

Magnetic Resonance-Guided Laser Ablation for the Treatment of Malignant Gliomas: A Series of Six Cases Michael E. Ivan MD, MBS; Christopher Banerjee; Brian Michael Snelling MD; Mike H Berger; Nicholas Ferraro MD; Amanda Wallo; Ricardo Jorge Komotar MD, FAANS University of Miami, Department of Neurological Surgery



#### Introduction

Magnetic resonance-guided laser-induced thermotherapy (MR-LITT) is a minimally invasive technique that shows promise in neuro-oncology due to its superiority in delivering precise minimally invasive thermal energy with minimal collateral damage. In this analysis we investigate initial data on MR-LITT's effect on glioblastoma (GBM).

# Results

6 LITT treatments were performed on 6 patients with the average age of 57.5years. The average tumor volume was 6.9cm3 and ablation dosage was 12.7Watts. On average, 83.8% of the pretreatment lesion volume was ablated. The mean follow-up time was 33.5 weeks. The median overall survival was 42.6 weeks and the median progression free survival was 28.3 weeks. There is a trend towards improved survival with an ablation >86% however further follow-up is needed to confirm these results. There were no major perioperative complications.

# Conclusions

MR-LITT is a promising technology for glioblastoma treatment. This study demonstrates that MR-LITT is safe and offers a reasonable alternative therapy for patients who are not open surgical andidates. Randomized studies are needed to evaluate its role as a treatment adjunct.



#### Learning Objectives

UNIVERSITY OF MIAMI

MILLER SCHOOL OF MEDICINE

BRAIN TUMOR INITIATIVE

Understand the safety and preliminary efficacy of LITT in recurrent GBM patients.

### Methods

6 patients were identified with recurrent GBM with clear evidence of radiological progression. All patients received MR-LITT and then a follow-up MRI scan at 24 hours post treatment, at one month, and at each subsequent follow up visit. The primary end point of the study was local control of the ablated tumor and overall survival. Secondary endpoints included symptom free survival.



