Treatment of Large Brain Metastases With Stereotactic Radiosurgery.

Zimmerman AL¹, Murphy ES², Suh JH², Vogelbaum MA³, Barnett GH³, Angelov L³, Ahluwalia M⁴, Reddy CA⁵, Chao ST⁶.

Abstract

INTRODUCTION: We report our series of patients with large brain metastases, >3 cm in diameter, who received stereotactic radiosurgery (SRS) as a component of their treatment, focusing on survival and intracranial recurrence rates.

MATERIAL AND METHODS: The brain tumor database was queried for patients treated with SRS for large brain metastases. Local recurrence (LR) and distant brain recurrence (DBR) rates were calculated using cumulative incidence analysis, and overall survival (OS) was calculated using Kaplan-Meier analysis. Patients were classified into 1 of the 4 groups based on treatment strategy: SRS alone, surgery plus SRS, SRS plus whole-brain radiation therapy (WBRT), and salvage SRS from more remote WBRT and/or surgery.

RESULTS: A total of 153 patients with 164 lesions were evaluated. The SRS alone was the treatment approach in 62 lesions, surgery followed by SRS to the resection bed (S + SRS) in 33, SRS + WBRT in 19, and salvage SRS in 50. There was no statistically significant difference in OS between the 4 treatment groups (P = .06). Median survival was highest in patients receiving surgery + SRS (12.2 months) followed by SRS + WBRT (6.9 months), SRS alone (6.6 months), and salvage SRS (6.1 months). There was also no significant difference for LR rates between the groups at 12 months. No significant variables on univariate analysis were noted for LR. The 12-month DBR rates were highest in the S + SRS group (52%), followed by salvage SRS (31%), SRS alone (28%), and SRS + WBRT (13%; P = .03).

CONCLUSION: There were no significant predictors for local control. Keeping in mind that patient numbers in the SRS + WBRT group are small, the addition of WBRT to SRS did not appear to significantly improve survival or local control, supporting the delayed use of WBRT for some patients to prevent potential side effects provided regular imaging surveillance and salvage therapy are utilized. Prospective studies are needed to optimize SRS treatment regimens for patients with large brain metastases.

© The Author(s) 2015.

KEYWORDS: Gamma Knife; brain metastases; cavity radiosurgery; radiosurgery; stereotactic

PMID: 25633136 [PubMed - as supplied by publisher]