ABSTRACT

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Laser Interstitial Thermal Therapy for First-Line Treatment of Surgically Accessible Recurrent Glioblastoma: Outcomes Compared With a Surgical Cohort.

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BACKGROUND: Laser interstitial thermal therapy (LITT) for glioblastoma (GBM) has been reserved for poor surgical candidates and deep "inoperable" lesions. We present the first reported series of LITT for surgically accessible recurrent GBM (rGBM) that would otherwise be treated with surgical resection.

OBJECTIVE: To evaluate the use of LITT for unifocal, lobar, first-time rGBM compared with a similar surgical cohort.

METHODS: A retrospective institutional database was used to identify patients with unifocal, lobar, first-time rGBM who underwent LITT or resection between 2013 and 2020. Clinical and volumetric lesional characteristics were compared between cohorts. Subgroup analysis of patients with lesions ≤20 cm3 was also completed. Primary outcomes were overall survival and progression-free survival.

RESULTS: Of the 744 patients with rGBM treated from 2013 to 2020, a LITT cohort of 17 patients were compared with 23 similar surgical patients. There were no differences in baseline characteristics, although lesions were larger in the surgical cohort (7.54 vs 4.37 cm3, P = .017). Despite differences in lesion size, both cohorts had similar extents of ablation/resection (90.7% vs 95.1%, P = .739). Overall survival (14.1 vs 13.8 months, P = .578) and progression-free survival (3.7 vs 3.3 months, P = 0. 495) were similar. LITT patients had significantly shorter hospital stays (2.2 vs 3.0 days, P = .004). Subgroup analysis of patients with lesions ≤20 cm3 showed similar outcomes, with LITT allowing for significantly shorter hospital stays.

CONCLUSION: We found no difference in survival outcomes or morbidity between LITT and repeat surgery for surgically accessible rGBM while LITT resulted in shorter hospital stays and more efficient postoperative care.

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