Accelerator-based stereotactic radiosurgery for... [Neurosurgery. 2012] ...

Display Settings:  Abstract


Accelerator-based stereotactic radiosurgery for brainstem metastases.
Lin CS, Selch MT, Lee SP, Wu JK, Xiao F, Hong DS, Chen CH, Hussain A, Lee PP, De Salles AA.
Department of Radiation Oncology, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan.
chunshulin@gmail.com

Abstract
BACKGROUND: Stereotactic radiosurgery represents a noninvasive alternative treatment for intracranial metastases.

OBJECTIVE: To investigate the treatment outcome of linear accelerator-based stereotactic radiosurgery (linac-SRS) for brainstem metastases.

METHODS: We retrospectively reviewed our database of patients who were diagnosed with brainstem metastases and underwent linac-SRS between 1997 and 2008 at the University of California, Los Angeles.

RESULTS: A total of 45 patients with 48 brainstem metastases were treated. The median target volume was 0.40 mL (range, 0.02-5.70 mL), and median prescription dose was 14 Gy (range, 10-17 Gy) at 90% isodose curve. The median survival time was 11.6 months. Longer survival time was associated with higher Karnofsky performance status. The local control rate was 92% at 6 months and 88% at 1 year. Univariate analysis demonstrated a significant relationship between local control and tumor volume (≤0.4 mL vs >0.4 mL, P = .023) and SRS mode (conventional circular arc vs dynamic conformal arc, P = .044). There was a trend toward improved local control and prescription dose >14 Gy (P = .059). Two patients had brainstem complications following treatment, and the complication rate was 4.7% at 2 years. Serious morbidity occurred with 17 Gy.

CONCLUSION: Linac-SRS using a median dose of 14 Gy provided excellent local control in patients with brainstem metastases less than 0.4 mL with relatively low serious morbidity. The results of the study support the use of linac-SRS for patients with brainstem metastases. We advocate 14 to 16 Gy, given the high local control rate and low complication rate with this dose.

PMID: 21997541 [PubMed - indexed for MEDLINE]

MeSH Terms

LinkOut - more resources