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The efficacy of gamma knife radiosurgery for advanced gastric cancer with brain metastases.

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Abstract

The aim of this study was to retrospectively investigate the efficacy of gamma knife radiosurgery for brain metastases from advanced gastric cancer (AGC) comparing whole brain radiotherapy (WBRT). Between January 1991 and May 2008, 56 patients with brain metastases from AGC, treated with GKR or WBRT, were reviewed to assess prognostic factors affecting survival. Most brain metastases were diagnosed based on MRI, both metachronous and synchronous brain metastases, adenocarcinoma and signet ring carcinoma were included, but excluded cases of gastric lymphoma. Fifteen patients with a median age of 54.0 years (range, 42-67 years) were treated with GKR: 11 were treated with GKR only, 2 with surgery plus GKR, 1 with repeated GKR, 1 with GKR plus WBRT, and the other 1 with WBRT plus GKR. Forty-one were treated with WBRT only. The median number of metastatic brain lesions was 3 (range, 1-15), and treatment involved 17.0 Gy (range 14-23.6 Gy), or 30 Gy with fractionated radiotherapy. The median survival after brain metastases for GKR treatment was 40.0 weeks [95% confidence interval (CI) 44.9-132.1 weeks] and WBRT was 9.0 weeks 95% CI, 8.8-21.9 weeks). The progression free survival of 15 GKR treated patients was 56.5 weeks (95% CI 33.4-79.5 weeks). The recursive partitioning analysis (RPA) (class 2 vs. class 3) and use of GKR were correlated with prolonged survival in univariate and multivariate analyses. Age, sex, pathology, leptomeningeal seeding, tumor size (≥3 cm), extracranial metastases, single metastasis, chemotherapy, and synchronous metastases were not correlated with a good prognosis in both univariate and multivariate analysis. Based on our study, the use of GKR and RPA class 2 resulted in more favorable clinical outcomes in patients with brain metastases from AGC.

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