Fractionated stereotactic radiotherapy in brain tumor larger than 3.0 cm

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**Background** To apply treatment planning of fractionated stereotactic radiotherapy (FSRT) for brain lesion larger than 3cm.

**Methods** Between August 1997 and December 2000, frameless FSRT was performed in 47 patients with brain tumor (71 lesions). Thirty five patients received FSRT for 1 lesion, 6 for 2 lesions, 1 for 3 lesions, 4 for 4 lesions, and 1 for 5 lesions. Among these, 18 patients were larger than 3 cm. We used multiple-arc FSRT for round tumor and applied conformal FSRT through irregular ports shaped to tumor profile for irregular tumor. Dose fractionation schedule was different according to pathologic diagnosis, tumor extent and performance status; 25 Gy/5 fx in 4 lesions, 30 Gy/10 fx in 1, 30 Gy/5-6 fx in 7, 10 Gy/2 fx in 2, 35 Gy/10 fx in 1, 21 Gy/3 fx in 1, 40 Gy/10 fx in 1, 22.5 Gy/5 fx in 1. Tumor diameter and volume ranged from 3.0 to 6.04 cm (median 3.83 cm) and 14.22 to 115.15 cc (median 33.82 cc), respectively.

**Results** We used conformal FSRT to 13 cases (72\%) and multiple-arc FSRT to 5 cases (28\%) in 18 lesions. The minimum dose for tumor volume was 82\% in conformal FSRT and 83\% in multiple-arc FSRT. There was no acute toxicity, except for transient headache and dizziness in two patients.

**Conclusion** We had same result of treatment planning between multiple-arc FSRT and conformal FSRT. We can apply frameless stereotactic technique to lesions with larger than 3 cm and/or irregular shape safely and effectively.