Outcome predictors of gamma knife radiosurgery for renal cell carcinoma metastases.

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Abstract

BACKGROUND: Although whole-brain radiation therapy (WBRT) has been a standard palliative management for brain metastases from renal cell carcinoma, its benefit has been elusive because of radiobiological resistance.

OBJECTIVE: To evaluate the role of stereotactic radiosurgery (SRS) in the management of brain metastases from renal cell carcinoma.

METHODS: We reviewed records from 158 consecutive patients (men = 111, women = 47) who underwent SRS for 531 brain metastases from renal cell carcinoma. The median patient age was 61 years (range, 38-83 years), and the median number of tumors per patient was 1 (range, 1-10). Seventy-nine patients (50%) had solitary brain metastasis. Fifty-seven patients (36%) underwent prior WBRT. The median total tumor volume for each patient was 3.0 cm3 (range, 0.09-47 cm).

RESULTS: The overall survival after SRS was 60%, 38%, and 19% at 6, 12, and 24 months, respectively, with a median survival of 8.2 months. Factors associated with longer survival included younger age, longer interval between primary diagnosis and brain metastases, lower recursive partitioning analysis class, higher Karnofsky performance status, smaller number of brain metastases, and no prior WBRT. Median survival for patients with < 2 brain metastases, higher Karnofsky performance status (> 90), and no prior WBRT was 12 months after SRS. Sustained local tumor control was achieved in 92% of patients. Symptomatic adverse radiation effects occurred in 7%. Overall, 70% of patients improved or remained neurologically stable.

CONCLUSION: Stereotactic radiosurgery is an especially valuable option for patients with higher Karnofsky performance status and smaller number of brain metastases from renal cell carcinoma.

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