these treatments, a large number of these patients will have progression of their intracranial disease and require additional local therapy. Stereotactic radiosurgery (SRS) is an important treatment option for such patients.

METHODS: We retrospectively reviewed the charts of 44 patients with brain metastases from small-cell lung cancer treated with gamma knife SRS. Multivariate analysis was used to determine significant prognostic factors influencing survival.

RESULTS: The median follow-up from SRS in this patient population was 9 months (1-49 months). The median overall survival (OS) was 9 months after SRS. Karnofsky performance status (KPS) and combined treatment involving WBRT and SRS within 4 weeks were the two factors identified as being significant predictors of increased OS ($p = 0.033$ and 0.040 , respectively). When comparing all patients, patients treated with a combined approach had a median OS of 14 months compared to 6 months if SRS was delivered alone. We also compared the OS times from the first definitive radiation: WBRT, WBRT and SRS if combined therapy was used, and SRS if the patient never received WBRT. The median survival for those groups was 12, 14, and 13 months, respectively, $p = 0.19$. Seventy percent of patients had follow-up magnetic resonance imaging available for review. Actuarial local control at 6 months and 12 months was 90% and 86%, respectively. Only 1 patient (2.2%) had symptomatic intracranial swelling related to treatment, which responded to a short course of steroids. New brain metastases outside of the treated area developed in 61% of patients at a median time of 7 months; 81% of these patients had received previous WBRT.

CONCLUSIONS: Stereotactic radiosurgery for small-cell lung carcinoma brain metastases provided safe and effective local tumor control in the majority of patients.

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