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Early Significant Tumor Volume Reduction After Radiosurgery in Brain Metastases from Renal Cell Carcinoma Results in Long-Term Survival.

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Abstract

PURPOSE: To retrospectively evaluate survival of patients with brain metastasis from renal cell carcinoma (RCC) after radiosurgery.

PATIENTS AND METHODS: Between 1998 and 2010, 46 patients were treated with radiosurgery, and the total number of lesions was 99. The mean age was 58.9 years (range, 33-78 years). Twenty-six patients (56.5%) had a single brain metastasis. The mean tumor volume was 3.0 cm³ (range, 0.01-35.1 cm³), and the mean marginal dose prescribed was 20.8 Gy (range, 12-25 Gy) at the 50% isodose line. A patient was classified into the good-response group when the sum of the volume of the brain metastases decreased to less than 75% of the original volume at a 1-month follow-up evaluation using MRI.

RESULTS: As of December 28, 2010, 39 patients (84.8%) had died, and 7 (15.2%) survived. The overall median survival time was 10.0 ± 0.4 months (95% confidence interval, 9.1-10.8). After treatment, local tumor control was achieved in 72 (84.7%) of the 85 tumors assessed using MRI after radiosurgery. The good-response group survived significantly longer than the poor-response group (median survival times of 18.0 and 9.0 months, respectively; *p* = 0.025). In a multivariate analysis, classification in the good-response group was the only independent prognostic factor for longer survival (*p* = 0.037; hazard ratio = 0.447; 95% confidence interval, 0.209-0.953).

CONCLUSIONS: Radiosurgery seems to be an effective treatment modality for patients with brain metastases from RCC. The early significant tumor volume reduction observed after radiosurgery seems to result in long-term survival in RCC patients with brain metastases.

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